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Qo‘qon davlat universiteti dotsenti

FARG‘ONA VILOYATI SANOATINING ASOSIY KO‘RSATKICHLARI VA TARKIBI

Annotatsiya. *Maqola Farg’ona viloyati sanoatining 2023 yillardagi asosiy ko‘rsatkichlari va hududiy tarkibidagi o‘zgarishlarni tahlil qilishga bag‘ishlangan. Bunda Farg‘ona viloyatining respublika sanoatida tutgan o‘rni, asosiy sanoat mahsulotlari ishlab chiqarish hajmi va hududiy tarkibi iqtisodiy geografik jihatdan tahlil qilingan. Tadqiqot so‘nggida mavzu yuzasidan xulosa va tavsiyalar berilgan.*
Kalit so‘zlar: *sanoat, viloyat, tarmoq tarkibi, sanoat mahsulotlari ishlab chiqarish hajmi, hududiy tarkib, tuman.*

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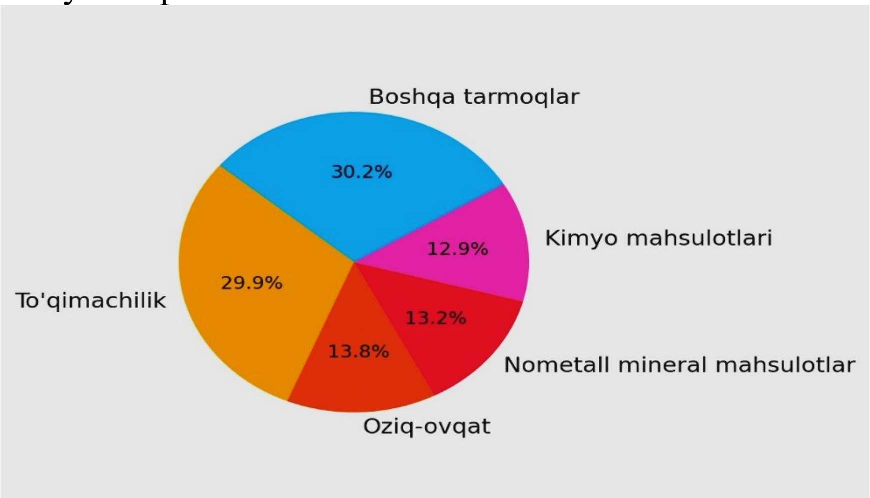
MAIN INDICATORS AND COMPOSITION OF THE INDUSTRY OF FERGANA REGION

Annotation. *The article is devoted to the analysis of the main indicators and changes in the territorial structure of the industry of the Fergana region in 2023. In this, the place of the Fergana region in the republic's industry, the volume of production of the main industrial products and the territorial structure were analyzed from an economic and geographical perspective. At the end of the study, conclusions and recommendations on the topic are given.*
Keywords: *industry, region, sectoral structure, volume of production of industrial products, territorial structure, district.*

Kirish. Keyingi yillarda O‘zbekistonda sanoatni rivojlantirishga bo‘lgan e’tibor yanada kuchaymoqda. Jumladan, O‘zbekiston Respublikasi Prezidenti Sh.M. Mirziyoyevning 2024 yil, 7 avgustdagi “Sanoat sohasida nufuzli xalqaro brendlar bilan hamkorlikni rivojlantirish va milliy brendlarni qo‘llab-quvvatlash chora-tadbirlari to‘g‘risida”gi 286- sonli Qarori qabul qilingan. Unda “…O‘zbekiston Respublikasiga sanoat sohasidagi nufuzli xalqaro brendlarni jalb qilish bo‘yicha yangicha yondashuvlarni joriy qilish, xalqaro brendlar ostida sanoat mahsulotlari ishlab chiqarish hajmini kengaytirish, ichki va tashqi bozorlarda raqobatbardosh milliy brendlarni yaratishni yanada rag‘batlantirish hamda bu borada tadbirkorlik subyektlarini qo‘llab-quvvatlash” maqsadi belgilangan [1]. Bundan ko‘rinadiki, O‘zbekiston iqtisodiy geografiyasida sanoat tarmoqlarining rivojlanishi va hududiy tarkibidagi o‘zgarishlarni Farg‘ona viloyati sanoati misolida geografik o‘rganish orqali ulardagi muammolarni aniqlash, ilmiy xulosalar ishlab chiqish dolzarb sanaladi.

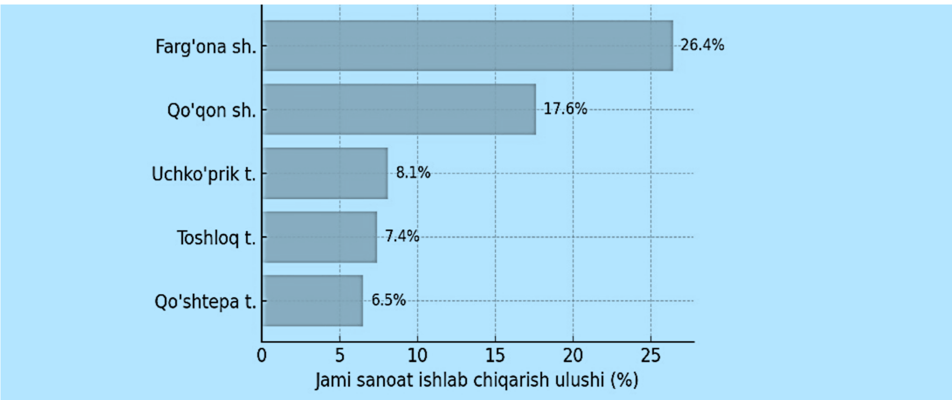
Asosiy qism. 2023-yil davomida Farg‘ona viloyati sanoat korxonalari tomonidan qariyb 32 trln so‘mlik mahsulotlar ishlab chiqarildi (2022-yilga nisbatan o‘sish 3–4% atrofida). Sanoat ishlab chiqarishining ichki tarkibida ishlab chiqaruvchi sanoat (qayta ishlash sanoati) ulushi 92 –93%ga teng bo‘lib, tog‘-kon qazib olish ulushi atigi 0,6%, elektr-issiklik ta’minoti ulushi 5–6% ni tashkil etdi. Qayta ishlash sanoati ichida yetakchi tarmoqlar – to‘qimachilik sanoati (taxminan 30%), oziq-ovqat sanoati (14%), qurilish materiallari (nometall mineral mahsulotlar) (13%) hamda kimyo sanoati (13% ga yaqin) hissasiga to‘g‘ri kelmoqda. Quyidagi diagrammada viloyat ishlab chiqaruvchi sanoati tarkibidagi eng yirik to‘rtta tarmoq va boshqa sohalarning ulushi ko‘rsatilgan.

1-rasmda keltirilgan ma’lumotlar asosida viloyatda eng yuqori ulushli tarmoq to‘qimachilik (30 %) sanoati hisoblanadi. Keyingi o’rinni oziq-ovqat (14 %), qurilish materiallari – asosan sement, ohak, g‘isht kabi nometall mahsulotlar (13%)ni va kimyo sanoatining ulushi (13%)ni, qolgan barcha tarmoqlar (“boshqa”) ulushi 30 foizdan ziyodroqni tashkil etadi.



1-rasm. Far‘ona viloyati ishlab chiqaruvchi sanoat tarkibi (01.01.2023 y. holatiga, foiz hisobida)

Viloyat sanoat ishlab chiqarishi hududlar bo‘yicha notekis taqsimlangan. Asosiy ishlab chiqarish quvvatlari yirik shaharlarda jamlangan bo‘lib, Farg‘ona shahri viloyat sanoat mahsulotining salkam to‘rtdan bir qismini (26,4%) bermoqda, Qo‘qon shahri hissasi qariyb 17,6%ni tashkil etadi. Yirik sanoat korxonalari joylashgan ba’zi tumanlar ham sanoatda katta ulushga ega – masalan, Uchko‘prik tumani (8,1%), Toshloq tumani (7,4%) va Qo‘shtepa tumani (6,5%) ulushlari yuqori. Quyidagi 2- rasmda viloyat sanoatida eng yuqori ulushga ega hududlar tasvirlangan. Farg‘ona viloyati sanoat ishlab chiqarishidagi eng yuqori ulushga ega hududlarga birinchi navbatda Farg‘ona va Qo‘qon shaharlari kiradi. Mazkur shaharlar sanoat markazlari bo‘lib, ular umumiy ishlab chiqarishning qariyb 44% ini beradi.



2-rasm. Farg‘ona viloyati sanoat ishlab chiqarishda eng yuqori ulushga ega hududlar (01.01.2023 y., foiz hisobida).

Uchko‘prik, Toshloq, Qo‘shtepa kabi sanoatlashgan tumanlar esa keyingi o‘rinlarda turadi.

Keyingi yillarda viloyatda sanoat korxonalari soni ham keskin oshib bormoqda. Masalan, 2023-yil 1 yanvar holatiga viloyatda 12 597 ta sanoat korxona ro‘yxatdan o‘tgan bo‘lib, ulardan 7 949 tasi (63%) faol ishlab turibdi. Bu ko‘rsatkich 2000-yillar boshiga nisbatan bir necha barobar ko‘pdir va bu tadbirkorlik muhitining jonlangani va kichik biznesning sanoatga keng kirib kelganini ko‘rsatadi.

Xulosa. So‘nggi yillardagi iqtisodiy islohotlar va investitsiya loyihalari Farg‘ona viloyati sanoatini yangi bosqichga olib chiqdi. Sanoatning tarmoqlararo tarkibi muvozanatlashib, ilgari faqat xomashyo yetkazib beruvchi bo‘lgan hudud endilikda yuqori qo‘shilgan qiymatga ega tayyor mahsulotlar ishlab chiqaradigan markazga aylanishi yo‘lida jadal rivojlanmoqda.

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FARG‘ONA VILOYATIDA SANOATNI HUDUDIY JOYLASHUVINING NAZARIY ASOSLARI

Annotatsiya. *Maqolada sanoatni hududiy joylashtirishning nazariy masalalari Farg’ona viloyati misolida yoritilgan. Unda sanoatini hududiy joylashtirish bo‘yicha xorijiy, MDH va O‘zbekistonlik olimlarning olib borgan tadqiqotlari yoritilgan. Tadqiqot so‘nggida ilmiy xulosalar ishlab chiqilgan.*
Kalit so‘zlar: *sanoat, joylashuv nazariyalari, Farg’ona viloyati, sanoat shtandorti, o‘sish qutblari*

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THE ORETICAL BASIS OF TERRITORIAL LOCATION OF INDUSTRY IN FERGANA REGION

Annotation. *The article discusses the theoretical issues of territorial location of industry using the example of Fergana region. It covers the research conducted by foreign, CIS and Uzbek scientists on the territorial location of industry. At the end of the study, scientific conclusions were developed.*
Keywords: *industry, location theories, Fergana region, industrial standard, growth poles*

Kirish. Farg'ona viloyati O‘zbekistonning iqtisodiy jihatdan rivojlangan hududlaridan biri bo‘lib, uning sanoat tarkibi va geografik joylashuvi mamlakat iqtisodiyoti uchun muhim ahamiyat kasb etadi. Hududda sanoat tarmoqlarining joylashuvi turli nazariy yondashuvlar orqali tahlil qilinadi. Ushbu tadqiqotda Farg‘ona viloyatining sanoatni hududiy joylashtirish bo‘yicha nazariy asoslari o‘rganilib, bu borada bir nechta klassik va zamonaviy nazariyalar mavjud.

Asosiy qism. Sanoatni hududiy joylashtirish masalalari ko‘plab olimlar shug’ullanganlar. Jumladan, **Alfred Veberning sanoat joylashuvi nazariyasi**: Ushbu nazariyaga ko‘ra, ishlab chiqarish korxonalari xom ashyo manbalariga, mehnat resurslariga va bozor talabiga mos ravishda joylashtirilishi kerak. Farg‘ona viloyatida neftni qayta ishlash, yengil sanoat va kimyo sanoati xom ashyo va mehnat resurslariga asoslanib joylashgan.

Neftni qayta ishlash sanoati: Farg‘ona neftni qayta ishlash zavodi (FNQIZ) viloyatning eng yirik sanoat korxonalaridan biri hisoblanadi. Zavod neft mahsulotlarini ishlab chiqarish va qayta ishlash bilan shug‘ullanadi. FNQIZ transport yo‘llariga yaqin joylashgan bo‘lib, bu mahsulotlarni ichki va tashqi bozorga yetkazib berishni osonlashtiradi.

Yengil sanoat: Marg‘ilon va Qo‘qon shaharlarida yengil sanoat yaxshi rivojlangan. Ayniqsa, paxta tozalash va to‘qimachilik korxonalari viloyatda keng tarqalgan. Ushbu sanoat tarmog‘i asosan qishloq xo‘jaligi mahsulotlariga, ya’ni paxtaga asoslanadi. Ishlab chiqarish jarayonida mahalliy mehnat resurslari faol jalb qilinadi, bu esa ish o‘rinlarini yaratish va hudud iqtisodiyotini mustahkamlashga xizmat qiladi.

Kimyo sanoati: Farg‘ona viloyatida kimyo sanoati xom ashyo bazasiga mos ravishda joylashtirilgan. Kimyo zavodlari neft va gaz sanoati mahsulotlarini qayta ishlash bilan shug‘ullanadi. Bundan tashqari, bu tarmoq uchun zarur bo‘lgan minerallar va tabiiy gaz resurslari mavjudligi sanoatning rivojlanishiga ijobiy ta’sir ko‘rsatadi.

Sanoat korxonalarini joylashtirishda V. Kristallerning markaziy joylashuv nazariyasi ham alohida ahamiyat kasb etadi. Ushbu nazariyada iqtisodiy hududlarning markazlari va periferik hududlari bo‘yicha sanoatning joylashuvi tushuntiriladi. Farg'ona viloyatida Farg'ona shahri asosiy sanoat markazi sifatida ajralib turadi.

Farg‘ona shahri sanoat markazi sifatida *birinchi navbatda*, viloyatning **asosiy sanoat markazi** bo‘lib, bu yerda yirik sanoat korxonalari joylashgan. Shaharning rivojlanishi transport infratuzilmasining yuqori darajada ekanligi, malakali mehnat resurslarining mavjudligi va sanoatning diversifikatsiyalashuvi bilan bog‘liq. *Ikkinchidan*, shahar **qo‘shni hududlar bilan integratsiyalashgan hudud hisoblanadi.** Shahar Qo‘qon, Marg‘ilon va Andijon kabi yirik sanoat markazlari bilan uzviy bog‘langan. Ushbu shaharlar o‘zaro ishlab chiqarish va logistika jihatidan hamkorlik qilgan holda faoliyat yuritadi. *Uchinchidan* esa, **transport va logistika ustunligi bo’yicha ham shahar o‘ziga xos** bo‘lib, shaharning temir yo‘l va avtomobil transporti bo‘yicha rivojlanganligi bu hududga sanoat korxonalarining joylashishini rag‘batlantiradi.

Sanoat korxonalarini joylashtirishda **F. Perruning o‘sish qutblari nazariyasi ham alohida ahamiyat kasb etadi.** Bu nazariyaga ko‘ra, rivojlangan sanoat markazlari atrofida iqtisodiy o‘sish yuzaga keladi. Sanoatni hududiy tashkil etish bo‘yicha katta salmog‘ga ega fikr va g‘oyalar bergan olimlardan biri fransiyalik olim Fransua Perrudir. U XX-asrning 50 yillarida “O‘sish qutublari” nazariyasiga asoslangan asar yozadi [2, 4, 6]. Borliqda iqtisodiy makon yuzaga kelishi o‘ziga xos kuch tufayli bo‘ladi va uning namoyon bo‘lishi turlichadir. Uning intensivligi bir maromda ketmaydi, unga markazlashgan va markazdan qochuvchi kuchlar ham ta’sir qilishini ta’kidlaydi. Bu nazariya, birinchi navbatda iqtisodiyotda yangi tovar va xizmatlarni yaratadigan yetakchi tarmoqlarning yetakchi roli g‘oyasiga asoslanganligi bilan ahamiyatlidir. Iqtisodiy makonning yetakchi tarmoqlar joylashgan markazlari va sohalari ishlab chiqarish omillari uchun jozibador qutblarga aylanadi, chunki ular eng samarali foydalanishni ta’minlaydi va bu korxonalarning konsentratsiyaga va iqtisodiy o‘sish qutblarining shakllanishiga olib keladi1. F. Perru sanoat tarmoqlarining o‘zigagina xos bo‘lgan xususiyatlari va rivojlanish bosqichlariga qarab ularni uch guruhga ajratdi:

- birinchi guruhga eski sanoat tarmoqlaridan ko‘mir, to‘qimachilik, kemasozlik;
- ikkinchi guruhga tayyor iste’mol tovarlari ishlab chiqaruvchi tarmoqlar;
- uchinchi guruhga esa, rivojlanishning zanjirli reaksiyasini keltirib chiqaradigan tarmoqlar-kimyo, mashinasozlik, elektr energetika va shu kabilarni kiritdi.

F. Perruning fikricha, mazkur iqtisodiyot tarmoqlari o‘sish qutblarini yuzaga keltiradi va o‘z o‘rnida biri-birini to‘ldiradi hamda mazkur sanoat tarmoqlarini “sanoat majmuasi” deb ataydi [60]. Farg‘ona viloyatidagi Qo‘qon, Marg‘ilon va Farg‘ona shaharlari sanoat qutblari sifatida namoyon bo‘ladi. Jumladan:

Qo‘qon shahri. Qo‘qon yirik sanoat markazi bo‘lib, bu yerda mashinasozlik, qishloq xo‘jaligi texnikasi va kimyo sanoati kabi tarmoqlar ustun darajada taraqqiy etgan. Shaharning sanoat infratuzilmasi ham yaxshi rivojlangan bo‘lib, logistika imkoniyatlari yuqori deyish mumkin.

Marg‘ilon shahri. Marg‘ilon to‘qimachilik sanoati bilan mashhur bo‘lib, ipak ishlab chiqarish bo‘yicha yetakchi hudud hisoblanadi. Hududda ishlab chiqarish jarayoni asosan mahalliy resurslarga tayanadi.

Farg‘ona shahri. Sanoatning muhim markazlaridan biri bo‘lib, bu yerda yirik neftni qayta ishlash va kimyo sanoati korxonalari mavjud. Hudud sanoat qutblaridan biri sifatida viloyatning iqtisodiy taraqqiyotiga katta hissa qo‘shib kelmoqda.

Sanoat tarmoqlarini hududiy tashkil etishda yana bir iqtisodchi olim M. Porterning hissasi katta, olim sanoat tarmoqlarini “klaster” usulida joylashtirish haqida fikr yuritadi va klasterga “ma’lum bir hududda faoliyat ko‘rsatadigan, geografik jihatdan o‘zaro bog‘liq bo‘lgan, umumiy faoliyat turi bilan ajralib turadigan va bir-birini to‘ldirib turadigan korxonalar hamda ularga tegishli tashkilotlar guruhi” deya ta’rif berdi [2, 3, 4, 5, 6, 7, 8, 9, 10]. Olim yuzdan ortiq sanoat tarmoqlarini o‘ziga xos xususiyatlarini o‘rgandi, va ishlab chiqarish kuchlarini joylashtirishda bugungi kun talabiga javob bera oladigan fikrlarni berib o‘tdi. Sanoatni hududiy tashkil etish bo‘yicha katta salmog‘ga ega fikr va g‘oyalar bergan olimlardan biri fransiyalik olim Fransua Perrudir. U XX-asrning 50 yillarida “O‘sish qutublari” nazariyasiga asoslangan asar yozadi [54,60]. Borliqda iqtisodiy makon yuzaga kelishi o‘ziga xos kuch tufayli bo‘ladi va uning namoyon bo‘lishi turlichadir. Uning intensivligi bir maromda ketmaydi, unga markazlashgan va markazdan qochuvchi kuchlar ham ta’sir qilishini ta’kidlaydi. Bu nazariya, birinchi navbatda iqtisodiyotda yangi tovar va xizmatlarni yaratadigan yetakchi tarmoqlarning yetakchi roli g‘oyasiga asoslanganligi bilan ahamiyatlidir. Iqtisodiy makonning yetakchi tarmoqlar joylashgan markazlari va sohalari ishlab chiqarish omillari uchun jozibador qutblarga aylanadi, chunki ular eng samarali foydalanishni ta’minlaydi va bu korxonalarning konsentratsiyaga va iqtisodiy o‘sish qutblarining shakllanishiga olib keladi1. F. Perru sanoat tarmoqlarining o‘zigagina xos bo‘lgan xususiyatlari va rivojlanish bosqichlariga qarab ularni uch guruhga ajratdi:

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- ikkinchi guruhga tayyor isteʼmol tovarlari ishlab chiqaruvchi tarmoqlar;

- uchinchi guruhga esa, rivojlanishning zanjirli reaksiyasini keltirib chiqaradigan tarmoqlar-kimyo, mashinasozlik, elektr energetika va shu kabilarni kiritdi. F. Perruning fikricha, mazkur iqtisodiyot tarmoqlari oʻsish qutblarini yuzaga keltiradi va oʻz oʻrnida biri-birini toʻldiradi hamda mazkur sanoat tarmoqlarini “sanoat majmuasi” deb ataydi[60].

Ishlab chiqarish kuchlarini hududiy joylashtirish masalasi Rossiyalik olimlar tomonidan, ishlab chiqarish kuchlari va alohida ahamiyatga tarmoqlarning tarqalishi bilan bogʻliq masalalarni oʻrganishga qaratilgan edi. Rus olimlari hududiy ishlab chiqarish majmualari (HIChM), hududiy ishlab chiqarish tizimlari hamda hududiy majmualari (N.N. Kolosovskiy, Yu.G. Saushkin, I.M. Maergoyz, M.K. Bandman, A.G. Granberg, A.T. Xrushev, I.V. Plipenko, Sharigin va boshqalar) terminlarini fanga olib kirdi va oʻrgandilar [2, 3, 4]. Ishlab chiqarish kuchlarini hududiy joylashtirish va tashkil etish nazariyasining asosiy oʻzak tushunchasi bu, hududiy ishlab chiqarish majmuasidir (HIChM). HIChM 1920-1930-yillarda Rossiya hududini elektrlashtirish davlat rejasi doirasida shakllantirildi va ishlab chiqarishga joriy qilinishida N.N. Kolosovskiy asosiy rol oʻynadi [8, 9, 12]. Urushdan keyin sobiq Ittifoq hududlarini rayonlashtirish bilan jiddiy shugʻullanib, har bir iqtisodiy hududni ishlab chiqarish tuzilishini (sikllar va ularning xom-ashyolari va energiya bazalari kombinatsiyasi bilan) tashkil etadigan energiya ishlab chiqarish sikllari nazariyasini ishlab chiqdi [3, 5]. Biroq, yuqoridagi rus olimlarining nazariy qarashlari amaliyotda oʻz aksini koʻp ham topmadi. Bunga sabab sobiq Ittifoqda bozor tamoyillari ishlamas va uning oʻrnida rejali tizim mavjud edi.

Klaster gʻoyasini amerikalik olim M. Porter ilgari surdi [2, 3, 4, 6, 8]. Mohiyatan klaster tushunchasi HIChM, energiya ishlab chiqarish siklli gʻoyalariga oʻxshab ketadi, klaster hududda barcha korxonalar va tashkilotlarning maʼlum bir sohada birlashib natijalarga erishishi, uning raqobatbordoshligini oshirish maqsadida mujassamlashuvi, birgalikda harakat qilishi demakdir.

Respublikamizda ham sanoatni hududiy tashkil etish va rivojlantirishga doir masalalari S.K. Ziyodullayev, Z.M. Akromov, N.S. Sultonov, A.S. Soliyev, A.A. Qayumov, O. Abdullayevlarning ilmiy asarlarida chuqur oʻrganildi. Bu olimlar tomonidan olib borilgan tadqiqotlarning aksariyati rejali iqtisodiyot mavjud boʻlgan davrga toʻgʻri kelganligini aytib oʻtish lozim. Yuqoridagi fikrning isboti sifatida, Oʻzbekiston Fanlar akademiyasiga qarashli sobiq ishlab chiqarish kuchlarini oʻrganish kengashida (SOPS), oʻtgan asrning oʻrtalarida ilmiy tadqiqotlar natijasida rayonlarning kompleks muammolari tushunchasi yaratilgan edi. Bu oʻzining geografik oʻrni va maʼmuriy-hududiy tuzilishiga koʻra betakror boʻlgan Fargʻona vodiysi uchun ham ayniqsa ahamiyatli edi [6, 7, 9]. Taniqli olim N.N. Sultonov oʻz ilmiy izlanishida sanoatni hududiy tashkil etish “...sezilarli oʻzaro barqaror aloqalar va ishlab chiqarishning bir meʼyordaligi, transport xarajatlarini qisqartirish, resurs salohiyatidan oqilona foydalanish orqali tarmoqlar va ishlab chiqarish turlarining muayyan hududda tashkil etilishini tushunmoq kerak” degan fikrlarni aytib o‘tadi. Sanoatni tarmoqlarini hududiy tashkil etish va rivojlantirishda mustaqillikdan so‘ng S. Xaydarovning olib borgan tadqiqot ishlari salmoqli bo‘ldi. Ilmiy tadqiqot mazmuni, O‘zbekistonda sanoat tugunlarining shakllanishi va rivojlanishini Farg‘ona iqtisodiy rayoni misolida ochib berishga harakat qildi. Olim, o‘z ishlarida sanoat tugunlarining shakllanish va rivojlanish chegaralarini mintaqaning aholisi zich joylashgan Farg‘ona vodiysi sharoitida aniqladi. Bozor munosabatlariga o‘tish davri o‘zining kutilmagan natijalar keltirishi bilan hudud iqtisodiyotini tahlikaga soladi. Ayni shu davrda, D.R. Ro‘zmetov O‘zbekiston to‘qimachilik sanoatining rivojlanishi va hududiy tarkibini takomillashtirishni o‘z ilmiy ishida yoritib berdi. Olim to‘qimachilik sanoatining jahon tajribasi va O‘zbekistonda rivojlanish xususiyatlari, tarmoqlar va hududiy tarkibi, ixtisoslashuv darajasini tadqiq etgan [12]. Sh.S. Jo‘rayev esa, O‘zbekiston sanoati rivojlanishining hududiy xususiyatlari mavzusida ilmiy izlanish olib bordi. Tadqiqot yo‘nalishi respublika iqtisodiyotini diversifikatsiya qilish sharoitida sanoatning tarmoqlar va hududiy tuzilmasidagi o‘zgarishlarni tahlil qildi. Olim tomonidan respublika sanoat tarmoqlarini hududiy tashkil etish va sanoatning rivojlanishiga ta’sir etuvchi mahalliy omillardan iqtisodiy resurs salohiyatini hisobga olish orqali, mamlakat sanoatini hududiy tarkibini takomillashtirishni asoslagan [3, 4]. X.O. Abdinazarova kimyo sanoatini rivojlantirish va hududiy tarkibini takomillashtirish yuzasidan ilmiy tadqiqot ishi olib borgan. Tadqiqotda Farg‘ona vodiysi kimyo sanoatini joylashtirish va takomillashtirish yuzasidan taklif va tavsiyalar bergan. Tadqiqotchi ishning ahamiyati, kimyo sanoati turli tarmoqlari korxonalarini joylashtirish omillarining (xom ashyo, yoqilg‘i-energetika, mehnat resurslari, iste’mol, texnologik, ekologik) ta’sir darajasi, Farg‘ona iqtisodiy rayonining tabiiy-iqtisodiy xususiyatlarini hisobga olgan holda aniqlashtirilganligidir [11, 12]. Sanoatni hududiy tashkil etish va takomillashtirish yuzasidan olib borilgan ilmiy tadqiqot ishlaridan yana biri A.G. Abdullaevga tegishli. Tadqiqotchi tomonidan “Oziq-ovqat sanoati rivojlanishi va joylanishining iqtisodiy geografik jihatlari” mavzusida ilmiy izlanish olib borgan. Izlanishning o‘ziga xos jihati, iqtisodiyotni modernizasiyalash davrida oziq-ovqat sanoatini rivojlantirish, hududiy tarkibini takomillashtirish, eksport salohiyatini oshirish bo‘yicha ilmiy-amaliy taklif va tavsiyalar ishlab chiqilgan [12].

Xulosa. Umuman olganda sanoat tarmoqlarini hududiy joylashtirishning ko‘plab nazariyalari ishlab chiqilgan. Ular orasida xorijiy, MDH va O‘zbekistonlik olimlarni olib borgan tadqiqotlari katta ilmiy-nazariy ahamiyat kasb etadi.

Foydalanilgan adabiyotlar:

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BIOLOGIYA DARSLARIDA INNOVATSION TA'LIM METODLARIDAN FOYDALANISHNING AHAMIYATI

Annotatsiya. *Hozirgi zamon o'quvchilarining e'tiborini bir yo'nalishda ushlab turish qiyin, chunki ijtimoiy tarmoqlar, jamiyat, zamon taraqqiyoti ta'sir ko'rsatmoqda. O'qitishning innovatsion usullari o'quvchilarni erkin fikrlashga, o'quvchi faolligini oshirishga, biologik atamalarni tezda eslab qolishga undaydi. Innovatsion usulning samaradorligini tekshirish uchun biz uni an'anaviy usul bilan solishtirdik. Biz innovatsion usullarning modellashtirish, loyihalash, video darslar kabi usullardan foydalandik.*

Kalit so'zlar*: biologiya, innovatsiya, innovatsion texnologiya, interfaol ta'lim, interaktiv metod, loyihalash, modellashtirish.*

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THE IMPORTANCE OF USING INNOVATIVE TEACHING METHODS IN BIOLOGY LESSONS

Annotation. *It is difficult to keep the attention of modern readers in one direction, because social networks, society, and the progress of time have an impact. Innovative teaching methods encourage students to think more freely, increase student activity, and memorize biological terms faster. To test the effectiveness of the innovative method, we compared it with the traditional method. We used innovative methods such as modeling, design, and video tutorials.*

Keywords*: biology, innovation, innovative technologies, interactive learning, interactive method, design, modeling.*

Ta'lim tizimini tashkil etishning samarali mexanizmlarini joriy etish o'sib kelayotgan yosh avlodni ma'naviy-axloqiy va intellektual rivojlantirishni sifat jihatdan yangi darajaga ko'tarishning eng muhim sharti hisoblanadi, shuningdek, o'quv-tarbiya jarayonida ta'limning innovatsion shakllari va usullarini qo'llashga ko'maklashadi. Mamlakatimizda ayni paytda vujudga kelgan shart-sharoitlar ta'limning shakli, mazmuni va uni amalga oshirish mexanizmlarini qayta ko'rib chiqish va bu jarayonga tegishli o'zgartirishlar kiritishni taqozo etmoqda [Koirala, 2024: 1430]. Hozirgi kun zamonaviy ta'limining rivojlanishi yangi yo'nalish - innovatsion faoliyatni taqozo etmoqda. «Innovatsion pedagogika» termini va unga xos bo'lgan tadqiqotlar XX asrning 60-yillarida

G‘arbiy Yevropa va AQShda paydo bo‘lgan. Dastlab innovatsion faoliyat F.N.Gonobolin, S.M.Godnin, V.I.Zagvyazinskiy, V.A.KanKalik, N.V.Kuzmina, V.A.Slatenin, A.I.Sherbakov ishlarida tadqiq etilgan. Bu tadqiqotlarda innovatsion faoliyat amaliyoti va ilg‘or pedagogik tajribalarni keng yoyish nuqtai nazaridan yoritilgan [4]. X.Barnet, Dj.Basset, D.Gamilton, N.Gross, M.Mayez, A.Xeyvlok, D.Chen, R.Edem ishlarida innovatsion rivojlanishlarni boshqarish, ta’limdagi o‘zgarishlarni tashkil etish, innovatsiyaning «hayoti» va «faoliyati» uchun zarur bo‘lgan shart – sharoitlar masalalari tahlil qilingan [3].

Biologiya fani tizimida ham innovatsion texnologiyalardan foydalanib mashg‘ulotlarni tashkil etish dolzarb masala bo‘lib, darslarni qiziqarli o‘tishi uchun juda qulay. Chunki ta’lim texnologiyalarining asosiy maqsadi o‘quv jarayonini faollashtirish, talabalar tomonidan o‘quv materialini o‘zlashtirishning yuqori darajasiga erishish va ularni mustaqil fikrlashga hamda o‘z fikrini bayon etishga o‘rgatishdir. Tabiiy fanlar tizimida ta’lim texnologiyalarini qo‘llashning

muhim talablardan biri ortiqcha ruhiy va jismoniy kuch sarf etmay, qisqa vaqt ichida yuksak natijalarga erishishdir. Biologiya darslarida o‘quvchilar nazariy jihatdan cheklanmasligi kerak. Innovatsion metodlar o‘quvchilarga mavzuni chuqurroq o‘zlashtirishga, nazariy bilimlarni tajriba orqali mustahkamlashga, ulardan amaliy hayotda foydalanishga va biologiya faniga qiziqishni oshirishga yordam beradi [1].

Toshkent viloyati Chirchiq shahrida joylashga 13-sonli umumta’lim maktabining 7-sinf o‘quvchilari tadqiqot ishtirokchilari sifatida jalb etildi. O‘quvchilar nazorat va tajriba guruhlaga ajratildi. 7A-sinf o‘quvchilari nazorat 7B va 7G o‘quvchilari esa tajriba. Guruhlarga “Umurtqalilarning qon aylanish sistemasini modellashtirish va taqqoslash” “Odam va hayvonlarning ayirishi” “Umurtqalilarning tayanch-harakat organlari” kabi mavzular o‘tildi. Nazorat guruhiga mavzular an’anaviy usulda tajriba guruhlarga esa innovatsion usullarning quyidagi turlaridan foydalangan holda mavzular o‘tildi.

Modellashtirish-bu real hayotdagi hodisa, tizim yoki jarayonni soddalashtirib, tushunarli shaklda ifodalash jarayonidir. Bu model orqali murakkab tizimlarni o‘rganish, bashorat qilish yoki nazorat qilish osonlashadi. Modellashtirish-bu haqiqiy voqeani yoki tizimni "nusxa" qilib yaratish. Bu nusxa matematik tenglama, grafik, kompyuter dasturi yoki hatto oddiy rasm ko‘rinishida bo‘lishi mumkin. Bu usul o‘quvchilarda murakkab tushunchalarni oson tushunishda, amaliy fikrlar rivojlanishida, analitik va tanqidiy fikrlar rivojlanishida, texnologik ko‘nikmalar shakllanishida katta ahamiyat kasb etadi.

Loyihalash-bu biror narsa yaratish, qurish yoki tashkil qilish uchun reja tuzish jarayoni hisoblanadi. Biologiyada loyiha yaratish-bu tajriba biologik tizim yoki modellashtirish loyihasi bo‘lishi mumkin. Masalan “Buyrak faoliytini modellashtirish loyihasi”, “Ekotizmda oziq zanjirining grafik modeli” kabi. Loyihalash o‘quvchilarning erkin fikrlashini rivojlantiradi, muammolarni hal qilish ko‘nikmasini shakllantiradi, amaliy bilimlar beradi, texnologik savodxonlikni oshiradi.

Video dars - bu bilimni video formatida tushuntirish usuli bo‘lib, unda matn rasm tovush va harakatli tasvirlar orqali ma’lumot beriladi. Bu an’anaviy darslarning zamonaviy va ko‘rgazmali shakli hisoblanadi.

An’anaviy usul-bu asosan ma’ruzalarga asoslangan holda olib boriladi. Bu usuldan ta’lim muassasalarida kop yillardan buyon foydalanilmoqda.

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GLOBALLASHUV JARAYONIDA TA'LIM-TARBIYA SOHASIDAGI DOLZARB MASALALAR HAMDA YECHIMLARI

Annotatsiya: *Maqolada globallashuv jarayonining ta'lim tizimiga ta'siri, bugungi kunda oliy ta'lim tizimiga qo'yilayotgan zamonaviy talablar, globallashuv davrida ma'naviy qadriyatlarni saqlab qolish masalalari va uning tarixiy ahamiyati ochib berilgan. Globallashuv davrida barcha fuqarolarda shakllantirish zarur bo'lgan umuminsoniy qadriyatlar hamda tarbiyaviy masalalar ko'rib chiqiladi.*

Kalit so'zlar: *globallashuv jarayoni, ta'lim tizimi, global fuqaro, odob-ahloq, ma'naviyat, qadriyat, tarbiya, oliy ta'lim.*

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CURRENT ISSUES AND SOLUTIONS IN THE FIELD OF EDUCATION IN THE PROCESS OF GLOBALIZATION

The summary: *The article reveals the impact of the globalization process on the education system, the modern demands placed on the higher education system today, the preservation of moral values in the era of globalization, and its historical significance. In the era of globalization, universal human values and educational issues that need to be formed in all citizens are considered.*

Key words: *globalization process, education system, global citizen, ethics, spirituality, value, education, higher education.*

Bugungi kunda ta'lim tizimi va uning ajralmas atributi bo'lgan fan ham globallashuvda muhim o'rin egallab bormoqda. Oliy ta'lim global tarmoqning bir qismiga aylanib qolishi o'z navbatida o'zining territoriyasida faoliyat yuritadigan va markaziy o'rinni tashkil etadigan an'anaviy universitetlarning rivojlanishi bilan bog'liqdir.

An'anaviy ta'lim va an'anaviy oliy o'quv yurtlari bugungi dunyodagi mavjud qashshoqlik va boylik, ekologik muammolar, xalqaro jinoyatchilik, kishilarning bir-biridan begonalashuvi kabi global muammolarni yakka o'zi hal qila olmaydi. “E.Giddensning fikricha, Xitoyda ta'lim darajasini zamon talablariga yetkazish uchun, ellik yil yalpi ishlab chiqarishning 2%ini sarflash lozim ekan, bu xisob yalpi ishlab chiqarishning o'sishi har yil o'rta xisobda 10% dan oshib borayotgan mamlakat haqida boryapti. Bu xisob esa bugungi rivojlangan mamlakatlar simsiz axborot tizimini o'rnatish orqaligina jahon ta'lim tizimini rivojlantirish mumkinligini isbotlaydi.”[1.21]

Globallashuv tufayli insoniyat faoliyatida, uning turmush tarzida va avvallari turli-tuman bo'lgan uning madaniyatida yangi, jahon standartlari paydo bo'ldi.

“Zamonaviy insoniyat millatidan qat’iy nazar bolaligidan bir hil o‘quvchilar televizion dasturlarini, o‘smirlik va yoshlik davrida bir hil musiqiy kliplarni, o‘rta yoshda esa bir hil seriallarni tomosha qiladi. Odamlar bir hil yangiliklarni o‘xshash sharxlar bilan tinglaydilar, kiyim-kechakda bir hil urfga amal qilib kiyinadilar, bir hil fast-fudlar bilan ovqatlanadilar, bir hil tilda gapirishga xarakat qiladilar, bir hil jixozlangan ofislarda ishlaydilar. Buning oqibatida yangi turkum “global fuqaro” ya’ni qarashlari, qiziqishlari va maqsadlari bir hil odamlar paydo bo‘lishi mumkin.

Iqtisodiy, texnologik va ilmiy taraqqiyot jamiyat ma’naviy taraqqiyotidan ko‘ra tezlashib ketdi. Internetdan foydalanayotgan “global fuqaro”ning yashashdan maqsadi, zamonaviy avtomobil, yaxshi uy-joy, qimmatbaxo jixozlar va dunyoni sayohat qilishdan iborat. Avvallari bolalikdan inson ongiga singdiriladigan mehr-oqibat, odob-ahloq, yaxshilik, go‘zallik, adabiyot, san’at, diniy ahloq bergan ma’naviy boyliklarni global madaniyat bera oladimi, zamonaviy odam jamiyatdagi ma’naviy talablarga javob bera oladimi? Bugungi oliy ta’lim ma’naviy boyliklarni saqlab qolish va targ‘ib qilishni jamiyat miqyosida ishlab chiqishga xarakat qilishi kerak. Mazkur muammo O’zbekiston Respublikasi birinchi prezidenti tomonidan mustaqillikning dastlabki kunlaridayoq, mamlakatimiz hayoti uchun eng muhim masala sifatida kun tartibiga qo‘yildi. I.Karimovning deyarli barcha asarlarida ma’naviyatni saqlab qolish va rivojlantirish masalalariga to‘xtalib o‘tilgan. Mazkur sohadagi ishlarni boshqarish va amalga oshirish bo‘yicha bir qancha tashkilot va muassasalar tuzildi va ular faoliyat olib bormoqda. “Barchamizga ayon bo‘lishi kerakki, qayerdaki beparvolik va loqaydlik xukm sursa, eng dolzarb masalalar o‘zbo‘larchilikka tashlab qo‘yilsa, o‘sha yerda ma’naviyat eng ojiz va zaif nuqtaga aylanadi. Va aksincha – qayerda hushyorlik va jonkuyarlik, yuksak aql-idrok va tafakkur xukumron bo‘lsa, o‘sha yerda ma’naviyat qudratli kuchga aylanadi.”[3,116]

Bugungi ming yillik talablarining eng muhimlaridan biri, olimlarning fikriga ko‘ra, zamon talablari asosida jamiyatning ma’naviy qiyofasini belgilovchi inson hayotining maqsadi va mazmuni masalasini ishlab chiqish va yaratish lozim. Hozirgi tez o‘zgaruvchan hayotda bu muammoni yagona yechimi barcha xalqlarda mavjud bo‘lgan milliy an’analar va qadriyatlar asosida insonni tarbiyalashdir. Faqat shu orqaligina globallashuv davrida inson mavjudligini saqlab qolish mumkin. Ayni paytda, globallashuv davr, barcha fuqarolarida shakllantirish zarur bo‘lgan, umuminsoniy qadriyatlar ham mavjud bo‘lib bulardan birinchisi rostgo‘ylikdir, aynan rostgo‘ylik o‘zaro aloqaning asosini tashkil etishi lozim. Rostgo‘ylik jamiyatdagi barcha aloqalarni biriktiruvchi asos, poydevor bo‘lib xizmat qilishi zarur. Globallashuv davrida butun yer kurrasi aholisi, ayniqsa qashshoqlikda yashayotgan yoki tabiiy ofat tufayli zarar ko‘rgan xalqlar uchun zarur bo‘lgan, mexr-muruvvat va sahiylikdir.

Globallashuvning raqobat muhitida yashash uchun zarur bo‘lgan ma’naviy fazilat mehnatsevarlikdir. Hozirgi davr ishlab chiqarishidagi raqobatiga birdosh berish uchun murakkab vaziyatlarda, turli qarama-qarshiliklarni yengib o‘tish va o‘zining fikrlarini o‘tkazish uchun katta mashaqqatli mexnat talab qilinadi.

Hoziri davrda biror bir korxonaning rivojlanishi, raqobatbardoshligi va umuman yutuqlariga sabab bo‘luvchi yana bir umuminsoniy fazilat u yerda faoliyat yuritayotgan xodimlarga, do‘stlarga va umuman insonlarga nisbatan adolatli bo‘lishdir. Bu fazilatlar maktabgacha va maktab yoshidagi ta’limdan shakllantirib borilishi shart.

Ko‘pincha, o‘quvchilar tarbiyasining eng faol davri bo‘lgan uch-to‘rt yoshligi ularga e’tiborsizlik bilan o‘tkazib yuboriladi, bunga ota-onalarning boalarni kichik yoshda qanday tarbiyalash zarurligini bilmasligi ham sabab bo‘ladi. “Ko‘p yillik ilmiy kuzatish va tadqiqotlar shuni ko‘rsatdik, inson o‘z umri davomida oladigan barcha informatsiyaning 70 foizini 5 yoshgacha bo‘lgan davrda olar ekan. Bolaning ongi asosan 5-7 yoshda shakllanishini inobatga oladigan bo‘lsak, aynan shu davrda uning qalbida oiladagi muhit ta’sirida ma’naviyatning ilk kurtaklari namoyon bo‘la boshlaydi.” [3,53]

Hozirgi davrda avvalgiga nisbatan, bu yoshda o‘quvchilarning axborotni qabul qilish, o‘zlashtirish faoliyati tezlashgan bo‘lib asosiy amaliy fanlar to‘g‘risida tushunchalar berish mumkin. Maktabgacha ta’limning tayyorlov guruhlarida va kichik maktab yoshdagi o‘quvchilarni ko‘pincha o‘rgatilinayotgan narsaga qiziqmasligini guvohi bo‘lamiz. Bizning fikrimizcha, bu yoshdagi o‘quvchilarga o‘qishni o‘rgatishdan ko‘ra, qanday qilib o‘qish yo‘llarni uqdirish lozim. O’quvchilarda o‘qish qobiliyati va tafakkurini shakllantirish, ularga berilgan materialni eslab qolishdan ko‘ra ko‘proq samara beradi. Umumiy ta’limda globallashuvning sivilizatsiyalar o‘rtasidagi munosabatlarni kuchayishini nazarda tutgan holda, tarix, geografiya va ijtimoiy fanlarni o‘qitishga e’tiborni kuchaytirish zarur. Bu mamlakatlar tarixi, iqtisodiy yo‘nalishlari, ijtimoiy hayoti haqida chuqurroq ma’lumotlar berish orqali o‘quvchilarni boshqa mamlakatlar munosabatini to‘g‘ri shakllantirish mumkin.

Globallashuv davrida oliy ta’lim oldida quyidagi masalalarni hal qilish muammosi turibdi:

1. Oliy ta’limni baynalminallashtirish, ya’ni talabalar va ilmiy xodimlarning almashtirib borish, birgalikda tadqiqot ishlari olib borish, simsiz axborot tizimini o‘rnatish, yetakchi universitetlarga tenglashib borish;

2. Global muammolarni hal qilish bilan birgalikda o‘z milliy taraqqiyotiga oid muammolarni o‘z vaqtida hal qilib borish;

3. Taraqqiy topgan va ilm fan sohasida global yutuqlarga ega davlatlar oliy o‘quv yurtlari bilan doimiy hamkorlikda bo‘lish va bu aloqa natijalariga asoslangan yangiliklar yaratish;

4. Yoshlarga ta’lim jarayonida global bozorning salbiy natijalari bo‘lgan global migratsiya, kriminal iqtisod, global jinoyatlar haqida tushunchalar berib borish, talabalar o‘rtasida bu haqida ilmiy-nazariy konferentsiyalar tashkil etish;

5. Hozirgi davrda xo‘jalik yuritish yoki fermer xo‘jaliklari faqat oziq-ovqat maxsulotlari yetishtirish maqsadida tabiiy o‘simliklar va mikroorganizmlarni yo‘q qilib yubormaslik va shu tariqa tabiatga xalaqit berishlarini oldini olish;

6. Aholining tabiiy resurslar va ayniqsa qishloq xo‘jaligi bilan shug‘ullanuvchi fermerlarning ekologik bilimlarini oshirib boruvchi, ekotizm ya’ni tabiatni asrash orqali insonni asrab qolishga oid bilimlar turkumini ishlab chiqish;

7. Ta’lim tizimiga ekologiya fanini kiritish, shuningdek, barcha ishlab chiqarish va sanoat korxonalarida, davlat muassasalarida ekologik ma’rifatni targ‘ib qiluvchi manbalar yaratish;

Xulosa qilib aytganda, hozirgi kunda O‘zbekiston milliy ta’lim tizimida olib borilayotgan islohotlar aynan globallashuv davri talablari asosida yaratilgan. Bizning fikrimizcha bu islohotlarni amalga oshirishda barcha ta’lim tizimi xodimlari birdek qatnashsa yanada ko‘proq samaraga erishish mumkin.

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INTEGRATED ATHLETE PREPARATION IN KURASH: A MULTIDIMENSIONAL TRAINING FRAMEWORK

Annotation. *The aim of this paper is to discuss preparing types of the kurash athletes. There are some types of preparing are analyzed with the context of the authors' practical experience. Authors consider that all types of the preparation has a great importance in training process.*
Key words: *Kurash, training, preparing, significance, athletes, special qualities technical and tactical training.*

1. Physical preparation

Physical preparation of athletes is a major base in shaping skills, vital qualities and forming experience that are essential to defend the country.

General and special physical training and preparation in accordance with goals together with individual abilities and their technical-tactical training of athletes supply sportsmen with high qualities.

In a sport theory and practice, in all types of sport, physical preparation of athletes contains two, general and special parts. General preparation serves to improve all skills of the athletes. Moreover, technical and tactical training is a vital means in preparing specially the system of athletes' organism.

It is important to consider the following rules for athletes in general physical training.

1. Exercises should be close to the nerve system and all working conditions in organism of fighters. Exercises should help to develop special qualities, for example, the elements of martial arts, some acrobatic exercises, exercises that are done with pairs and others.

2. Exercises should be completed with different actions that are changeable in the process of athletes and coordinates of actions. For example, sport games, gymnastic exercises and others.

3. Exercises should serve to recover fast the process of central nervous system and actions of sportsmen. These are included with walks, active games, swimming and other games.

Special bases of physical preparation have to be different in two group exercises:

a) Exercises that are directed to improve necessary qualities in kurash and certain group of muscles.

b) Exercises that are directed to develop kurash technique groups and elements of technical actions. It is important to combine elements of technical actions in kurash with high special qualities that are necessary in competitions.

As we pointed special physical training and preparedness of the kurash athletes plays crucial role in a matches. The following rules have to implement in special physical preparation of fighters:

- according to the structure and character of the action, choosing the exercises that are connected with making efforts directly. For example, moving particularly, imitation exercises in terms of lifting and turning round, turning round and turning;
- using exercises that are directed to develop some muscle groups serve to do major actions in combat situation. Some exercises that are necessary to develop the muscles of special types of muscle groups.

Selecting physical exercises in such ways enhances the collection of effective actions and improves technical sides of athletes. Diverse exercises are offered for general and special physical training of kurash athletes below. In our opinion, the following exercises are more irrefutable and acceptable to identifying the training load. Coaches and specialists should focus following pointers.

1. The age, physical development and functional condition of athletes before the training, training experience.
2. Weekly and daily training size or volume.
3. The amount of working conditions, training intensity, physic efforts and emotional actions.

It is obvious from the practical experience that many high skilled athletes use directly general and special physical preparation basis during the preparation period, in competitions, they reduce them till the minimum or do not use general preparation. Definitely, this is a rude mistake. Because, mutual connection between the collection of qualities is broken and their opportunities are shortened, this might cause to lose of sporting results.

Utilizing the basis of physical preparation during the year and in competitions, uniting these technical-tactical preparation with other types lead to increase skill of sport and gaining higher achievements.

Right planning of annual plan of the training injuries that are got in physical and technical-tactical preparation and controlling the amount and intensity of them are extremely important. There might be several versions of planning the injuries and efforts of training.

The quality of athletes' action who trained with kurash should include strength, speed, flexibility, endurance and elasticity tasks, and they assist kurash athletes to reach high success in competitions. Because, these skills can not separated from trying to get goals, enterprising, tolerance, boldness behaving in any situation, hardworking and being able to think independently. However, working hard and overcoming obstacles depend on achieving the goals.

It can be said relying on the theory of sport training and methodological knowledge that physical training is always divided into two parts, including general and special preparation. In particular, kurash also, obey this structure in its preparation period.

As general physical preparation basis for athletes, running for long distance, swimming, walking might be used. As special preparation basis for athletes, a collocation of exercises that are directed to increase the chances of fighters in contests, to develop special muscle groups and improve the most necessary qualities is utilized.

The attributes of special and general physical preparation changes in the qualities and personal characters of athletes, respectively. Together with being a great importance, physical preparation needs to develop other types of preparation. In particular, technical and tactical training is crucial in this condition.

Table-1. The indicators of General and Special Physical preparation in annual plan of kurash athletes

Age Categories	Percentages of General and Special Physical Preparation (%)	
	GPP (%)[17]	**SPP (%)[18]**
8 – 10	80	20
10 – 12	80	20
12 – 14	60	40
14 – 16	60	40
16 – 18	50	50
18 – 20	50	50
Over 20 age old	40	60

As it is mentioned in the table-1 above that the attributes of physical preparation changes rapidly in training process. This will be base for the process of training to modify regularly and improve gradually.

It is advisable that the essence of general and special physical training should be suitable for the classification of diverse sports with the following order (table-2).

Table-2. Different exercises for General and Special Physical Preparation in different ages of kurash athletes

10-12 age athletes	
Preparation	**Exercises character**
GPP	Action games, running, walking, tourism
SPP	Special physical exercises (for short time), dynamic exercises
12-14 age athletes	

GPP	Action games, running, swimming (one time in a week)
SPP	Special physical exercises (more long time), dynamic static exercises, special competitive exercises (sometimes)
14-16 age athletes	
GPP	Sport games, running (two times in a week), swimming, fitness training for developing muscles (one or two times in a week)
SPP	Special exercises (mainly long time), dynamic and static exercises, competitive exercises, additional exercises
16-18 age athletes	
GPP	Sport games, running (two times in a week), swimming, fitness exercises for developing muscles (two times in a week)
SPP	Special exercises, mainly static exercises, special-competitive exercises, organizing competitive model in training and monitoring them, controlling and measuring
Over 18 age old athletes	
GPP	Sport games, running (two times in a week), swimming, fitness exercises for developing muscles (two times in a week)
SPP	Special exercises (full static character), special competitive exercises

General and special Physical preparation is usually interconnected in every physical training of fighters. This is not possible to put clear limitations between them. They should be appropriated according to their meaning.

As time passes, the attributes of SPP increases, the attributes of GPP decreases. It should not be forgotten that there will not be the lowest and the highest degree of them. For example, highly skilled athletes are less the beginning of the year than the middle of the training year.

End of this part of the article, authors consider that physical training is a major task to prepare the kurash athletes. Because, kurash is acyclic and high intensity sport which physical capacities need to develop in high degree. However, coaches should give their attention to another skill of the athletes. There we would like to show technical-tactical preparedness of the training. The technical and tactical training of the athletes and its particular features will be discussed next part of the manuscript.

2. Technical-tactical preparation

The techniques and tactics are demonstrated together in kurash. Kurash technique is methodology of doing standing, action, gripping and throwing to solve different tasks during the struggle. In this situation, fighter should pay attention to the opportunity of opponents and his/her own condition, of course. This is a main factor influencing technical-tactical training of the athletes.

Teaching different throwing techniques and tactical actions of kurash, improving them with the following principles on base of new throws and combining them with other technical actions should be explained thoroughly.

Technical preparation of the kurash is the most important side of the training. It is perfected during the training year and become individual. Therefore, it is put much emphasis on the more techniques of the sportsmen is rich, some programs and the meaning of tactical actions are understood the more tactical preparedness of the athlete is high.

Having high degree in technical preparation, that is, doing experienced actions concretely together with other developing the most important physical and special qualities depends on the basis of understanding the tactics. Thus, athletes should gain high technique and able to utilize them skillfully to win the struggle. Indeed, the technique and tactics are not only mutually connected with one another, but also, moral and tolerant preparation is close to each other.

Technical preparation of the athletes means doing throwing actions automatically. The main purpose of the technical preparation is to form sport techniques.

It is certain from practical experience that technical preparation is organized according definite requirement depending sport types. These following forms of mastering technical training are offered:

1. Mastering technique by the help of the coach.
2. Mastering technique in doing exercises wholly.
3. Mastering technique in doing exercises by dividing them.

Using modern technologies in the system of training is offering great chances. The role of technological breakthroughs is huge in forming technical training. However, the participation of sportsman should be considered into account. Therefore, the athlete is a major factor in learning technique.

The tasks of learning kurash technics and strengthening them should be done. Afterwards, the elements of learned will be experience. This process will be carried out by the help of regular and systematic training.

The coaches need rely on effective plans in the process of technical preparation. Few defect in mastering of technique may be harmful and negative. Especially, it might be common for young fighters. Clearly, incorrect learning of technique might be usual for fighters and these mistakes will be repeated in the competitions.

The other feature of organizing technical training is defining mistakes and correcting them fast.

Repeating the some mistakes owing to emotional wreck or being tired in the competing process might be observed. When coach notices his/her followers' mistakes during the competitions, they need correct and find solutions to these mistakes. Therefore, providing definition and clearness of technical actions are very important and it is widely explained in children's sport.

Special exercises that are clear from sport practice serves us to develop technical preparation. Correctly using special exercises in training process in accordance with goal offers the opportunity to learn the technique of the kurash. In order to understand a mutual dependence of kurash technique should be learned. Preparing actions are actions that provide defending actions successfully. These include prospecting, defining weak points of the opponents, maneuvering and planning actions.

Prospecting – about opponents, their body system, characters, condition and features: fighting style, active or passive, about attackingly or other. Prospecting can be done during the competitions and before the struggles.

Athletes get full information about their opponents: name, surname, nationality, experience and status. During the combats defining the athletes' favourite standing posture, what kind of throwing technique they use and the strength of them, how actions trying to get by their feet, how much they prepare, how they attack, goals, being defended defining adroitness and tolerance is extremely crucial.

Using trick – doing exercises in order to catch in different movements, creating comfortable conditions, choosing opportune moment to attack and counter attack. Trick can utilized in different situations, including deceiving actions and others. By using tricks, fighter tries to take a lead, make carpet or seldom to go from the opponent.

Some technical actions of the fighters are camouflages so as to hide real aims, lose vigilance of opponents and confuse them. In camouflaged actions, an experienced and skilled fighter show themselves freely or sluggish, attacks suddenly using all energy and skills.

Every fighter has camouflaged technical actions and competitive methods. Therefore, it is sometimes difficult to define what is the real purpose of the fighters.

Strong attacking actions, defending and standing again actions are tactical actions. Simple an attack method is very helpful in defeating opponents. An attack method includes pulling, showing the presenting the false attacks, defensive posture, sharply action and others.

A comparative attack contains in attacking – deceiving in two manners, throwing that is done together with fake actions and different manoeuvres.

Different throwing techniques and tactical actions they are actions of defending and making come back. The actions of defense hold the followings: the struggle style of the opponents, counterattacks or escaping from them.

Counter attack actions – fighting against the attacks of the opponents, taking the leads, defending in a sharp manner, and be ready for making attacks. Counter attack with its name might be concluding attack of the competition.

When it is said about tactical preparation that is necessary to interpret popular scientists' opinions. F.Kerimov (2001) gave valuable ideas about the tactical preparation. According to his opinion, the technical and tactical training are mutually done.

Tactical training – gaining tactics, necessary knowledge for deciding correctly in struggles and competitions, it forms the qualification and experience. In general, tactics is to be able to discuss and argue.

Tactic preparation is becoming a scientific issue in today's world in preparing fighters. After learning and mastering tactic methods of kurash, it is advisable to connect them mutually in accordance with the goal. The kurash athletes should understand a clear condition, time and situation, the coaches should help them, also. These indicators show high degreed conclusion of tactics.

By creating artificial competition models, making different sudden conditions appear, tactic preparation will improve. According to the some specialists' opinions (J.Toshpulatov, 2000), creating diverse complicated situations diminishing the time of the contests and area in the process of tactic preparation are great importance. Moreover, the essence learning technical actions and doing these actions should be explained thoroughly by the coaches regularly. Fighters should have theoretical knowledge about the actions they are learning.

As it known from the practical experience of the authors, young athletes have difficulty in distributing correctly their physical and spiritual opportunities, different from high skilled athletes. As a result of this, they are not able to use their all chances. These actions are common for young athletes. Despite this, the tactics of sport is being made progress among young people.

The following are offered to put into practice general opinions about tactical training:

- teaching the essence of sport tactics and its role in tactic preparation;
- creating possible models of opponent's opportunities, mastering and assessing;
- learning the combinations, tactic methods and using them;
- forming tactic thought and thinking fast;
- being able to hear abstract conditions of competitions and forming qualification and experience of ability to decide independently.

Putting tactic preparation into practice has both theoretical and practical aspects. According to theoretical aspects, giving explanations to the sportsmen, the importance of tactics, tactic theory should be paid attention thoroughly. The basis of theoretical tactic is learning literatures connected with the field, listening the special lectures of specialists. Usually, abovementioned stages help to learn tactics perfectly and assist to create full understandings.

As it is clear that tactics has also practical sides. In this condition, learned kurash techniques and technical actions are combined and systematized. This process are checked and developed in competitions and educational meetings.

The most pleasing way of mastering in tactical practice is clear training to competitions. Training on the base of goals and plans are important in tactical preparation. Also, operating athletes with different signals by coaches during the process of training and creating abstract conditions for fighters improve artificial preparation. Both tactic actions are substitute for one another. Theoretical knowledge is used and achievements and shortcoming are defines. In that way, future process will put on the way.

3. Psychological preparation

The story of the sport psychology began in ancient Greeks. Greek historians vividly illustrate how training methods of ancient Greek athletes owed as much to psychology as to any other science, and indeed how organized and professional that training became over time (Britton W.Brewer, 2009).

Psychological preparation is important and distinctive for all aged, gender and different qualification athletes. A main task of psychological training is to supply athletes with spiritual stability and impact positive moral and mental qualities of the athletes (Masharipov, 2010). Additionally, another crucial duty of the psychological preparation is to provide sportsmen with optimum psychological unanimity during the competitions.

As other type of preparation, there are certain methods and approaches, too. Some specialists compare psychological preparation with moral preparation. However, the aspects of psychological training are distinguishable.

In recent years, sport psychology is developing, gaining a number of successes and carrying out studies which prove the importance of psychological preparation.

Psychological preparation requires special approaching from fighters. Firstly, coaches should teach about psychological training relying on its different characters. Moreover, coaches assist fighters to be able to behave sudden condition of competitions and respond to these actions during the training.

Usually, strong hesitation, depression, changing of the psychological stability is observed on athletes in competition process. The coaches are the most effective and influencing means to implement psychological preparation. According to the impact of coaches, fighters become ready psychologically.

Basic methods and forms of implementing psychic training appear in kurash according to practical experience and observations of authors:

1. Explaining. Coach gives personal opinions and intentions about the tasks that should be done to athletes.

2. Persuading. The form is an important aspect of psychic preparation that coach is obligated to persuade the athlete and followers that they have the same or more physical, technical and tactical opportunities as opponents.

3. Directing correctly. As it is an task done by coaches that coaches should give effective and promising advise in terms of their future training plans, deeds and other process. These forms assist to shape an educational, moral and mental characters of the fighters.

In most cases, coaches have a tendency to ignore psychological training or just encourage to be active in competitions. These situations are observed mostly before the matches. Giving instructions just before the competitions is useless.

Because, hesitating and psychic condition before the matches do not receive any other instructions given by their coaches. Therefore, coaches should attempt to make their followers keep calm, cope with stress and hesitation instead of giving extra tasks.

According to the advantages of sport psychology, there are three psychic conditions of athletes before the matches:

- shaking before starting (before matches);
- fearing before starting;
- fighting spirit before starting.

Previously findings show that the third psychic condition is the most promising (Masharipov, 2010). In general, psychological preparation is a great significance of training. Psychic training encourages other types of preparations. Furthermore, it is connected with other athletes' skills.

4. Moral preparation

A moral preparation is upbringing moral characters, ethics and will of athletes. It contains to form ethics and respect opponents, referees and spectators. During the moral training, the status in community, activities out of the training and upbringing degrees of fighters are defined and learned.

A moral training has special aspects. Being ignored by coaches, fighters might be caused to face some problematic issues. Moral instructions by coaches shape the whole activities of sportsmen. This preparation is directly connected with other type of preparation.

The basic meaning of moral preparation should include the followings:

1. Recognizing oneself and trying to achieve a goal.
2. Being patriotic and recognizing national values.
3. Mutual respect, justice, hard working.
4. Strong will, believing in oneself.

Abovementioned components are connected the whole lifestyle of the athletes and they play crucial role in the moral training.

It should be noted that particularly taking the age, sex and character of the athletes into consideration is vital aspect. The age, gender and other distinguished features of athletes receive different type of preparation. For example, some moral activities are common for some fighters, at the same time they cause difficulties for another fighter.

Thus, individuality is the most important aspect of moral training. This means that the coach implement the preparation according to personal characters of fighters.

In fact, the main task of moral preparation is to form healthy condition, mutual respect among the kurash athletes and improve friendship. For this, coaches should organize some moral activities out of the training. Participating diverse performances or general spectacles, watching films and walking together with the teach is effective.

Theoretical preparation

Theoretical preparation is a type of preparation that serves to help athletes to gain special knowledge connected with the chosen sport. In this preparation, athletes acquire the knowledge of the history, the refereeing rules, technique and tactics of chosen sports. Special time should not be separated to learn that information, because they might be studied during the competitions or training. It is prohibited to give theoretical knowledge in other types of preparation.

Raped developments in sport and diversification in the meaning of training is causing theoretical preparation to be in need of sportsmen. The followings might be reason for this:

1. Sport is being advanced more sharply. There are no scientific, theoretical and practical aspects of it.
2. Sport training is becoming more important that encourages specialists to carry out studies.
3. Particularly, in sport especially, kurash is experiencing a number of improvements and modifications.

The following tasks are offered to be implemented in the process of theoretical training in kurash:

- acquiring the knowledge of kurash history;
- learning refereeing rules of kurash;
- studying theoretical and practical knowledge of kurash technique and tactics;
- studying kurash ethics, mutual attitudes and the behavior of kurash;
- controlling the behaviors of competitions, controlling oneself;
- being able to obey the rules of coaches.

Theoretical preparation’s meaning is contained abovementioned tasks and they should be studied carefully. Because, each tasks is a great importance in influencing the outcome of competition and upbringing of athletes. The theoretical knowledge and preparation of athlete might be noticeable during the competitions. In authors opinions, the results and achievements depend on the preparation period and how they are organized.

Theoretical preparation is interconnected with other types of preparation (physical, technical and tactical, etc.). In conclusion, theoretical preparation has an outstanding contribution to increase the opportunities of athletes.

In general, achieving high successes are result of preparing regularly. These are based on choosing sportsmen, training with him/her and controlling regularly.

In kurash, separating one type of preparation from another one is inappropriate. But, these types might be mastered requiring one another conditionally. Example, when technical preparation is organized effectively, there will be need to improve tactic skills. Behaving oneself, respecting the opponents and being aware of the rules in kurash is highly-demanded.

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THE CONCEPTS OF “SEMANTIC CATEGORY”, “FUNCTIONAL-SEMANTIC FIELD” IN THE ASPECT OF COMPARATIVE STUDIES

Annotation: *The article considers a system of concepts on which one of the possible models of functional grammar is based. The initial concept in this system (in particular, in relation to comparative studies) is the concept of a semantic category. Emphasis is placed on the methodological significance of these notions in analyzing and contrasting linguistic phenomena across different languages. The study investigates how semantic categories serve as universal cognitive structures, while functional-semantic fields represent the language-specific realization of these categories through grammatical, lexical, and syntactic means. Special attention is given to the comparative potential of these concepts for identifying typological similarities and differences between languages, thus contributing to a deeper understanding of language systems and their functional organization.*

Keywords: *semantic category; functional-semantic field; comparative linguistics; typology; language systems; cognitive linguistics; grammatical semantics.*

Introduction

When we talk about Semantic Category in the field of grammar, we mean the basic invariant categorical features, semantic constants that appear in various variants in linguistic meanings., expressed by various (morphological, syntactic, lexical, and combined) means of utterance. In this description of the SC (which by no means claims to be a definition; in this case, a strict definition is hardly possible at all), attention is drawn to the dominant position of the categories under consideration in the hierarchical system of semantic variation. Grammars in their correlations form the basis of a systematic division of the studied linguistic meanings into overlapping and interacting “areas of content”.

The main SCS are universal, however, this universality can be traced only at the level of a few, the most general categories, such as aspectuality, temporality, taxis, temporal localization, modality, beingness, personality, collateral, subjectivity/objectness, animateness/inanimateness, definiteness/uncertainty, qualitative, quantitative, comparativeness, possessiveness, locativity, conditionality (as a grouping of categories of causes, goals, conditions, concessions, effects). When assessing the role of universals in comparative studies Significant difficulties have been repeatedly noted in research. Speaking about this, V.N. Yartseva notes that a way out can be found in "enlarging" the universals themselves, i.e. in attributing only very voluminous and general categories to this concept [1, p. 23].

Methods

The foundations of the universality of the basic principles are contained in the general patterns of reflection of objective reality in human consciousness. At the same time, the indicated direction of determination is from non—linguistic reality through consciousness and thinking to formally expressed linguistic meanings - presupposes the phenomenon of the “reverse effect” of language on thinking. The SC, on the one hand, is addressed to consciousness and thinking, and on the other — to the language structure. The implementation of the SC in linguistic meanings is affected forms. It is noteworthy that this duality of semantic (conceptual) categories is reflected in the concepts of O. Espersen and I. I. Meshchaninov [2, p.240].

Linguistic meanings include both universal conceptual aspects and aspects of specific linguistic semantic interpretation related to the peculiarities of the structure of languages of different types. Interlanguage differences in systems of forms and constructions, in the distribution of semantic elements between vocabulary, morphology, syntax, between categorical and non-categorical, explicit and implicit, discrete and non-discrete, system-linguistic and the situational-contextual expression determines the infinite variety in the ratio of universal and non-universal in the compared meanings. In this interweaving of universal and non-universal elements of meanings covered by semantic categories, the prerequisites for the prospects of comparative research in the field of linguistic semantics are rooted.

Results and discussions

SC, which find expression in a particular language, form a certain system. Its elements are revealed in research based on certain working schemes . At the same time, one must be aware that intercategory relations and connections are extremely complex. Their comprehension is only in the initial stage. Disclosure of the system SC, explication of types of intercategory relations, definition of causal relationships in the studied relationships between SC in their specific linguistic expression, identification of commonalities and differences between languages of different types in systemic relationships SC — tasks of comparative research, designed for the long term.

In each grammatical meaning that appears in one form or another there is no other specific implementation, one way or another the connections of different SCS are represented. One of them is usually the dominant one, determining the categorical affiliation of a given meaning (such as the values of mood, tense, type, etc.), however, the conjugacy of the SC does not always allow us to unambiguously determine whether a given meaning in the analyzed utterance is primarily aspectual or modal, existential or locative, etc. Cf., for example, the conjugation of aspectual and modal features (in combination with signs of quality, temporality and temporal non-localization) in statements such as And always, I will say so inopportunely (F. Dostoevsky. The Brothers Karamazov); This one always bursts in like a catechumenist. In essence, there are no “pure” meanings, free from manifestations of inter-categorical interaction.

One of the important aspects of SC research is the study of their variability (for variation as a fundamental property of the language system, see [3, p.87]). The SC occupies a dominant position ("top") position in relation to the headed or multi-stage subsystems of meaningful variability (correlated with the variability of the means of formal expression). Thus, the SC of aspectuality occupies a top position in relation to such aspectual categories as limitativity (SC, which covers different types of predicate and situation relations in general to the concept limit), duration, multiplicity, phasing, perfection, categories of action, states, and relationships. Each of these SCS comes in more specific varieties and variants. For example, the concept of limit (limitativeness) exists in such varieties as the real and potential limit, explicit and implicit, absolute and relative. In the semantics of duration, the following varieties can be distinguished, in particular: a) definite and indefinite duration,

b) limited and unlimited,

c) extended (such as "how long"), closed, or effective ("for how long"), related to the preservation of the result ("for how long"),

d) continuous and intermittent, e) the duration of the action (in a broad sense) and the duration of the interval.

The study of such options is aimed at recognizing different sides and manifestations SC as an invariant. The study of variability within a particular SC involves identifying the types of relationships under consideration based on various semantic features. In the grounds for division, there must be a system hierarchy must be defined. So, when subcategorizing it is advisable to base the assessment of temporality primarily on those features that reflect the essence of temporality as a deictic category. The highest position is occupied by signs determined by the nature of temporary deixis: absolute / relative temporal orientation, relevance, / irrelevance of orientation at the moment of speech, fixed / unfixed nature of the temporal relationship, its definiteness / uncertainty, severity / lack of expression of the degree of remoteness of the time of action from the moment of speech. Further in the hierarchy of features are as follows: a) character (a method) of linguistic interpretation of temporal relations (explicitness/implicitness of their representation, direct/figurative type of representation of time of action) and (b) signs associated with inter-categorical interaction (primarily with objective modality, as well as with aspectuality, temporal localization/non-localization and taxis); these are, in particular, signs of modal characterization/incongruity, indicative/non-indicative.

When analyzing a number of SCS (not only temporality), it is advisable to proceed primarily from those semantic features, which reveal the qualitative specifics of this category, and then move on to the features related to the ways of representing the semantics in question and to inter-categorical relationships. In specific comparative studies, the principle of independent analysis of subcategorization in each of the studied languages is essential, which eliminates the transfer of the "variation grid" from one language to another. An important aspect of SC analysis is the identification of microsystems based on a set of more specific semantic features. When analyzing microsystems within a particular IC, its irreducibility to only one feature is revealed, and the linguistic representation of the IC is revealed in a complex of more specific features that form the structure of the category (cf., for example, the ratio of features certainty/uncertainty, fame/obscurity, and some others within the category of determination [4, p. 91]). Research in this area includes not only the study of system-paradigmatic relations, but also the consideration of the functioning of the studied units interacting with the context [1, pp.40-41]. There is a significant improvement in the methodology of linguistic experiment in the component analysis of meanings, in particular with regard to working with informants. [5, pp. 119-146].

Conclusion

Consideration of the SC together with the system of means of their expression in a particular language leads to the concept of FSP. In contrast to the SC as a concept entirely related to the content plan, the FSP is a concept correlated with a two-sided, substantive-formal unity. A particular field in a given language is constituted by bilateral linguistic units (verbal forms and classes of forms, syntactic constructions, lexemes and classes of lexemes, etc.). When it comes to the structure of a field — monocentric or polycentric — it also means the structure formed by two-way language units, classes of units and their relationships. So, the FSP is a grouping based on a specific IC grammatical and ’structural” lexical units, as well as various combined (lexico-syntactic, etc.) means of a given language that interact based on the commonality of their semantic functions. Each field encompasses a system of types, varieties, and variants of a particular SC, correlated with the formal means of expressing them.

In the conditional space of functions and facilities, the configuration of the central and peripheral components of the field is established, and areas of intersection with other fields are identified. Each field is part of a broader system, the elements of which play the role of an environment in relation to this FSF as the initial system. Usually, the FSF is included in a whole complex of overlapping systems. The function of the environment in relation to this field is performed by all fields within a certain

FSF grouping and beyond, which interact with the field under study, participating in the formation, preservation and development its properties as a system. Of course, in a specific comparative study, the subject of analysis may be, as a rule, one FSF or even one of the more specific functional and semantic units within a given field (for example, not the entire field of phasing, but a more specific field of initiality), however, when analyzing any particular functional and semantic subsystem, it is necessary to take into account its environment defining the place of the studied unity in a broader system.

This is due to the fact that the SC in its universal aspects is the basis for comparison, whereas the fields in the studied languages are comparable systems that include specific features of the structure of the compared languages. Such systems in different languages can differ significantly from each other. Cf., for example, the field of certainty of uncertainty in “articular” and “non-articular” languages. Related to this is the need for an independent analysis of the FSF in each of the compared languages (for a more detailed description of field theory in grammar and the principles of comparative analysis of the FSF.

The categorical situation (CS) concept of the FSF is focused on the study of linguistic facts in a system-paradigmatic aspect. Within the framework of a certain functional-semantic unity, more specific subsystems are analyzed along with elements of their paradigmatic environment (for example, within the framework of the field of limitativity, specific and type-tense forms together with modes of action and categories of marginal/non-marginal verbs). This aspect of language analysis unity is necessary, but it cannot be considered sufficient. A concept is required that would connect the field as a paradigmatic system with its representations in speech, in an utterance, where the paradigmatic aspects of the subject of analysis would interact with the syntagmatic aspects. Such a concept is a “categorical situation”. CS is a typical (acting in one way or another) meaningful structure expressed by various means of expression, a) based on a certain SC and the FSF formed by it in a given language; b) representing one of the aspects the general situation conveyed by the utterance, one of its categorical characteristics (modal, temporal, aspectual, locative, qualitative, etc.)

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CHEMICAL GEOGRAPHY OF GROUNDWATER IN THE FERGHANA VALLEY

Abstract: *The Ferghana Valley, a tri-national basin shared by Uzbekistan, Kyrgyzstan, and Tajikistan, represents a critical hydrological and socio-economic region of Central Asia. The spatial distribution and geochemical characterization of groundwater in this densely populated and agriculturally intense region reflect a complex interplay of lithology, topography, climate, and anthropogenic activity. This study presents a comprehensive assessment of the chemical geography of groundwater across 15 monitoring sites, characterizing major ion chemistry, mineralization gradients, pH variability, and the occurrence of anthropogenic contaminants such as nitrates and heavy metals. Spatial heterogeneity in groundwater composition was classified into hydrochemical facies, revealing a gradation from bicarbonate-calcium types in elevated zones to sulfate-chloride-sodium types in heavily irrigated alluvial plains. The findings contribute to understanding the hydrogeochemical evolution of groundwater in arid, tectonically active basins, with implications for water resource management, agricultural planning, and environmental risk assessment.*

Keywords: groundwater, geochemistry, Ferghana Valley, hydrochemical facies, spatial analysis, water quality.

1. Introduction.

Groundwater serves as a primary freshwater reservoir in the Ferghana Valley, supporting domestic, agricultural, and industrial demands. The region's closed basin morphology, tectonic activity, and semi-arid climate generate a hydrogeological system with unique vulnerability to salinization and pollution.[1] Previous studies have focused on either surface water or isolated wells, lacking a spatially resolved chemical analysis. This paper addresses that gap by employing a geographic and geochemical approach to classify and interpret the compositional variability of groundwater, identifying controlling processes such as rock-water interaction, ion exchange, evaporative concentration, and anthropogenic impact.[2] The central hypothesis posits that the chemical geography of groundwater in the valley is not random but reflects distinct environmental gradients and geochemical processes.

2. Materials and Methods

2.1 Study Area Description

The Ferghana Valley extends approximately 300 km in length and 70 km in width, bordered by the Tien Shan and Alay mountain ranges.[3] Elevations range from 300 to over 1500 meters above sea level. The valley's geomorphology consists of alluvial plains, piedmont zones, and foothills with Quaternary to Neogene sediments.

2.2 Sampling and Analytical Procedures

Water samples were collected from 15 strategically distributed wells and springs in 2024, encompassing diverse lithological units and land-use types (urban, agricultural, industrial). Standardized procedures were followed:

In situ measurements: pH, electrical conductivity (EC), and temperature using portable multi-meters;

Ion analysis: Major cations (Ca^{2+}, Mg^{2+}, Na^+, K^+) and anions (HCO_3^-, SO_4^{2-}, Cl^-, NO_3^-) via ion chromatography and classical titration;

Trace elements: Fe, Mn, and NH_4^+ using spectrophotometry and colorimetric kits;

TDS determination: gravimetric evaporation and EC-derived calculation.

Geographic coordinates and elevation were recorded via GPS.[4] Data visualization and spatial interpolation were performed using QGIS 3.34 with IDW and kriging algorithms.

3. Results and Discussion

3.1 General Hydrochemical Characteristics

The pH of groundwater ranged from mildly acidic (6.5) to alkaline (8.4), with most samples within acceptable[5] drinking water limits. Electrical conductivity values spanned 400–1200 µS/cm, corresponding to TDS[6] levels of 300–1050 mg/L, indicative of freshwater to slightly saline conditions. The dominant ion types varied by physiographic zone.

3.2 Spatial Distribution of Hydrochemical Facies

Three major facies were delineated:

Bicarbonate-Calcium (HCO_3^-Ca): Found in higher elevation areas (e.g., Kuva, Rishon), reflecting carbonate weathering in recharge zones;

Sulfate-Sodium (SO_4^-Na): Central lowlands under intensive irrigation (e.g., Andijan), showing signs of evaporative enrichment and ion exchange;

Chloride-Sodium (Cl^-Na): Occurring in distal alluvial fans and discharge zones, often coinciding with areas of historical waterlogging and salinization.

Spatial geostatistical analysis confirmed the relationship between elevation, land use, and chemical type. The transition from recharge to discharge zones correlates with increasing Na^+/Ca^{2+} ratios and TDS, implying cation exchange and evaporative concentration.

3.3 Anthropogenic Influences

Nitrate concentrations exceeded WHO guidelines (>50 mg/L) in 20% of samples, particularly near densely populated villages with limited wastewater infrastructure. Elevated Fe and Mn levels (>0.3 mg/L and >0.1 mg/L, respectively) were detected in low-redox environments, possibly linked to organic matter degradation and intensive fertilizer use.[7] These patterns underscore the impact of agricultural intensification and inadequate sanitation.

3.4 Hydrogeochemical Evolution and Environmental Implications

The observed gradients reflect a classical geochemical evolution from fresh recharge to saline discharge. The persistence of bicarbonate dominance in uplands suggests minimal anthropogenic interference, while the emergence of sodium and chloride dominance in the plains signals degradation processes. Such trends, if unmitigated, may culminate in long-term aquifer salinization and reduced water availability for agriculture.[8]

4. Conclusion

The chemical geography of groundwater in the Ferghana Valley reveals a coherent spatial structure governed by topography, geology, hydrology, and human influence. The delineation of hydrochemical facies provides a framework for targeted groundwater management and pollution mitigation. Protecting recharge zones, regulating fertilizer usage, and enhancing wastewater treatment are imperative to preserving water quality. Future research should integrate isotopic tracers and seasonal monitoring to refine the understanding of groundwater dynamics in this vulnerable basin.

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BA'ZI BIR XOSMAS INTEGRALLARNI EYLER INTEGRALLARI YORDAMIDA HISOBLASH

Annotatsiya. *Ushbu maqolada Betta va Gamma funksiyalarni xossalaridan foydalanib xosmas integrallarni yechish haqida ma'lumotlar keltirilgan. Murakkab xosmas integrallarni Eyler integrallari yordamida yeshish usullari qarab chiqilgan.*
Kalit so'zlar: *betta funksiya, gamma funksiya, xosmas integral,integral.*

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CALCULATION OF SOME IMPROPER INTEGRALS USING EULER INTEGRALS

Abstract. *This article provides information on solving nonlinear integrals using the properties of Betta and Gamma functions. Methods for solving complex nonlinear integrals using Euler integrals are considered.*
Key words: *betta function, gamma function, hosmas integral, integral*

Ushbu

$$\int_0^1 x^{a-1}(1-x)^{b-1}dx \qquad (a>0, b>0) \qquad (1)$$

xosmas integral *Betta funksiya* yoki *1-tur Eyler integrali* deyiladi va $B(a,b)$ kabi belgilanadi, ya'ni

$$B(a,b)=\int_0^1 x^{a-1}(1-x)^{b-1}dx\,. \qquad (2)$$

Integral ostidagi funksiya uchun:

1) $a<0, b\geq 0$ bo'lganda $x=0$ nuqta;
2) $a\geq 1, b<1$ bo'lganda $x=1$ nuqta;
3) $a<1, b<1$ bo'lganda $x=0$ va $x=1$ nuqtalar maxsus nuqtalar bo'ladi.

Demak, (1) integral parametrga bog'liq bo'lgan xosmas integraldir.

Betta funksiya quyidagi xossalarga ega.

1-xossa. (1) integral

$M=\{(a;b)\in R^2 : a\in(0;+\infty), b\in(0;+\infty)\}$

to'plamda yaqinlashuvchi.

2-xossa. (1) integral $M_0=\{(a;b)\in R^2 : a\in[a_0;+\infty), b\in[b_0;+\infty)\}, a_0>0, b_0>0$ to'plamda tekis yaqinlashuvchi, lekin M to'plamda esa notekis yaqinlashuvchi.

3-xossa. $B(a,b)$ funksiya M to'plamda uzluksiz funksiyadir.

4-xossa. $\forall(a,b)\in M$ uchun $B(a,b)=B(b,a)$ (simmetrik) bo'ladi.

5-xossa. $B(a,b)$ funksiya quyidagicha ham ifodalanadi:

$$B(a,b)=\int_0^{+\infty}\frac{t^{a-1}}{(1+t)^{a+b}}dt$$

Isbot:

$$B(a;b)=\int_0^1 x^{a-1}\cdot(1-x)^{b-1}dx=\left[\begin{array}{l} \dfrac{x}{1-x}=t \\ x=t-tx \\ x+tx=t \\ x\cdot(1+t)=t \\ x=\dfrac{t}{1+t} \\ dx=\dfrac{t+1-t}{(1+t)^2}dt=\dfrac{dt}{(1+t)^2} \\ 1-x=1-\dfrac{t}{1+t}=\dfrac{1}{1+t} \end{array}\right]$$

$$\int_0^\infty\left(\frac{t}{1+t}\right)^{a-1}\cdot\left(\frac{1}{1+t}\right)^{b-1}\cdot\frac{dt}{(1+t)^2}=\int_0^\infty\frac{t^{a-1}}{(1+t)^{a-1}}\cdot\frac{1}{(t+t)^{b-1}}\cdot\frac{dt}{(1+t)^2}=$$

$$=\int_0^\infty\frac{t^{a-1}}{(1+t)^{a+b-2+2}}dt=\int_0^\infty\frac{t^{a-1}}{(1+t)^{a+b}}dt.$$

xossa isbotlandi.

6-xossa. $\forall(a,b)\in M_1=\{(a,b)\in R^2 : a\in(0;+\infty), b\in(1;+\infty)$ uchun

$$B(a,b)=\frac{b-1}{a+b-1}\cdot B(a,b-1)$$

7-xossa. $B(a,1-a)=\dfrac{\pi}{\sin a\pi}(0<a<1)$, xususiy holda $a=\dfrac{1}{2}$ bo'lganda, $B=\left(\dfrac{1}{2},\dfrac{1}{2}\right)=\pi$

Gamma funksiya va uning xossalari.

Ushbu

$$\int_0^{+\infty}x^{a-1}e^{-x}dx \qquad (a>0) \qquad (3)$$

xosmas integral *Gamma funksiya* yoki 2-tur *Eyler integrali* deyiladi va quyidagicha belgilanadi, yani

$$\Gamma(a)=\int_0^{+\infty}x^{a-1}e^{-x}dx \qquad (a>0) \qquad (4)$$

Integral ostidagi funksiya uchun:

1) $a<1$ bo'lganda $x=0$ nuqta maxsus nuqta;

2) $a>1$ bo'lganda (3) integral yaqinlashuchi;

3) $a\leq 0$ bo'lganda (3) integral uzoqlashuvchi;

Gamma funksiya quydagi xossalarga ega.

1-**xossa.**

$$\Gamma(a)=\lim_{n\to\infty} n^a \frac{1\cdot 2\cdot 3\cdots(n-1)}{a(a=1)\cdots(a+n+1)}. \quad (5)$$

(5) formula *Eyler-Gauss* formulasi deyiladi.

2-xossa. (3) integral $\forall a\in[a_0,b_0]\,(0<a_0<b_0<+\infty)$ oraliqda tekis yaqinlashuvchi, $a\in(0,+\infty)$ da esa notekis yaqinlashuvchi.

3-xossa. $\Gamma(a)$ funsiya $(0;+\infty)$ oraliqda uzluksiz va barcha tartibdagi uzluksiz hosilalarga ega, ya'ni

$$\Gamma^{(n)}(a)=\int_0^{+\infty} x^{a-1}e^x(\ln x)^n dx \quad (n\in N).$$

4-xossa. $\Gamma(a+1)=a\Gamma(a) \quad (a>0).$

5xossa. $\Gamma(n+1)=n!$

6-xossa. $B(a,b)=\frac{\Gamma(a)\Gamma(b)}{\Gamma(a+b)}.$

7xossa. $\Gamma(a)\Gamma(1-a)=B(a,1-a)=\frac{\pi}{\sin a\pi}, \quad 0<a<1.$

8-xossa. $\Gamma(n+\frac{1}{2})=\frac{(2n-1)!!}{2^n}\sqrt{\pi}, \quad n\in N.$

9-xossa. Lejandr formulasi: $\Gamma(a)\Gamma(a+\frac{1}{2})=\frac{\sqrt{\pi}}{2^{2a-1}}\Gamma(2a).$

Endi yuqoridagi betta va gamma funksiyalar yordamida ba'zi bir xosmas integrallarni hisoblashga doir bir nechta misollarni ko'rib chiqamiz.

1-misol. Eyler integralidan foydalanib quydagi xosmas integralni hisoblang.

$$\int_0^2 \frac{dx}{\sqrt[3]{x^2(2-x)}}$$

Yechilishi. Bu integralda $\frac{x}{2-x}=t$ almashtirish orqali quyidagi integralni hosil qilin, keyin uning qiymatini hisoblaymiz.

$$\left[\begin{array}{l} \dfrac{x}{2-x}=t, \\ x=2t-tx, \\ x\cdot(1+t)=2t \\ x=\dfrac{2t}{1+t} \\ dx=\dfrac{2\cdot(1+t)}{(1+t)^2}dt=\dfrac{2}{(1+t)^2}dt \end{array}\right] \Rightarrow$$

$$\int_0^\infty \frac{2dt}{(1+t)^2\cdot\sqrt[3]{(\frac{2t}{1+t})^2\cdot(2-\frac{2t}{1+t})}}=\int_0^\infty \frac{2dt}{(1+t)^2\cdot\sqrt[3]{\cdot\frac{4t^2}{(1+t)^2}\cdot\frac{2}{1+t}}}=$$

$$=\int_0^\infty \frac{2dt}{(1+t)^2\cdot\frac{2}{t+1}\cdot t^{\frac{2}{3}}}=[qisqartirishlarni\ amalga\ \ oshirib]=\int_0^\infty \frac{t^{\frac{-2}{3}}}{1+t}dt=\int_0^\infty \frac{t^{1-\frac{2}{3}-1}}{1+t}dt=$$

$$=\int_0^\infty \frac{t^{\frac{1}{3}-1}}{(1+t)^{\frac{1}{3}+\frac{2}{3}}}dt=B(\frac{1}{3};\frac{2}{3})=[Betta\ \ funksiyaning\ 7-xossasiga\ asosan]=\frac{\pi}{\sin\frac{\pi}{3}}=\frac{\pi}{\frac{\sqrt{3}}{2}}=\frac{2\pi}{\sqrt{3}}$$

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SPECIFIC FEATURES OF TEACHING ART IN PRIMARY EDUCATION

Annotation. *This article highlights the importance of teaching literary works in primary reading literacy classes, the use of tasks that develop fluent speech, and their effective aspects. The ideas are explained based on the literary works given in primary reading literacy classes. Examples of tasks for working on literary works given in reading literacy textbooks are given and their practical significance is shown.*

Keywords: *artwork, fluent speech, assignment, subject-specific competence, grammatical knowledge, language units, methodological principles, speech attitude, oral speech, written speech.*

Entrance

The primary education stage is an important foundation for instilling in students an interest in knowledge, forming thinking and aesthetic taste. In particular, in this process, familiarization with works of art plays a special role in enriching the spiritual world of students, educating them morally, spiritually and culturally. Through literature lessons, students not only acquire reading and comprehension skills, but also understand universal human values such as humanity, patriotism, friendship, and hard work through works. Selecting works of art appropriate for the age of primary school students, presenting them in an understandable and interesting way, and teaching analytical thinking through the analysis of images are some of the distinctive features of education at this stage.

Review of related literature

The issue of teaching works of art in primary education has been thoroughly studied by many pedagogical and methodological scientists, and the scientific and methodological literature created in this regard plays an important role in forming the theoretical and practical foundations of this direction. In particular, Doctor of Pedagogical Sciences T.Q.Qori-Niyoziy in his works paid special attention to the criteria of age suitability, moral education and imagery when choosing literary material when working with children. Also, scientists such as N.Karimov and A.G.Ulomov have deeply covered the educational value of children's literature, the impact of artistic images and their role in the education of taste. Sh. Kholbekov's study entitled “Formation of artistic and aesthetic taste of primary school students” analyzed the methodology for arousing interest in works of art in students, developing figurative thinking, and expressing real life through images.

Specific aspects of the learning process

Attention to figurative analysis

It is important for primary school students to understand works not only as a chain of events, but also through images. This develops their figurative thinking. For example, a moral lesson is learned by discussing the actions of each character in the fairy tale "Emerald and Precious".

A playful approach

For children of this age, the lesson process should be interesting. Therefore, the content of the work is mastered through dramatization, role-playing games, questions and answers, and drawing.

Educational conversations

Conducting educational discussions based on each work enriches students' life experiences. Asking questions and encouraging them to express their opinions openly shapes them as free-thinking individuals.

Using multimedia

Using modern technology, showing cartoons or audio books related to the work arouses interest in children and increases their level of memorization.

Research methodology

Research methods can be used to identify the specific features of the process of teaching works of art at the primary education stage and to describe effective methods. The following methodological approaches can be taken as a basis.

Methods of analysis and synthesis

The study analyzed approaches in existing literary sources, primary education curricula, textbooks, and methodological guides. Based on these, effective methods were synthesized and general conclusions were drawn .

Pedagogical observation

The activities of primary school students in the process of mastering works of art were directly observed. The students' attitude to the lesson, activity, ability to answer questions, and level of figurative thinking were assessed based on observation.

Questionnaire and interview methods

Surveys were conducted among teachers and students to identify the methods used in teaching works of art, their effectiveness, difficulties and problematic aspects. Also, interviews were conducted with experienced primary school teachers.

Elements of the experimental approach

As part of the research, small-scale experimental sessions were organized, testing teaching methods through dramatization of works of art, drawing, and role-playing. Based on their results, the level of interest and the state of knowledge acquisition were compared.

Comparison method

An attempt to compare traditional approaches and approaches based on modern pedagogical technologies and identify differences in effectiveness between them.

Analysis and results

For example, in analyzing Fyodor Dostoevsky's Crime and Punishment from a synergetic perspective, one can see Raskolnikov's processes of re-understanding himself and his place in society, starting from his own views, through mental anguish and internal struggles. His personal development is viewed as a synergetic system, and the points of instability of this system are associated with his crime and, ultimately, with the processes of remorse and self-realization.

In general, the synergistic approach allows for the analysis of a work of art not only in a static state, but also as a dynamic system, which contributes to a deeper understanding of the content.

The role of literary works in developing a student's speech is undoubtedly invaluable. A child who is interested in reading stories and small texts in elementary school will certainly begin to read larger works in high school, and this will become a skill. We can also find a number of stories in elementary school native language and reading literacy textbooks. Let us ask ourselves, what does reading a text or a story give a child? In what ways can we convey it to the student, we will achieve effective results.

CONCLUSION

Teaching works of art in primary education plays an important role in the comprehensive development of students' personalities. The results of the study show that at this stage, in the process of mastering works of art, figurative thinking, aesthetic taste, moral views and creative imagination are formed. Children learn to look at the life around them, people, events with love, attention and understanding. Teaching works of art in primary education is not only a process of teaching literacy, but also a process that serves the formation of the student as a whole person. The teacher actively participates in this process not only as a provider of knowledge, but also as an educator and guide. Each work of art should serve to plant the seeds of goodness in the hearts of students.

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Boshlang‘ich ta’lim nazariyasi va amaliyoti kafedrasi o‘qituvchisi
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STEAM TEXNOLOGIYALARINING BUGUNGI KUNDAGI AHAMIYATI VA AFZALLIKLARI

Annotatsiya: *Ushbu maqoladada STEAM ta`lim tizimi nima va uning vazifalari, samaradorligi, qanday ta`lim sohalarda qo‘llash mumkinligi haqida ma`lumot beriladi. Davomida esa, bu ta`lim tizimida xorijiy tillarnni o‘qitilsa qanday natija bo‘lishi haqida qisqacha tushunchalar berilgan.*
Kalit so‘zlar: *STEAM ta`lim tizimi, ta`lim berish, xorijiy tillar, fan, texnologiya, muhandislik, ilm-fan.*

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THE IMPORTANCE AND ADVANTAGES OF STEAM TECHNOLOGIES TODAY

Abstract:*This article provides information about the STEAM education system, its objectives, effectiveness, and the fields of education in which it can be applied. Furthermore, it briefly discusses the potential outcomes of teaching foreign languages within this education system.*
Keywords: *STEAM education system, teaching, foreign languages, science, technology, engineering, science.*

Bugungi kunda bolalar juda zehnli va aqlli. Ular yangi davr texnologiyalari bilan hamnafas bo‘lib ulg‘aymoqda. Ularni bilim olishga qiziqtirish va bilim berishni yangi uslubiy yo‘llarini izlash zamon talabi. Ta’lim berishda hozir noan`anaviy bir uslubini ko‘rishimiz mumkin. Unda bolalar o‘nlab fanlar va darsliklarni maxsus fan qilib o‘qishmaydi. Bu STEAM ta’lim tizimi. STEAM ta`lim tizimi o‘zi nima? Agar ushbu qisqartmani yoysak, quyidagilarni olamiz: STEAM bu - S - science, T - technology, E - engineering, A - art va M - math. Ingliz tilida bu shunday bo‘ladi: tabiiy fanlar, texnologiya, muhandislik, san’at va matematika. Ushbu yo‘nalishlar zamonaviy dunyoda eng mashhur bo‘lib kelayotganini unutmang. Shuning uchun bugungi kunda STEAM tizimi asosiy tendentsiyalardan biri sifatida rivojlanmoqda. STEAM ta’limi yo‘nalishi va amaliy yondashuvni qo‘llash, shuningdek, barcha beshta sohani yagona ta’lim tizimiga integratsiyalashuviga asoslangan.

STEAM yondashuvi o‘quv samaradorligiga qanday ta’siri shuki, amaliyot nazariy bilimlar singari muhimdir. Ya’ni, o‘rganish paytida biz nafaqat miyamiz bilan, balki qo‘limiz bilan ham ishlashimiz ke rak. Faqat sinf devorlarida o‘rganish tez o‘zgaruvchan dunyo bilan hamqadam emas. STEAM yondashuvining asosiy farqi shundaki, bolalar turli xil mavzularni muvaffaqiyatli o‘rganish uchun ham miyani, ham qo‘llarini ishlatadilar. Ular olgan bilimlarni o‘zlari “ o‘ qib oladilar”.

STEAM ta’lim muhitida bolalar bilimga ega bo‘ladilar va darhol undan foydalanishni o‘rganadilar. Shuning uchun, ular o‘sib ulg‘ayganlarida va hayotiy muammolarga duch kelganda, atrof muhitning ifloslanishi yoki global iqlim o‘zgarishi bo ’ladimi, bunday murakkab masalalarni faqat turli sohalardagi bilimlarga tayanib va birgalikda ishlash orqali hal qilish mumkinligini tushunadilar. Bu mavzu bo‘yicha bilimga tayanish etarli emas. Amaliy qobiliyatga e’tibor berib, talabal y erda faqat bitta ar o‘zlarining irodasini, ijodkorligini, moslashuvchanligini rivojlantiradi va boshqalar bilan hamkorlik qilishni o‘rganadi. Ushbu ko‘nikmalar va bilimlar asosiy ta’lim vazifasini tashkil etadi, ya’ni , ta’lim tizimi nimaga intilishini. Ta’limga us hbu yangi yondashuv , bu butun nazariya va amaliyotni birlashtirishning mantiqiy natijasidir. STEAM Amerikada ishlab chiqilgan. Ba’zi maktablar bitiruvchilarning martabalarini e’tiborga olishdi va fan, texnologiya, muhandislik va matematika kabi fanlarni birlashtiri shga qaror qilishdi va STEM tizimi shu tarzda shakllandi. (Fan, texnika, muhandislik va matematika). Keyinchalik bu erda Art qo‘shildi va endi STEAM oxirigacha shakllandi.

O‘qituvchilar ushbu mavzular, aniqrog‘i ushbu fanlardan bilimlar kelajakda talabalar ning yuqori malakali mutaxassis bo‘lib etishishiga yordam beradi, deb hisoblashadi. Oxir oqibat, bolalar yaxshi bilim olishga intilishadi va uni darhol amalda qo‘llashadi. Dunyo o‘zgarib bormoqda, hatto ta’lim bir joyda turmasa ham. So‘nggi o‘n yilliklardagi o‘zgarishlar yoqimli, ammo shu bilan birga bizni havotirlantiradi. Ushbu yangi narsalarning ixtiro qilinishi bilan odamlar ilgari duch kelmagan ko‘plab yangi muammolar mavjud. Har kuni yangi ish turlari va hattoki butun kasbiy sohalar paydo b o‘ladi, shuning uchun zamonaviy o‘qituvchilar o‘qitadigan bilimlari va mahoratlari vaqt talablariga javob beradimi yoki yo‘qmi deb o‘ylashlari kerak. O‘zingizning g‘oyangizni topishga bilim yordam beradi, ammo haqiqiy ish bu g‘oyani haqiqatga aylantiradi. Agar biz an’anaviy ta’limning asosiy maqsadi bilimlarni o‘rgatish va bu bilimlardan fikrlash va ijod qilish uchun foydalanish deb aytsak, STEAM yondashuvi bizni olgan bilimlarni haqiqiy ko‘nikmalar bilan birlashtirishga o‘rgatadi. Bu maktab o‘ quvchilariga nafaqat ba’zi bir g‘oyalarga ega bo‘lish, balki ularni amalda qo‘llash va amalga oshirish imkoniyatini beradi. O‘sha. haqiqatda ishlatilishi mumkin bo‘lgan bilimgina haqiqatan ham qadrlidir. STEAM yondashuvining eng mashhur namunasi Massachu sets Texnologiya Instituti (MIT). Ushbu dunyo universitetining shiori “Mens et Manus” (Aql va qo‘l). Massachusets Texnologiya Instituti bolalarga STEAM tushunchasini oldindan o‘rganish va tanishish imkoniyatini berish uchun STEAM kurslarini ishlab chiqdi va hattoki ba’zi ta’lim muassasalarida STEAM o‘quv markazlarini yaratdi. 2014-yilda Quddusda bo‘lib o‘tgan “STEAM forward” xalqaro konferensiyasida quyidagi bayonotlar bildirildi: Bolalarni STEAMga jalb qilish. Ushbu ta’lim maktabgacha yoshdan boshlab boshlanishi kerak, shuning uchun dasturlarni bolalar bog‘chalariga kiritish kerak. Fan tili bu ingliz tilidir. Agar ilmfanni o‘rganish va olim bo‘lishni istasangiz, bu tilni bilishingiz kerak. Qizlar uchun Steam-ta’lim dasturlari kerak. Ilm-fan sohasidagi qizlar, ularning tartibliligi tufayli, o‘g‘il bolalar qila olmaydigan narsalarni qilishlari mumkin. Science is fun! Ilmfan quvnoq bo‘lishi kerak, u o‘quvchilar uchun qiziqarli va o‘ziga jalb qiluvchi bo‘lishi kerak. Xulosa qilib aytganda, shuni ta’kidlashni istardikki, an’anaviy o‘qitish uslublari bilan taqqoslaganda, o‘rta maktabdagi STEAM yondashuvi bolalarni tajribalar o‘tkazishga, modellar tuzishga, mustaqil ravishda musiqa va filmlar yaratishga, o‘z g‘oyalarini haqiqatga aylantirishga va yakuniy mahsulotni yaratishga undaydi. Ushbu ta’lim yondashuvi bolalarga nazariya va amaliy ko‘nikmalarni samarali tarzda birlashtirishga imkon beradi va universitetga kirish va keyingi o‘qishni osonlashtiradi. Ingliz tili o‘qitish: ushbu sinf o‘quvchilariga nafaqat murakkab akademik til va so‘z boyligi, balki murakkab tarkib va protseduralar ham tushunishlari kerak. O‘qituvchilar va o‘quvchilarning fan, texnika va matematikadan bilimlarini oshirishda yordam beradigan bir necha usullardan foydalanishlari mumkin. O‘qituvchilar va o‘quvchilarni qo‘llabquvvatlaydigan bir nechta ajoyib vebsaytlar mavjud. Ushbu veb-saytlarning ba'zilari turli xil mavzularda yozilgan qisqa maqolalar, shu jumladan fan, muhandislik va matematikaga oid masalalarni, o‘quvchilarga turli xil ko‘nikmalarni hosil qilishda yordam beradi. O‘quvchilarga ushbu mavzularga oid maqolalarni o‘qish orqali ular, savodxonlik mahoratini oshirishlari mumkin, bilimlarni shakllantirish, va shu bilan birga tushunish qobiliyatlarini rivojlantirishlari mumkin va qancha ko‘p yangiliklar o‘qisa va video sifatida ko‘rib tamosha qilsa, u o‘quvchi oldin nazariy jihatdan o‘rgangan so‘z boyliklari yoki xorijiy tilning biror bir grammatik jihatini amalyotda qanday bo‘lishi haqida ushbu videotasmalar yoki turli maqolalar orqali ma’limotga ega bo‘ladi O‘quvchilar bilimlarini chuqurlashtirish vositasi sifatida so‘z boyligini o‘stirishga e'tibor qaratishlari kerak. Saytlarda esa umumiy akademik lug‘at bilan boyitilgan yangi so‘zlar mavjud bo‘ladi.

Xorijiy tillarni o‘rganish sohalarida so‘z boyligi muhim ahamiyatga ega. Ushbu sohadagi murakkablik so‘zlarning ko‘p qismi lotin tilidan kelib chiqqanligi sababli, ispan, italyan, frantsuz yoki portugal tillarida so‘zlashadigan o‘quvchilarga, akademik lug‘at so‘zlaridagi lotincha ildizlar ularga, o‘z ona tillarida bo‘lishi mumkinligi haqida ma'lumot berish zarur. Xorijiy tillarni o‘rganish yo‘nalishida yana bir asosiy tushuncha bu tushunarli ma'lumotlar berish. Ingliz tilini o‘rganuvchilar siz ko‘rsatayotgan ko‘rsatmalarni tushunishlari kerak. O‘qitishni yanada tushunarli qilishga yordam beradigan ko‘plab strategiyalar mavjud bo‘lsa-da, bir nechta sodda narsalarga fotosuratlar, eskizlar, grafikalar yoki videolar kabi materiallardan foydalangan maqsadga muvofiq bo‘ladi. Xulosa qilib aytganda Steam Ta`lim tizimi yangicha metodika va ishlanmalarga boy bo‘lgan tizim. Bu tizim bilan o‘quvchilarimizni texnologiyalar bilan hamnafas bo‘lgan holatda tarbiyalaymiz. Bugungi kunda hamma yosh avlod texnologiyalarga qiziqadi. Demak, bu tizimda qiziquvchanlik bilan o‘rganishadi.

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COMPREHENSIVE REFORMS ARE BEING IMPLEMENTED IN OUR COUNTRY TO LAY THE FOUNDATION FOR THE THIRD RENAISSANCE — A NEW ERA OF AWAKENING

Annotation. *This article analyzes the comprehensive reforms currently being implemented in Uzbekistan aimed at laying the groundwork for the Third Renaissance, a concept symbolizing a new era of intellectual, cultural, and social awakening. The paper explores how these reforms span across education, culture, science, governance, and social policy, with a particular focus on the human capital development and the strengthening of national identity. Emphasis is placed on the transformative role of education—especially pedagogical and social education—in fostering the values and competencies necessary for this renaissance to become a long-term, sustainable movement.*

Keywords. *Third Renaissance, awakening, Uzbekistan, education reforms, social development, modernization, human capital, national identity*

Uzbekistan is undergoing a historic phase of development, widely referred to as the foundation of the Third Renaissance—a strategic vision that emphasizes national renewal through education, science, culture, and innovation. Rooted in the rich intellectual legacy of the First and Second Renaissances (associated with the eras of Imam al-Bukhari, Al-Khwarizmi, Ibn Sina, and other Central Asian scholars), this new awakening aspires to revive the nation's creative and moral potential within a modern context. In recent years, the government has launched a broad spectrum of reforms to modernize institutions, elevate the quality of education, expand access to technology, and ensure social justice.

Particularly significant is the emphasis placed on human development and the strengthening of civil society. The modernization process prioritizes the empowerment of youth, gender equality, and the development of a critical and independent-thinking citizenry. As Uzbekistan transitions into a knowledge-based society, the role of education—especially in pedagogical and social domains—becomes indispensable. The reformation of curricula, the integration of digital learning tools, and the focus on ethical education are not only technical improvements but ideological commitments to shaping a forward-thinking generation.

These initiatives are not isolated actions but are aligned with the country's long-term development strategy, including the "New Uzbekistan" concept. Education, being both a driver and beneficiary of these reforms, is positioned as the cornerstone of social transformation. This paper seeks to explore how these reformative measures contribute to the envisioned Third Renaissance, particularly through the lens of pedagogical and social education.

The concept of the Third Renaissance in Uzbekistan is not merely rhetorical; it is deeply embedded in practical, institutional, and cultural transformations. Among the most significant areas affected by these reforms is the education sector, which has received a strategic emphasis as a tool for cultivating a new generation of enlightened, skilled, and socially responsible citizens. The transformation begins with the restructuring of curricula to align with global standards while preserving national values. Pedagogical universities across the country are undergoing systemic changes aimed at preparing future educators who are not only competent in their subjects but also capable of instilling civic responsibility, critical thinking, and ethical values in students.

Social education has become central to this agenda. Courses that emphasize citizenship, social responsibility, inclusive development, and multicultural tolerance are being integrated into academic programs. These changes are intended to foster a society where democratic participation, social cohesion, and national pride can flourish simultaneously. Furthermore, educational institutions are being equipped with modern infrastructure and digital technologies, enabling students to access global knowledge while remaining grounded in local traditions.

In addition to curricular innovations, teacher training has become a focal point of reform. Future educators are being trained not just in methodology, but in leadership, empathy, and adaptability. These traits are considered essential for nurturing the human capital necessary for the Third Renaissance. Innovative teaching methods—such as problem-based learning, interactive pedagogy, and interdisciplinary collaboration—are actively promoted. The education system now encourages open dialogue, project-based assessments, and the practical application of knowledge, moving away from rote memorization and passive learning.

Outside the classroom, youth programs and civic initiatives are helping reinforce the values of the Renaissance. Cultural and intellectual activities, such as student forums, academic Olympiads, and community service projects, are gaining prominence as means of cultivating active citizenship. The development of digital platforms has also increased access to educational resources, thereby democratizing knowledge and creating a more inclusive learning environment. These efforts align with the government’s broader goals of building a competitive, socially aware, and morally grounded society.

Moreover, the emphasis on Uzbek cultural and historical heritage has brought new attention to the figures and achievements of past renaissances. Institutions are promoting research and public education on thinkers like Beruni, Farobi, and Ulugbek, fostering national pride and inspiring a new generation to contribute to scientific and cultural advancements. This cultural revival goes hand-in-hand with economic and technological modernization, creating a multidimensional framework for national development.

In the context of social education, this multidimensional approach is particularly meaningful. It ensures that development is not limited to material or technical progress, but also encompasses moral and humanistic values. Social workers, teachers, and educators are at the forefront of this transformation, acting as mediators between reform policies and grassroots implementation. Their role in promoting equity, community development, and social justice is indispensable to the sustainability of the reforms.

The reforms currently unfolding in Uzbekistan mark a decisive shift toward a future defined by intellectual revival, social progress, and cultural reawakening. As the nation lays the foundation for the Third Renaissance, education—especially in the fields of pedagogy and social sciences—emerges as the primary vehicle for transformation. The systematic changes introduced in curricula, teaching methods, and institutional frameworks reflect a deep commitment to human capital development and the nurturing of an informed, ethical, and socially active generation.

The strategic integration of social education into national development policies illustrates the recognition that sustainable reform cannot occur in isolation from moral and civic advancement. By cultivating values such as inclusivity, critical thinking, and cultural awareness, Uzbekistan is building not only a modernized education system but also a resilient and forward-looking society. Teachers, educators, and social professionals are not merely implementing reforms; they are shaping the very ethos of the new era.

In this context, the Third Renaissance represents more than a slogan—it is a vision rooted in action. Through a combination of educational innovation, cultural revival, and civic empowerment, Uzbekistan is striving to position itself as a leader in regional development and a model for value-based modernization. These ongoing efforts highlight the transformative potential of reform when driven by long-term vision, strategic planning, and collective national will.

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THE THEORETICAL AND METHODOLOGICAL FOUNDATIONS OF PEDAGOGICAL EDUCATION AND UPBRINGING

Annotation:*This article analyzes the theoretical and methodological foundations of pedagogical education and upbringing, their significance in preschool and primary education, and the role of theoretical approaches and methodological principles in shaping the content of education and upbringing. It also examines the importance of modern pedagogical strategies and interdisciplinary integration. The research results emphasize the importance of methodological knowledge in ensuring a high-quality educational process.*

Introduction

The socio-economic development of modern society is directly linked to the progress of the education system. From this perspective, organizing pedagogical education and upbringing based on scientific principles, and deeply understanding their theoretical and methodological foundations, are pressing issues for every educator. Preschool and primary education are crucial stages in the development of a child as a personality. The education and upbringing provided during these stages must foster the holistic development of the child.

The theoretical and methodological foundations of pedagogy play a vital role in organizing pedagogical activity, continuously improving it, analyzing it based on scientific approaches, and developing new strategies. In this article, we will thoroughly examine the theoretical and methodological foundations of pedagogical education and upbringing, especially within the context of preschool and primary education.

1. Pedagogical Education and Upbringing: Key Concepts

Pedagogy is the science that studies the laws of human upbringing, teaching, and development. Within this field, the activity of the teacher or educator and the personal development process of the learner are analyzed.

Education is the process of forming knowledge, skills, and competencies in a person, carried out according to certain didactic principles. Upbringing, on the other hand, is a continuous process aimed at the moral, physical, aesthetic, and intellectual development of the individual.

In early childhood, these processes are conducted through play and everyday activities, while in primary education, instructional activities take on greater importance. Therefore, organizing the pedagogical process in accordance with the age characteristics of children is essential.

2. Theoretical Foundations of Pedagogy

Theory is the foundation of any scientific activity. Pedagogical theory explains the laws governing the processes of education and upbringing and provides a scientific basis for new experiences and methods. In preschool and primary education, the following theoretical approaches are of key importance:

2.1 Activity-Based Approach

According to A.N. Leontiev and L.S. Vygotsky's theory of activity, the child is an active subject in the process of assimilation. This theory emphasizes the decisive role of activity in the child's development. The child develops through independent activity and interaction with the social environment.

2.2 Developmental Instruction

The concept of developmental teaching, introduced by D.B. Elkonin and V.V. Davydov, focuses on developing logical thinking and problem-solving skills in children. This approach enhances children's thinking, independence, and creative potential.

2.3 Learner-Centered Approach

This approach ensures that education and upbringing are conducted considering each child's individual characteristics. Each child is viewed as a unique person with specific abilities, needs, and potential.

3. Pedagogical Methodology and Its Importance

Methodology refers to the system of methods and principles for organizing scientific research and practical activity. Pedagogical methodology is studied at the following levels: Philosophical level: The ontological and epistemological foundations of the pedagogical process; General pedagogical level: Principles, methods, and systems of pedagogical approaches; Interdisciplinary level: Connections with psychology, sociology, and linguistics; Specific methodological level: Methods specific to educational stages (e.g., preschool, primary).

Methodological foundations are reflected in: Planning the educational process; Developing curricula; Selecting interactive methods; Determining ways to work individually with children.

4. Pedagogical Principles and Methods

In preschool and primary education, the following pedagogical principles play a central role: Consistency and systematization; Appropriateness to age characteristics; Encouraging activity and independence; Learning through play;

Creating a moral and psychological environment.

Based on these principles, the following methods are used: Conversation and Q&A;

Play methods (role-play, dramatization); Visual aids (pictures, models); Use of information and communication technologies (ICT).

5. Interdisciplinary Integration and Holistic Approaches

Modern education cannot be complete without interdisciplinary integration. For example, in preschool education, mathematics, language, and environmental studies are taught together. This helps form a comprehensive worldview in children.

In primary education, interdisciplinary approaches help: Enhance logical thinking; Assimilate knowledge in an interconnected way; Develop practical skills.

6. Assessing the Effectiveness of Education and Upbringing

To ensure that theoretical and methodological foundations improve the quality of education and upbringing, results must be regularly assessed. Evaluation is based on the following criteria: Depth and retention of knowledge; Creative thinking skills; Social activity and communication ability; Demonstration of moral qualities.

Assessment methods include portfolios, diagnostic tests, psychological observations, parent-teacher interviews, and other tools.

Conclusion

A deep understanding and application of the theoretical and methodological foundations of pedagogical education and upbringing serve to organize a high-quality educational process in preschool and primary education. If every educator masters these concepts and applies them effectively in practice, it becomes possible to nurture well-rounded, independent-thinking, and socially active individuals.

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MAKTABGACHA YOSHDAGI BOLALARNING KOGNITIV JARAYONLARI VA AQLIY RIVOJLANISHINING AHAMIYATI

Annotatsiya: *Ushbu maqolada Maktabgacha yoshdagi bolalarning bilish jarayonlari va aqliy rivojlantirish haqida yoritilgan. Bilish jarayonida bolaning ongi, his tuyg'ulari shakllanadi. Eng muhimi ijtimoiy hayot uchun zarur bo'lgan va ijtimoiy munosabatlarga xizmat qiladigan xulqiy odatlar hosil bo'ladi. Maktabgacha yoshdagi bolalarning yosh va individual xususiyatlarini e'tiborga olgan holda ularning har tomonlama rivojlanishini ta'minlashga xizmat qiladi. Maktabgcha ta'lim tashkilotlari ham bolalarni har tomonlama tarbiyalaydi*

Kalit so'zlar: *Maktabgacha yosh, bola, bilish jarayon, aqliy rivojlantirish, ongi, his tuyg'u, individual xususiyat, og'zaki ijodiyot, mutafakkir, pedagog,olim*

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THE IMPORTANCE OF COGNITIVE PROCESSES AND MENTAL DEVELOPMENT OF PRESCHOOLERS

Abstract*: This article examines the cognitive processes and mental development of preschoolers. In the process of cognition, the child's consciousness and feelings are formed. First of all, behavioral habits are formed that are necessary for social life and serve social relationships. It serves to ensure the comprehensive development of preschoolers, taking into account their age and individual characteristics. Preschool educational organizations also provide comprehensive education for children.*

Keywords: *preschooler, child, cognitive process, mental development, consciousness, feeling, individual peculiarity, verbal creativity, thinker, teacher,scientist*

Maktabgacha yoshidagi bolalar turli narsalarni idrok qilishda ularning ko'zga yaqqol tashlanib turuvchi belgilariga asoslansalar ham, lekin chuqur tahlil qila olmaydilar. O`zbekiston Respublikasini rivojlangan mamlakatlar qatoridan joy egallashini ta‟minlash, yosh avlodning komil inson bo`lib kamol topishiga bevosita bog`liqdir. O`zbekiston Respublikasi Prezidenti Sh.Mirziyoyev rahbarligida 2017 yil 16 avgust kuni bo`lib o`tgan yig`ilishda maktabgacha ta'limtizimini tarkibiy jihatdan tubdan isloh qilish, mazkur muassasalarga bolalarni to`la qamrab olish bo`yicha muhim vazifalar qo`yildi. Bu boradagi tahlillar natijasida qisqa vaqtda uchta yirik hujjatO`zbekiston Respublikasi Prezidentining 9 sentyabrdagi "Maktabgacha ta'lim tizimini tubdan takomillashtirish chora-tadbirlari to`g`risida"gi PQ-3261-sonli qarori, 30 sentyabrdagi "Maktabgacha ta'lim tizimi boshqaruvini tubdan takomillashtirish chora-tadbirlari"gi PF-5198-sonli Farmoni hamda "O`zbekiston Respublikasi Maktabgacha ta'lim vazirligi –faoliyatini tashkil etish to`g`risida"gi PQ-3305-sonli qarori qabul qilindi. O'zbekiston Respublikasi Maktabgacha ta'lim vazirligi, uning hududiy bo'linmalarining asosiy vazifalari va faoliyati yo'nalishlari qatorida ilg'or xorijiy tajribani hisobga olgan holda maktabgacha yoshdagi bolalarni har tomonlama intellektual, ahloqiy, estetik va jismoniy rivojlantirish uchun shart-sharoitlar yaratish berish belgilandi. Shuning uchun ham o'zbek milliy-ma'naviy merosi jahon madaniyatining ajralmas uzviy qismidir. Bugungi globallashuv jarayonida dunyo miqyosida maktabgacha yoshdagi bolalarni ma'naviy-axloqiy tarbiyalashning innovatsion modellari va mexanizmlari ishlab chiqish, xalq og'zaki ijodi namunalarini pedagogik texnologiyalar va ta'lim strategiyalari bilan o'zaro uyg'unlikda bag'rikenglik munosabatlari ruhida va ma'naviy-axloqiy tarbiyalashning ilmiy-metodik ta'minotini takomillashtirish, maktabgacha yoshdagi bolalarni sog'lom muhitda ta'lim va tarbiya olishlarini ta'minlash, ularni boshlang'ich maktab ta'limiga sifatli tayyorlash dolzarb yo'nalishlardan biri hisoblanadi. Maktabgacha yoshdagi bolalarning kelgusida maktab bilimini yaxshi o'zlashtirishi, maktabga moslashuvining yengil o'tishi, bola shaxsida yuzaga kelishi mumkin bo'lgan muammolarning oldini olish, qiyinchiliklarni bartaraf etishni amalga oshirishda bolalarning maktabgacha ta'lim tashkilotiga jalb etilganligi, ta'limga qamralganligi alohida ahamiyatga egadir.

Aqliy tarbiyaning asosiy vazifalari:

1. Bolalarda tabiat va jamiyat to'g'risidagi bilimlar tizimini, ilmiy dunyoqarashni shakklantirish;
2. Aqliy faoliyat bilish jarayonlari va qobiliyatlarini, aqliy jarayonning xilma xil usullarini rivojlantirish;
3. Mustaqil bilish qobiliyatlarini aqliy mehnat madaniyatini rivojlantirish;
4. Aqliy bilim, ko'nikma va malakalarini rivojlantirish.

Bilimni tasavvurlar va tushunchalar, qoidalar, qonuniyatlar, sistemalar shaklidagi turli fanlarning mazmunini tashkil etadi. Aqliy tarbiyaning vazifasi bolalarda voqea va hodisalarni to'la aks ettiradigan yuksak darajadagi umumlashtirilgan bilimlar tizimini shakklantirishdan iboratdir. Bilim dunyoqarashning asosini tashkil etadi.

Xullas, bola eng oddiy aqliy faoliyat usullarini egallab boradi. Maktabgacha yoshdagi bolalarning aqliy rivojlanishini ta'minlash ularning kelajakdagi butun faoliyati uchun katta ahamiyatga ega .Bola ijtimoiy muhit ta'sirida aqliy tomondan rivojlanib boradi. Atrofdagi kishilar bilan muomala qilish jarayonida u tilni va u bilan tarkib topgan tushunchalar sistemasini o'zlashtiradi. Natijada maktabgacha tarbiya yoshidagi bola tilni shunchalik egallab oladiki,undan muomala vositasi sifatida erkin foydalanilgan bo'lib qoladi. Vatanimiz mustaqillikka erishgach, barcha sohalar qatorida maktabgacha ta'lim sohasida ham juda ko'plab ijobiy o'zgarishlar yuz bermoqda. Bugungi maktabgacha yoshdagi bolajonlar va qizaloqlar zimmasida sog'lom, aqlli bo'lib, jamiyatimizning faol a'zolariga aylanishdek katta vazifa turibdi.

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FEATURES OF COLLATERAL CIRCULATION OF THE LIVER AFTER DISCONNECTION OF LOBAR ARTERIES IN THE BACKGROUND OF MODELING A NUMBER OF PATHOLOGICAL STATES

Abstract: *The article studies the features of collateral circulation of the liver after disconnection of lobar arteries in the background of modeling a number of pathological conditions. Collateral circulation of the liver after disconnection of the main trunk of the hepatic artery, as well as its lobar or intramural branches, was studied in morphological aspects against the background of an intact, practically "healthy" liver, which is not adequate to clinical conditions.*
Keywords: *dog, liver, blood flow, artery, necrosis, blood circulation, nerve plexus, hepatitis, lobar artery.*

Introduction. Abdominal trauma with internal organ damage significantly contributes to the overall injury profile [2]. Abdominal trauma is characterized by multiple injuries, significant blood loss, high mortality rates, and frequent postoperative complications [3]. One of the primary sources of bleeding in abdominal trauma is liver injury [1]. The volume of blood loss and the time required to achieve hemostasis from liver wounds are among the limiting factors in efforts to save the lives of patients with severe combined trauma [4,5]. Therefore, developing a rapid and reliable hemostasis method for liver injuries, determining indications for its use, and establishing a surgical algorithm are potential solutions to this critical issue.

Study Objective. We investigated the characteristics of collateral blood flow in the liver after ligation of lobar arteries under conditions modeling various pathological states.

Materials and Methods. To study collateral blood flow in the liver under pathological conditions, we ligated both lobar arteries in 10 dogs with experimentally induced hepatitis or portal hypertension. Experimental hepatitis was induced by subcutaneous administration of a carbon tetrachloride (CCl_4) solution in olive oil at intervals of 48 hours, at a dose of 0.6 ml per kg of body weight.

Results. Before the administration of CCl_4, the dogs' blood parameters were as follows: total bilirubin 0.8 mg%, direct bilirubin undetectable, indirect bilirubin 0.7 mg%, residual nitrogen 21 mg%, total serum protein 6.77%, albumin 60.89%, globulins α 20.0%, β 13.42%, γ 5.757%, albumin-globulin ratio 1.4 cm³. After 15–17 injections, total blood protein decreased to 5.25%, albumin levels dropped to 53.48%, globulins increased to 27.9%, residual nitrogen rose to 30 mg%, and the sublimate test became positive at 1.2 cm³. In this context, in two dogs, the lobar arteries supplying the left lateral and medial lobes were ligated. Postmortem roentgenangiograms revealed clear avascular zones in the affected lobes. To improve collateral blood flow in the liver under hepatitis conditions, we simultaneously ligated two lobar arteries and removed the periadventitial nerve plexus along the entire length of the hepatic artery trunk, as well as performed extirpation of the right semilunar ganglion of the celiac plexus. These combined arterial and neural interventions were performed in three dogs after 15–17 CCl_4 injections. However, no significant positive effect of denervation on collateral blood flow development was observed. For instance, preoperative biochemical parameters in one dog with hepatitis were as follows: protein fractions – albumin 31.46%, globulins 24.573%, β 2.870%, γ 24.574%, total bilirubin 0.6 mg%, residual nitrogen 36 mg%, sublimate test 1.4 cm^3, cholesterol 220 mg%. Similar blood changes indicative of hepatitis were observed in two other dogs. In these conditions, ligation of two lobar arteries combined with removal of the hepatic nerve plexus (as in the previous group) led to extensive necrosis of the left medial and lateral liver lobes in three dogs. The data indicate limited possibilities for developing collateral blood flow in the liver after ligation of two lobar arteries under conditions of pronounced experimental hepatitis, as well as minimal impact of hepatic nerve plexus removal on collateral blood flow development. In other experiments, a model of subhepatic portal blood flow obstruction was created in four dogs by stenosing the portal vein. Portal pressure was measured via phlebotonometry in one of the mesenteric veins before and after stenosis. In one dog, pre-stenosis pressure was 56 mm H_2O, increasing to 120 mm H_2O after 50% stenosis of the portal vein lumen. A repeat laparotomy after 7 days showed a pressure reduction to 100 mm H_2O. The dog died 4 days later. At autopsy, macroscopic examination revealed delicate adhesions between the greater omentum and the ventral abdominal wall, the diaphragmatic surface of the liver and the diaphragm, the liver and the duodenum, and between intestinal loops. The liver was congested, with the two ischemic lobes appearing flabby and exhibiting grayish areas with necrotic decay. Roentgenangiograms showed avascular zones in these lobes, while adjacent lobes displayed well-injected intraorgan arterial branches. In other dogs, the plasticity of liver vessels was studied after ligation of two lobar arteries supplying the left medial and lateral lobes under conditions of complete subhepatic portal blood flow obstruction. In one dog, the first stage involved 50% stenosis of the portal vein trunk. The dog died after 3 days. Autopsy revealed extensive necrotic areas in the ischemic liver lobes, confirmed by roentgenangiograms and histological preparations. Notably, spontaneous adhesions formed between the greater omentum and the ventral abdominal wall and liver, as well as between the liver and diaphragm, resulting in spontaneous omentohepato-diaphragmopexy. However, this did not prevent the development of necrosis. Roentgenangiograms showed only solitary and very small vessels in these adhesions.

Conclusion. Summarizing the results and comparing our experiments, it should be noted that collateral blood flow in the liver, sufficient in an intact, nearly “healthy” liver after ligation of two adjacent arteries, was inadequate in all described cases. This should be considered when addressing the still-debated issues regarding the appropriateness of ligating hepatic artery branches and manipulating extreme hepatic nerve plexuses in the treatment of various liver pathologies.

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SUN’IY INTELLEKTDAN FOYDALANISH METODLARI

Annotatsiya: *Ushbu maqolada sun’iy intellekt (SI) texnologiyalarining turli sohalarda qo‘llanilish metodlari tahlil qilinadi. Asosiy e’tibor SI dan foydalangan holda samaradorlikni oshirish, qaror qabul qilishni avtomatlashtirish va katta hajmdagi ma’lumotlarni tahlil qilish imkoniyatlariga qaratilgan. Tibbiyot, ta’lim, sanoat, moliya va transport kabi yo‘nalishlarda qo‘llanilayotgan zamonaviy yondashuvlar misollar orqali ko‘rsatib beriladi. Shuningdek, tadqiqot davomida SI texnologiyalarining afzalliklari va mavjud cheklovlari ham muhokama qilinadi.*

Kalit so‘zlar:*Sun’iy intellekt, mashinaviy o‘rganish, neyron tarmoqlar, avtomatlashtirish, ma’lumotlar tahlili, SI metodlari, raqamli transformatsiya.*

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METHODS OF USING ARTIFICIAL INTELLIGENCE

Annotation: *This article analyzes the methods of using artificial intelligence (AI) technologies in various fields. The main focus is on the possibilities of using AI to increase efficiency, automate decision-making, and analyze large amounts of data. Modern approaches used in areas such as medicine, education, industry, finance, and transport are illustrated through examples. The study also discusses the advantages and existing limitations of AI technologies.*

Keywords: *Artificial intelligence, machine learning, neural networks, automation, data analysis, AI methods, digital transformation.*

Kirish: Zamonaviy dunyoda sun’iy intellekt texnologiyalari hayotning barcha jabhalariga tobora chuqur kirib bormoqda. Yaqin o‘n yillik ichida SI yordamida turli sohalarda inqilobiy o‘zgarishlar yuz berdi. SI tizimlari odamlarning kognitiv faoliyatini qisman yoki to‘liq almashtirib, murakkab masalalarni tezkor hal etish imkonini yaratmoqda. Ushbu maqolada SI texnologiyalarining amaliy qo‘llanilishi, ularning asosiy metodlari va ularni joriy etishda qo‘llanilayotgan ilmiy asoslar yoritiladi.

Tadqiqot metodologiyasi

Maqola yozilishida quyidagi metodologik yondashuvlardan foydalanildi:

Tahlil va sintez: SI texnologiyalarining amaliy qo‘llanilishi haqidagi ilmiy manbalar, maqolalar va statistik ma’lumotlar tahlil qilindi.

Taqqoslash metodi: Turli metodlarning afzallik va kamchiliklari o‘zaro solishtirildi.

Amaliy misollar: Tibbiyotda kasalliklarni aniqlash, ta’limda adaptiv o‘qitish, sanoatda robototexnika orqali avtomatlashtirish kabi real holatlar o‘rganildi.

Diagramma va vizualizatsiyalar: Ma’lumotlar asosida grafiklar va jadval orqali SI metodlarining samaradorligi ko‘rsatildi.

Sun’iy intellektdan foydalanish metodlari zamonaviy ilm-fan va texnologiya taraqqiyotida muhim o‘rin tutadi. Ushbu metodlar murakkab masalalarni hal qilishda inson ongiga yaqin faoliyatni imitatsiya qilish orqali zamonaviy tizimlar samaradorligini oshirishga xizmat qiladi. Har bir metod o‘ziga xos texnik asosga, amaliy ko‘lamga va ma’lumotlar bilan ishlash imkoniyatlariga ega. Eng ko‘p qo‘llaniladigan yondashuvlardan biri bu — **mashinaviy o‘rganish (machine learning)** metodidir. Bu metod ma’lumotlardan o‘rganish orqali tizimning o‘zini o‘zi takomillashtirishiga asoslanadi. Mashinaviy o‘rganish turli algoritmlar orqali ishlaydi: masalan, regressiya, qaror daraxtlari, k-najot beruvchi qo‘shnilar metodi, bayes klassifikatorlari va boshqalar. Bu yondashuv orqali sun’iy intellekt tizimlari inson aralashuvisiz yangi bilimlarni o‘zlashtiradi, tendensiyalarni aniqlaydi va bashoratlar beradi. Ayniqsa, moliyaviy firibgarlikni aniqlash, reklama tizimlarini optimallashtirish yoki elektron tijoratda mijoz xatti-harakatlarini tahlil qilishda keng qo‘llaniladi.

Chuqur o‘rganish (deep learning) esa, mashinaviy o‘rganishning murakkabroq shakli bo‘lib, asosan **sun’iy neyron tarmoqlar**ga asoslanadi. Bu metod katta hajmdagi murakkab, tuzilgan yoki tuzilmagan ma’lumotlar — masalan, tasvirlar, audio va matnlarni qayta ishlashda juda samarali. Tibbiyot sohasida rentgen tasvirlarini aniqlash, tilni avtomatik tarjima qilish yoki ovozni tanib olish kabi vazifalarda aynan chuqur o‘rganish texnologiyalari ishlatiladi. Bu metodlarning kuchli tomoni — ma’lumotlar ichidagi yashirin qonuniyatlarni chuqur darajada o‘rganish qobiliyatidir. Bundan tashqari, **ekspert tizimlar** deb ataluvchi metodlar mavjud bo‘lib, ular inson mutaxassislarining bilim va tajribasini modelga aylantirib, muayyan muammoni hal qilishda foydalanuvchiga maslahat beradi. Bunday tizimlar, odatda, aniq qoidalar asosida ishlaydi. Ular huquqiy tahlil, texnik diagnostika yoki sog‘liqni saqlash sohalarida keng qo‘llaniladi. Yana bir muhim yondashuv bu — **tabiiy tilni qayta ishlash (Natural Language Processing, NLP)** metodidir. Ushbu metod yordamida SI tizimlari inson tilini tushunadi, analiz qiladi va unga javob qaytaradi. Chatbotlar, avtomatik tarjimonlar, ovozli yordamchilar (masalan, Siri, Alexa) NLP metodlariga asoslanadi.

Sun’iy intellektning yana bir amaliy jihati — **kuchaytirilgan intellekt (augmented intelligence)** yondashuvidir. Bu yondashuvda SI inson faoliyatini to‘liq almashtirmaydi, balki uni qo‘llab-quvvatlaydi, yordam beradi. Misol uchun, tibbiy diagnostikada SI shifokorga qo‘shimcha tavsiyalar beradi, lekin yakuniy qarorni inson qabul qiladi.

Xulosa

Sun’iy intellektdan foydalanish metodlari hozirgi zamonaviy jamiyat taraqqiyotining ajralmas elementi sifatida shakllanmoqda. Mashinaviy o‘rganish, chuqur o‘rganish, ekspert tizimlari va tabiiy tilni qayta ishlash kabi texnologik yondashuvlar turli sohalarda innovatsion yechimlarni taqdim etib, mavjud jarayonlarni avtomatlashtirish, optimallashtirish va intellektual tahlil qilish imkonini bermoqda. O‘tkazilgan tahlillar shuni ko‘rsatadiki, sun’iy intellekt texnologiyalarini ilmiy asosda, bosqichma-bosqich joriy etish orqali ishlab chiqarish samaradorligi, xizmatlar sifati va inson salomatligi bilan bog‘liq tizimlarning ishonchliligi sezilarli darajada ortmoqda. Shu bilan birga, SI tizimlaridan foydalanishda axloqiy tamoyillarga amal qilish, shaffoflikni ta’minlash hamda insonning nazorati va ishtirokini saqlab qolish zamonaviy raqamli muhitda barqaror va xavfsiz taraqqiyot uchun muhim shart hisoblanadi.

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JIGAR BO`LAKLARIGA BORUVCHI ARTERIYALARINI BOGLAGANDAN SO`NG BIR QATOR PATOLOGIK HOLATLARNI MODELLASHTIRISH FONIDA KOLLATERAL QON AYLANISH XUSUSIYATLARI

***Annotatsiya**: Maqolada jigarning bo`laklariga boruvchi arteriyalarini bog`lagandan so`ng bir qator patologik holatlarni modellashtirish fonida kollateral qon aylantirishning xususiyatlari o`rganilgan. Jigar arteriyasining asosiy shoxlari, shuningdek, jigar bo`laklariga boruvchi arteriyalari yani intramural shoxlarini bog`lagandandan so`ng jigarning kollateral qon aylantirishi morfologik jihatlardan, deyarli "sog`lom" jigarga qiyosiy soloshtirib o`rganilgan, bu esa klinik sharoitlarga to`liq mos kelmaydi.*

Kalit so`zlar:** it, jigar, qon oqimi, arteriya, nekroz, qon aylantirish, nerv to`qimasi, gepatit, lobar arteriya**.

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FEATURES OF COLLATERAL CIRCULATION OF THE LIVER AFTER DISCONNECTION OF LOBAR ARTERIES IN THE BACKGROUND OF MODELING A NUMBER OF PATHOLOGICAL STATES

***Abstract:** The article studies the features of collateral circulation of the liver after disconnection of lobar arteries in the background of modeling a number of pathological conditions. Collateral circulation of the liver after disconnection of the main trunk of the hepatic artery, as well as its lobar or intramural branches, was studied in morphological aspects against the background of an intact, practically "healthy" liver, which is not adequate to clinical conditions.*

***Keywords:** dog, liver, blood flow, artery, necrosis, blood circulation, nerve plexus, hepatitis, lobar artery.*

Kirish. Biz jigar bo`lagiga boruvchi arteriyalarini boglagandan so`ng 15 kunlik mexanik sariqlik fonida kollateral qon oqimining rivojlanishining anatomik jihatlarini o`rgandik. Ushbu tajribalarda, sog`lom jigarda kollateral qon aylanish to`girisida ilmiy ishlarda ytarilcha ma`lumotlar toppish qiyin. [1,3,5] qarama-qarshi ravishda, arteriyalari bog`langanda jigar bo`laklarida keng ko`lamli nekrozlar paydo bo`ldi [2,4].

Tadqiqot maqsadi. Tajribada itlarda jigarning bo`laklariga boruvchi arteriyalarini bog`lagandan so`ng bir qator patologik holatlarni modellashtirish fonida kollateral qon aylantirishning xususiyatlarini o`rganish.

Tadqiqot materiallari va usullari. Jigarning patologik holatlari fonida kollateral qon oqimini o`rganish uchun 10 ta itlarda tajribaviy gepatit yoki portal gipertenziya sharoitida jigarning ikkala bo`lak arteriyasi bog`landi. Tajribaviy gepatit zaytun moyida eritilgan SSl4 eritmasini har 48 soatda 0,6 ml/kg dozada teri ostiga yuborish orqali chaqirildi. In`ektsiyalardan oldin itlarda qondagi umumiy bilirubin 0,8 mg%, to`g`ri bilirubin aniqlanmadi, bilvosita bilirubin 0,7 mg%, qoldiq azot 21 mg%, qon zardobidagi umumiy oqsil 6,77%, albuminlar 60,89%, globulinlar: a -20,0%, b — 13,42%, g - 5,757%, albumin-globulin koeffitsienti 1,4 sm^3 edi. 15-17 in`ektsiyadan so`ng qonning umumiy oqsili 5,25% gacha kamaydi, albuminlar 53,48% gacha pasaydi, globulinlar 27,9% gacha ko`paydi, qoldiq azot 30 mg% gacha oshdi, sulema reaksiyasi 1,2 sm (musbat bo`ldi). Ushbu fonida ikkita itda chap lateral va medial bo`laklarga boradigan ikkita arteriyasi bog`landi. Tajriba davomida 2 ta it 48 soatdan so`ng nobud bo`ldi. Autopsiyada makroskopik ravishda ko`rsatilgan ulushlar g`ayritabiiy qoramtir rangga ega bo`ldi. O`limdan keyingi rentgenoangiogrammalarda tomiri bog`langan bo`laklarda chegarasi aniq avaskulyar zonalar ko`rindi. Gepatitni modellashtirish fonida kollateral qon oqimini yaxshilash maqsadida ikkita bo`lak arteriyani bog`lash bilan bir vaqtda jigar arteriyasining asosiy shoxi bo`ylab intramural nerv to`qimasi olib tashlandi, shuningdek, chanoq nerv to`qimasining o`ng yarimldagi yrimoysimon tuguni ekstripatsiya qilindi. Bunday bir vaqtli aralashuvlar SSl4 ning 15-17 in`ektsiyasidan so`ng uchta itda amalga oshirildi. Biroq, denervatsiyaning kollateral qon oqimining rivojlanishiga sezilarli ijobiy ta`siri kuzatilmadi. Masalan, operatsiyadan oldin bir itda gepatit bilan biokimyoviy ko`rsatkichlar quyidagicha edi: oqsil fraktsiyalari - albuminlar 31,46%, globulinlar 24,573%, b - 2,870%, g - 24,574%, umumiy bilirubin 0,6 mg%, qoldiq azot 36 mg%, sulema sinovi 1,4 $sm^3$, xolesterin 220 mg%. Yana ikkita itda ham qonda gepatit rivojlanganligini ko`rsatuvchi o`zgarishlar aniqlandi. Bunday sharoitda ikkita jigar bo`laklariga boruvchi arteriyani bog`lash va jigar nerv to`qimasini olib tashlash (oldingi tajriba guruhidagidek) uchta itda chap medial va lateral ulushlarda keng ko`lamli nekrozlar rivojlanishiga olib keldi.

Tadqiqot natijalari. Yuqorida bayon qilinganlardan ko`rinib turibdiki, olingan ma’lumotlar eksperimental gepatit fonida jigarning ikkita bo`lagiga boruvchi arteriyalarni bog`lagandan so`ng jigarda kollateral qon oqimi rivojlanish imkoniyatlarining cheklanganligini, jigarda nerv to`qimasini olib tashlashning kollateral qon oqimiga ta`sirining kamligini ko`rsatadi. Boshqa tajribalarda to`rtta itda portal qon oqimining jigarostida bloklash modeli yaratildi, bunda portal venaning stenozi orqali amalga oshirildi. Portal bosim flebotonometriya yordamida stenoz oldidan va keyin bir mesenterik venada bog`landi. Bir itda stenozdan oldin flebotonometriya ko`rsatkichlari 56 mm H_2O, 1/2 bo`shliqni dozalangan stenozdan keyin esa 120 mm $H_2O$ ni tashkil etdi. 7 kundan so`ng takroriy laparotomiya o`tkazildi. Portal vena tizimidagi bosim 100 mm $H_2O$ gacha pasaydi. Yuqorgi va pastki tutqich venalari, taloq venalarida sezilarli darajada kengayganligi aniqlandi. So`ngra, tajribaviy gepatitdagi kabi, jigarning ikkita bo`lagiga boruvchi arteriyalari bog`landi. 4 kundan so`ng it nobud bo`ldi. Makroskopik tekshiruvda katta omentum bilan ventral qorin devori, jigarning diafragma yuzasi va diafragma, jigar va o`n ikki barmoq ichak, shuningdek ichak halqalari o`rtasida nozik yopishmalar aniqlandi. Jigar qon bilan to`lgan, ikkita ishemizatsiyalangan bo`laklar bo`shashgan, ularda kulrang rangdagi nekrotik parchalanish joylari kuzatildi. Rentgenoangiogrammalarda bu bo`laklarda vaskulyar zonalar aniqlandi. Qo`shni bo`laklarda organ ichidagi arteriya shoxlari yaxshi in`ektsiya qilingan edi. Gistologik nazoratda bu bo`laklardada to`liq nekroz aniqlandi. Boshqa bir itda chap lateral ulushga boradigan bitta bo`lak arteriya boglangan edi. It 5 kundan so`ng nobud bo`ldi. Laprotomiya qilinganda qorin bo`shlig`i a'zolari qon bilan to`lgan, jigar shishgan va hajmi oshgan, ammo chap lateral bo`lakda makroskopik ko`rinadigan nekroz joylari aniqlanmadi. Xarakterli jihati shundaki, bu tajribalarda katta omentumning ventral qorin devori va jigar bilan, shuningdek jigar va diafragma o`rtasida o`z-o`zidan yopishmalar paydo bo`ldi, ya'ni omento-gepato-diafragmopeksiya spontan ravishda yuzaga keldi, ammo bu nekrotik jarayon rivojlanishini oldini olmadi. Rentgenoangiogrammalarda bu yopishmalar tomirlari bir nechta va juda mayda edi.

Xulosa. Yuqoridagilarni umumlashtirib, tajribalarimiz natijalarini taqqoslaganda shuni ta`kidlash kerakki, intakt, deyarli "sog`lom" jigar sharoitida yetarli bo`lgan ikkita bo`lakga boruvchi arteriyani bog`lagandan so`ng jigarning kollateral qon aylantirishi barcha keltirilgan holatlarda yetarli bo`lmadi. Bu, ehtimol, jigar arteriyasi shoxlarini bog`lanishining maqsadga muvofiqligi va turli xil jigar patologiyalarini davolashda jigarning nerv to`qimalariga ta`sir qilish masalalarini ko`rib chiqishda hisobga olinishi mumkin.

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O‘ZBEKISTONDA PUL MUOMALASINI TASHKIL ETILISHI VA UNING ASOSLARI

Annotatsiya: *Ushbu maqolada O‘zbekiston Respublikasida pul muomalasining tashkil etilishi jarayoni va uning iqtisodiy asoslarini o‘rganishga qaratilgan. Yurtimizda pul muomalasining tarixi, milliy valyuta-so‘mning joriy etilishi, Markaziy bankning pul-kredit siyosatini boshqarishdagi roli va davlat tomonidan pul muomalasini tartibga solish bo‘yicha qabul qilingan qonun hamda qarorlar yoritilgan. Shuningdek, pulning iqtisodiy mohiyati, uning jamiyatdagi ijtimoiy-iqtisodiy munosabatlarda tutgan o‘rni, bozor munosabatlari va bank tizimidagi o‘zgarishlar bilan bog‘liq asosiy jihatlar ta’kidlanadi.*

Key words: *Money circulation, national currency, som, monetary and credit policy, central bank, emission, regulation of money circulation, economic foundations, banking system, socio-economic relations, market relations, laws and regulations, economic stability.*

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ORGANIZATION OF MONEY CIRCULATION IN UZBEKISTAN AND ITS BASES

Abstract**:** *This article is aimed at studying the process of organizing monetary circulation in the Republic of Uzbekistan and its economic foundations. The article highlights the history of monetary circulation in our country, the introduction of the national currency, the soum, the role of the central bank in managing monetary policy, and laws and decisions adopted by the state to regulate monetary circulation.*

Kalit so‘zlar: *Pul muomalasi, milliy valyuta, so‘m, pul-kredit siyosati, markaziy bank, emissiya, pul muomalasini tartibga solish, iqtisodiy asoslar,bank tizimi, ijtimoiy-iqtisodiy munosabatlar, bozor munosabatlari, qonunlar va qarorlar, iqtisodiy barqarorlik.*

KIRISH. Pulning iqtisodiy mohiyati xususida iqtisodiy adabiyotlarda turli ta'riflar va talqinlar mavjud bolib, uning mohiyatiga nisbatan yagona yondashuv mavjud emas. Chunki, jamiyatda xo'jalik yuritish tizimining va ijtimoiy-iqtisodiy sharoitning o'zgarishi pulning mohiyatini turlicha talqin etilishini talab etmoqda. Jumladan, iqtisodchi olimlar va soha mutaxassislari pulni - iqtisodiy kategoriya sifatida qiymat olchovi vositasi, umumekvivalent tovar, maxsus tovar, ayirboshlash vositasi ekanligini e'tirof etadi. Pul jamiyatda sodir bolayotgan ijtimoiy-iqtisodiy munosabatlarda, jami ijtimoiy mahsulotni yaratish, taqsimlash va qayta taqsimlashda, bozordagi talab va taklif asosida tovarlar bahosini aniqlashda bevosita qatnashishi uning mohiyatini namoyon qiladi. Ayniqsa, keyingi yillarda o'z faoliyatini boshlagan nobank tashkilotlari hisoblangan mikrokredit tashkilotlari va lombardlar bank xizmatlari bozorida tijorat banklariga kuchli raqobatni yuzaga chiqarmoqdalar.

Pul muomalasini tashkil etishni amalga oshiruvchi, tartibga soluvchi va nazorat qiluvchi yagona organ, davlatning zaxira va emission muassasasi - O'zbekiston Respublikasi Markaziy banki tashkil etilib, xalqaro standartlar talablariga to'liq javob beradigan O'zbekiston Respublikasining 1995-yil 21-dekabrda "O'zbekiston Respublikasining Markaziy banki to'g'risida"gi Qonuni qabul qilindi. Bundan tashqari, O'zbekiston Respublikasi Vazirlar Mahkamasining 1994 yil 18 martdagi "Bank tizimini takomillashtirish, pul-kredit munosabatlarini barqarorlashtirish chora-tadbirlari to'g'risida"gi 146-sonli Qarorining ijrosini ta'minlash maqsadida, Markaziy bankning oltin-valuta zaxiralarini shakllantirish va undan foydalanish bilan bog'liq bo'lgan operatsiyalarni amalga oshirish qoidalari tasdiqlandi. O'zbekiston Respublikasi Prezidentining 1994-yilning 16- iyundagi "O'zbekiston Respublikasi milliy valutasini muomalaga kiritish to'g'risida"gi Farmoni asosida 1994-yil 1-iyulidan boshlab, o'z milliy valutamiz "so'm" muomalaga kiritilishi O'zbekiston iqtisodiy rivojlanishida sifat jihatdan yangi davr - mustaqil pul-kredit siyosati yuritilish, xususan, pul muomalasini tashkil etish va muvofiqlashtirish davrining boshlanishi edi. Shuningdek, pul muomalasini samarali tashkil etish va muvofiqlashtirishda hozirgi kun amaliyoti O'zbekiston Respublikasi Prezidenti va hukumat rahbarlarini diqqat e'tiborida bo'lgan. Xususan, O'zbekiston Respublikasi Vazirlar Mahkamasining 1992-yil 24-iyuldagi №346 sonli "Respublikada kassa muomalalarini tartibga solishning kechiktirib bo'lmaydigan chora-tadbirlari to'g'risida"gi Qarori, O'zbekiston Respublikasi Vazirlar Mahkamasining 2002-yil 5-avgustdagi №280 sonli "Pul mablag'larining bankdan tashqari muomalasini yanada qisqartirish chora tadbirlari to'g'risida"gi Qarori shular jumlasidandir. Shuning bilan birga, tovarlarni naqd pulsiz tartibda sotish ustidan monitoringni tashkil etishda savdo tarmoqlari orqali tovarlarni sotish, pul birligini xarid quvvatini oshirish maqsadida O'zbekiston Respublikasi Vazirlar Mahkamasining 2002-yil 26-noyabrdagi 407-son qarori bilan tasdiqlangan "Ulgurji va chakana savdo faoliyatini amalga oshirish tartibi to'g'risida"gi Nizom bilan tartibga solina boshlandi. Chakana savdo tashkilotlari tomonidan tovarlarni naqd pulsiz hisob-kitoblar bo'yicha sotish o'tgan oydagi oylik tovar aylanmasi umumiy hajmining 10 foizi doirasida amalga oshirila boshlash mexanizmi joriy eildi.

O‘zbekiston Respublikasi Prezidentining 2005-yil 15-apreldagi №57 sonli “Naqd pul muomalasini takomillashtirish va bankdan tashqari aylamani qisqartirish borasidagi qo‘shimcha chora tadbirlar to‘g‘risida”gi qarori talablaridan ko‘rishimiz mumkin. Bundan tashqari, O‘zbekiston Respublikasi Prezidentining 2005-yil 15-apreldagi “Bank tizimini yanada isloh qilish va erkinlashtirish choratadbirlari to‘g‘risida”gi 56-sonli qarori hamda mazkur qaror bilan tasdiqlangan “2005-2007-yillarda bank tizimini isloh qilish va rivojlantirish Dasturi”da asosan, pul muomalasini tashkil etish va muvofiqlashtirishni muhim huquqiy asoslarini yaratishda o‘z aksini topdi. O‘zbekiston Respublikasi Prezidentining №147-sonli Qaroriga asosan O‘zbekiston Respublikasi Markaziy banki zimmasiga kechiktirib bo‘lmaydigan chora-tadbirlar ishlab chiqish vazifasi yuklatildi va 2005-yil 29-avgustda O‘zbekiston Respublikasi Markaziy bankining №18/1-sonli va adliya Vazirligini №1518-son “O‘zbekiston Respublikasida banklar tomonidan pul muomalasiga doir ishlarni tashkil etish to‘g‘risida”gi Nizom ishlab chiqildi. O‘zbekiston Respublikasi Markaziy banki boshqaruvining 2006- yil 14-iyuldagi 16/7-sonli “Bank kassalaridagi naqd pul qoldiqlariga limitlar belgilash va ularga rioya etilishini nazorat qilish tartibi to‘g‘risida”gi Nizomi va 2008-yil 10-martdagi №300-V sonli “Naqd pul tushumi kelib tushishini xronometrajini o‘tkazish tartibi to‘g‘risida”gi Nizomlar ishlab chiqildi. Jahon moliyaviy-iqtisodiy inqirozni yuzaga kelishi, mustaqil mamlakatlarda pul birliklarini moliyaviy barqarorligini mustahkamlash uchun davlatlar zimmasiga qo‘shimcha chora-tadbirlar ishlab chiqishni majbur qildi. Pul muomalasi barqarorligini ta’minlash va ijtimoiy ahamiyatga ega bo‘lgan to‘lovlarni o‘z vaqtida amalga oshirishni samarali tashkil etish maqsadida, Vazirlar Mahkamasining 1994-yil 11-iyuldagi “Muomaladagi naqd pullarni kamaytirishga oid chora-tadbirlar to‘g‘risida”gi 356-sonli Qaroriga ko‘ra, Markaziy bank va tijorat banklari tomonidan korxonalar, tashkilotlar va muassasalarga, mulkchilik shakllaridan qat’iy nazar, naqd pullarni ish haqi va unga tenglashtirilgan to‘lovlar, pensiyalar, nafaqalar va stipendiyalarni to‘lashga, shuningdek, xizmat safari xarajatlari uchungina berilishi belgilandi hamda 1994-yilning 1-avgustidan mehnatga haq to‘lash uchun ajratiladigan mablag‘lar davlat yo‘li bilan tartibga solinishi joriy etildi. Milliy valuta muomalaga kiritilgan dastlabki oylardan boshlab, respublikada naqd pul emissiyasini qisqartirish va uning muomalada bo‘lishini tezlashtirish asosida pul muomalasini mustahkamlashga alohida e’tibor qaratildi.

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ESHITISH QOBILIYATI BUZILGAN SHAXSLARNING DIQQAT XUSUSIYATLARI

Annotatsiya. *Ushbu maqolada eshitish qobiliyati buzilgan bolalarning diqqat xususiyatlari, uning shakllanish mexanizmlari va rivojlanish omillari ilmiy-nazariy asosda tahlil qilinadi. Diqqatning ixtiyorsiz va ixtiyoriy shakllari, barqarorligi, ko'chuvchanligi hamda bo'linuvchanlik darajalari surdopedagogik nuqtai nazardan yoritilgan. Tadqiqotda psixofiziologik yondashuvlar, nazariy tahlil va amaliy kuzatuv metodlaridan foydalanilgan. Tahlillar natijasida aniqlanishicha, eshitishida nuqsoni bo'lgan bolalarda diqqat shakllanishi ko'rish va taktil qo'zg'atuvchilarga bog'liq tarzda kechadi. Bu esa ta'lim jarayonida maxsus pedagogik vositalarni qo'llashni zarur etadi. Muallif diqqatni rivojlantirishda daktil nutq, ko'rgazmali vositalar, mimika va kichik guruhlarda o'qitish samarali ekani haqida xulosa qiladi. Mazkur maqola eshitishida nuqsoni bo'lgan o'quvchilarning diqqatini shakllantirishda yangi yondashuvlarni tavsiya etadi.*

Kalit so'zlar. *Eshitish qobiliyati buzilgan bola, diqqat xususiyatlari, psixologik qo'llab-quvvatlash, inklyuziv ta'lim, maxsus ta'lim, emotsional yondashuv, individual ta'lim metodlari, surdopedagogika, daktil nutq, ta'lim jarayoni.*

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ATTENTION CHARACTERISTICS OF INDIVIDUALS WITH HEARING IMPAIRMENTS

Abstract: *This article provides a scientific-theoretical analysis of the attention characteristics of children with hearing impairments, focusing on the mechanisms of its formation and developmental factors.*

Keywords: *child with hearing impairment, dactyl speech, educational process.*

Maxsus pedagogikada diqqat haqida keng ma'lumotlar mavjud. Shunga qaramay, ushbu tushunchaning mohiyati va zamonaviy yondashuvlari hali ham to'liq ochib berilmagan. Izohli lug'atda diqqat quyidagicha ta'riflanadi: "Diqqat — ongimizning muayyan ob'ektga yo'naltirilishi va unda to'planishidan iborat psixik holatdir. Diqqat ixtiyorsiz, ixtiyoriy va ixtiyoriydan keyingi turlarga ajratiladi."

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ESHITISH QOBILIYATI BUZILGAN SHAXSLARNING DIQQAT XUSUSIYATLARI

Annotatsiya. *Ushbu maqolada eshitish qobiliyati buzilgan bolalarning diqqat xususiyatlari, uning shakllanish mexanizmlari va rivojlanish omillari ilmiy-nazariy asosda tahlil qilinadi. Diqqatning ixtiyorsiz va ixtiyoriy shakllari, barqarorligi, ko'chuvchanligi hamda bo'linuvchanlik darajalari surdopedagogik nuqtai nazardan yoritilgan. Tadqiqotda psixofiziologik yondashuvlar, nazariy tahlil va amaliy kuzatuv metodlaridan foydalanilgan. Tahlillar natijasida aniqlanishicha, eshitishida nuqsoni bo'lgan bolalarda diqqat shakllanishi ko'rish va taktil qo'zg'atuvchilarga bog'liq tarzda kechadi. Bu esa ta'lim jarayonida maxsus pedagogik vositalarni qo'llashni zarur etadi. Muallif diqqatni rivojlantirishda daktil nutq, ko'rgazmali vositalar, mimika va kichik guruhlarda o'qitish samarali ekani haqida xulosa qiladi. Mazkur maqola eshitishida nuqsoni bo'lgan o'quvchilarning diqqatini shakllantirishda yangi yondashuvlarni tavsiya etadi.*

Kalit so'zlar. *Eshitish qobiliyati buzilgan bola, diqqat xususiyatlari, psixologik qo'llab-quvvatlash, inklyuziv ta'lim, maxsus ta'lim, emotsional yondashuv, individual ta'lim metodlari, surdopedagogika, daktil nutq, ta'lim jarayoni.*

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ATTENTION CHARACTERISTICS OF INDIVIDUALS WITH HEARING IMPAIRMENTS

Abstract: *This article provides a scientific-theoretical analysis of the attention characteristics of children with hearing impairments, focusing on the mechanisms of its formation and developmental factors.*

Keywords: *child with hearing impairment, dactyl speech, educational process.*

Maxsus pedagogikada diqqat haqida keng ma'lumotlar mavjud. Shunga qaramay, ushbu tushunchaning mohiyati va zamonaviy yondashuvlari hali ham to'liq ochib berilmagan. Izohli lug'atda diqqat quyidagicha ta'riflanadi: "Diqqat — ongimizning muayyan ob'ektga yo'naltirilishi va unda to'planishidan iborat psixik holatdir. Diqqat ixtiyorsiz, ixtiyoriy va ixtiyoriydan keyingi turlarga ajratiladi."

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MURAKKAB TUZILISHDAGI ARALASH MAKSIMUMLI DIFFERENSIAL TENGLAMALARNING HOZIRGI KUNDAGI DOLZARBLIGI

***Annotatsiya** : Ushbu maqolada chiziqli bo'lmagan tenglamalar, aralash maksimumli differensial tenglamalar sistemalarining bugungi kundgi dolzarbligi,uning qo'llanilishi haqida so'z boradi.*

***Kalit so'zlar:** Differentsial tenglama, chegaraviy shartlar, chegaralangan yopiq to'plam, , Inter jarayoni , segment, boshlang'ich shart.*

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THE CURRENT RELEVANCE OF MIXED MAXIMAL DIFFERENTIAL EQUATIONS IN COMPLEX STRUCTURES

***Abstract:** In this article, discusses the current relevance and applications of nonlinear equations and systems of mixed maximum differential equations.*

***Keywords:** Differential equation, boundary conditions, bounded closed set, , interprocess, segment, initial condition.*

Avtomatik boshqaruv nazariyasida, avtotebranish tizimlari nazariyasida, raketa divigatelidagi yonish bilan bog'liq muommolarni o'rganishda, bir qator iqtisodiy, ekologik va boshqa muommolarni o'rganishda og'uvchi argumentli differensial tenglamalar qo'llaniladi

Kechikuvchi argumentga ega bo'lgan differensial tenglamalar ko'rib chiqilayotgan fizik yoki texnik jarayonlarda moddiy nuqtaga ta'sir qiluvchi kuch bu nuqtaning tezligi va joylashuvining nafaqat hozirgi holatiga bog'liq, balkim undan oldingi holatiga ham bog'liq.

So'ngi 25 yil ichida "og'uvchi" argumentli differensial tenglamalarning oddiy "t" argument bilan bir qatorda $\max\{x(\tau) \mid \tau \in [\delta_1(t);\delta_2(t)]\}$ konstruksiyali yangi maxsus klassi paydo bo'ldi, bu yerda $\delta_i(t)$ og'uvchi argument, $i = 1,2,...,$ $0 < \delta_1(t) < \delta_2(t) < \infty$. Biz ularni maksimumli defferensial tenglamalar deb ataymiz. Shuni takidlash kerakki, maksimumli oddiy defferensial tengamalar birinchi marta tizimli 19-asr oxiri va 20-asrda V. R. Petuxov , G. Sarafova , U. Xolbekov , D. D. Baynov va S. D. Milishev , V. I. Muntiyana va V. P. Shpakovich , H. D. Voilov va boshqa olimlarning maksimumli differensial tenglamalar nazariyasiga bag'ishlangan bir qator maqolalari mavjud.

Bu misollarni ko'rib chiqish orqali biz maksimumli differensial tenglamalarni o'ziga xos xususiyatlarini yarim o'qlarda tasvirlaymiz.

Misol 1. Quyidagi tenglamani ko'rib chiqaylik

$$x'(t) = 2\max\left\{x(\tau) \mid \tau \in \left[t;\sqrt{t}\right]\right\}, t \in [0;1] \quad (1)$$

Tenglama uchun quyidagicha boshlang'ich shart kiritaylik

$$x(0) = x^0 < 0 \quad (2)$$

(2) shartga ko'ra (1) tenglama yagona yechimga ega

$$x(t) = x^0 e^{2t}$$

Va unga mos keladigan og'uvchi argumentli differensial tenglama

$$x'(t) = 2x\left(\sqrt{t}\right), t \in [0;1]$$

Bilan (2) boshlang'ich shartga ko'ra (1) tenglama yechimi yo'q (umumiy yechim $x(t) = ct^2, c - const$)

Misol 2. Maksimumli differensial tenglama

$$x'(t) + e^{-\frac{1}{2}t}\max\left\{x(r) \mid r \in \left[\frac{1}{2}t;t\right]\right\} = 0,\ t \geq 0$$

Nol chegara $\lim\{x(t) \mid t \to \infty\} = 0$ sharti ostida quyidagi yechimga ega.

$$x(t) = e^{-1}$$

Va og'uvchi argumentli differensial tenglama

$$x'(t) + e^{-\frac{1}{2}t}x(t) = 0,\ t \geq 0$$

Boshlang'ich shart bo'yicha yechimlari yo'q (umumiy yechim shakliga ega)

$$x(t) = \exp\left\{-\exp\left(-\frac{1}{2}t\right)\right\}, \qquad c - const$$

Ushbu ikki misoldan defferensial tenglamada maksimum yechimlarning mavjudlilik shartlarining bajarilishini ko'rishimiz mumkin .

Misol 3. Quyidagi maksimumli differensial tenglamani ko'rib chiqaylik

$$x'(t) = (1-\alpha)^{-1}\max\{x(r) \mid r \in [t;t']\},\ 0 < \alpha < 1, t \in R^+ \quad (3)$$

Quyidagicha boshlang'ich shart kiritaylik

$$x(0) = 0 \quad (4)$$

Boshlang'ich sharti (4) bo'lgan (3) tenglama yechimga ega faqat [0;1] da. U yarim $[1;\infty]$ cheksiz intervalda $x(t) = c\exp\left[(1-\alpha)^{-1}t\right]$ boshqa yechimga ega. Bundan tashqari ,dastlabki shart (4) yordamida (3) tenglamaning ikkinchi yechimi uchun "c" koeffisenti aniqlanmaydi . Bu (3) differensial tenglama (4) boshlang'ich shartga ko'ra $C(R^+;R)$ shu sinfda yechimlari yo'qligini bildiradi.

Uning standart og'uvchi argumentli differensial tenglama

$$x'(t) = (1-\alpha)^{-1}x(t^\alpha),\ 0 < \alpha < 1, t \in R^+$$

(4) boshlang’ich shartga ko’ra manashu $x(t) = t^{(1-\alpha)^{-1}}$ differensial tenglama $C^1\left(R^+; R\right)$ sinfda yagona yechimga ega .

Ushbu oxirgi ikki misoldan xulosa qilish mumkinki , differensial tenglamada maksimumning mavjudligi uning uzluksiz funksiyalar sinfidagi yechimlarini yo’qotilishiga olib kelish mumkin. Shuni takidlash kerakki, maksimumli differensial tenglamalar uchun rezonans fenomimi o’rinlidir.

Misol 5. Maksimumli differensial tenglama berilgan

$$x'(t) = \sin t + t\left(\cos t + \max\left\{x(r) \mid r \in \left[t - 2\pi \mid t\right]\right\} - t\right), t \geq 0$$

Uning $x(t) = t\sin t$ yechimi mavjud. Ushbu misoldan ko’rinib turibdiki, yechimning tebranish xususiyatlari yuqori darajadagi differensial tenglamalar uchun ham mavjud. Bu ayniqsa katta qiymatlarda seziladi. Biroq maksimumi mavjud differensial tenglamalar yechimlarining maksimal darajadagi tebranish xususiyatlari o’zgarib turishi ham mumkin .

Bu yerda ko’rib chiqilgan eng oddiy misollardan ko’rinib turibdiki, maksimumli differensial tenglamalar yechimlari o’ziga xos xususiyatlarga ega. Bunday tenglamalarni o’rganish bir qator yangi mulohazalar va yangi yondoshuvlardan foydalanishni talab qiladi, bu esa ishning dolzarbligini belgilaydi.

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FUNKSIYALARNI APPROKSIMATSIYA YORDAMIDA TAQRIBIY HOSIBLASH

Annotatsiya: *Ushbu maqolada amaliy masalalarni yechishda qandaydir* $y = f(x)$

funksional bog'lanishlar qiymatlarini hisoblash, moddiy resurslarni va vaqtni iqtisod qilish maqsadida qandaydir boshqa $y = P(x)$ *funksional bog'lanish tuzish, funksiyani aniqlanish sohasida approksimatsiyalash haqida o'rganilgan.*

Kalit so'zlar: *Approksimatsiyalash, nuqtaviy approksimatsiya,tugun nuqtalar interpolyatsiyalash va ekstropolyatsiyalash ,Chiziqli interpolyatsiya, Kvadratik interpolyatsiya, Kubik interpolyatsiya;,Lagranj interpolyatsion formulasi, Nyuton interpolyatsion formulasi.*

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APPROXIMATE DERIVATION OF FUNCTIONS USING APPROXIMATIONS

Annotation: *This article studies the calculation of the values of some functional relations* $y = f(x)$ *in solving practical problems, the construction of some other functional relation* $y = P(x)$ *in order to save material resources and time, and the approximation of the function in the domain of definition.*

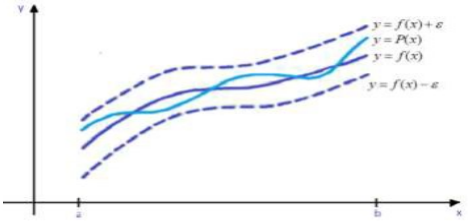
Keywords: *Approximation, pointwise approximation, nodal points, interpolation and extrapolation, Linear interpolation, Quadratic interpolation, Cubic interpolation;, Lagrange interpolation formula, Newton interpolation formula.*

Approksimatsiyalash – yaqinlashtirish degan ma'noni bildiradi.
Ko'pincha amaliy masalalarni yechishda qandaydir $y = f(x)$ funksional bog'lanishlar qiymatlarini hisoblashga to'g'ri keladi. Bunday masalalarda ikkita holat bo'lishi mumkin:

1. $[a; b]$ oraliqda x va y lar orasidagi oshkor bog'lanish ma'lum emas, faqat $\{x_i, y_i\}$, i =1,n tajriba ma'lumotlari jadvali ma'lum. Bu jadvaldan $\left[x_i, x_{\frac{i}{2}}\right] \in [a, b]$ oraliqda $y = f(x)$ bog'lanishni aniqlash talab qilinadi.
2. $y = f(x)$ bog'lanish ma'lum va uzluksiz, biroq u amaliy hisoblashlar uchun murakkablik qiladi. Bunday holda $y = f(x)$ funksiyani

va uning (hosilasi, maksimum va minimum qiymatlari, funksiya integrali kabi) xarakteristikalarini hisoblash ishlarini soddalashtirish kerak bo‘ladi.

Shuning uchun moddiy resurslarni va vaqtni iqtisod qilish maqsadida qandaydir boshqa $y = P(x)$ funksional bog‘lanish tuziladi. Bu tuzilgan bog‘lanish $y = f(x)$ ga uning asosiy parametrlari bo‘yicha yaqin bo‘lishi, hisoblash oson va qulay bo‘lishi kerak, ya’ni $y = f(x)$ funksiyani aniqlanish sohasida approksimatsiyalash kerak[1] (1-rasm).



1-rasm. Funksiya va uni approksimatsiyalovchi funksiya

$y = P(x)$ funksiyaga approksimatsiyalovchi funksiya deyiladi.

Agar yaqinlashishni biror $\{x_i\}$, diskret to‘plamda bajarsak, u holda approksimatsiyaga nuqtaviy approksimatsiya deyiladi. $[a;b]$ oraliqda yotuvchi, tajriba asosida olingan $\{x_i\}$, nuqtalarni o‘sish tartibida raqamlab chiqamiz va ularni tugunlar deb ataymiz:

$$a \le x_0 \le x_1 \le x_2 \le \ldots \le x_n \le b$$

Jadval ma’lumotlarini approksimatsiyalashning quyidagi turlari ma’lum:

1. Jadval ma’lumotlarini algebraik ko‘phadga keltirish

$$f(x) = a_0 + a_1 x + a_2 x^2 + \ldots + a_n x^n;$$

2. Jadval ma’lumotlarini trigonometrik ko‘phadga keltirish

$$f(t) = \frac{a_0}{2} + \sum_{n=1}^{\infty} \left(a_n \cos(n\omega t) + b_n \sin(n\omega t) \right);$$

3.Jadval ma’lumotlarini eksponensial ko‘phadga keltirish

$$f(x) = a_0 e^{\alpha_0 x} + a_1 e^{\alpha_1 x} + a_2 e^{\alpha_2 x} + \ldots + a_n e^{\alpha_n x}.$$

Qaysi turdagi approksimatiyalash formulasidan foydalangan ma’qul? Algebraik ko‘phad ancha qulay, chunki algebraik ko‘phadni trigonometrik va eksponensial ko‘phadlarga qaraganda xatoligini aniqlash, differensiallash, integrallash oson.

Nuqtaviy approksimatsiyalash turlariga interpolyatsiyalash va ekstropolyatsiyalash kiradi.

Interpolyatsiyalashdan maqsad shuki, $(x_1, y_1), (x_1, y_2), \ldots, (x_n, y_n)$ ma’lumotlar (nuqtalar) ma’lum. Biroq bizga $y = f(x)$ funksiyaning boshqa x nuqtadagi qiymati kerak bo‘lsin. Ma’lumotlar asosida (x, y) ni aniqlash mumkinmi? Misol uchun, raketa tezligining 10, 15, 20-sekundlardagi tezliklarini o‘lchay olganmiz. Lekin 16-sekunddagi tezligi nimaga teng?

Ya’ni berilgan oraliqda yotuvchi nuqtadagi funksiya qiymatini topish masalasiga interpolyatsiyalash deyiladi, berilgan oraliqdan tashqaridagi nuqtada funksiya qiymatini topish ekstropolyatsiyalash masalasi deyiladi.

Interpolyatsiyalashning quyidagi turlari mavjud:

1. Chiziqli interpolyatsiya;
2. Kvadratik interpolyatsiya;
3. Kubik interpolyatsiya;
4. Lagranj interpolyatsion formulasi;
5. Nyuton interpolyatsion formulasi;
6. O‘rtacha kvadratik yaqinlashish usuli.

Interpolyatsiya tugunlari sonining oshishi, algebraik ko‘phad darajasini oshishiga olib keladi, bu esa tugunlar oralig‘ida funksiyani juda katta sakrashlariga sabab bo‘ladi. Shu sababli tugunlar sonini ko‘proq olish maqsaddan chetlanib ketishga sabab bo‘ladi.

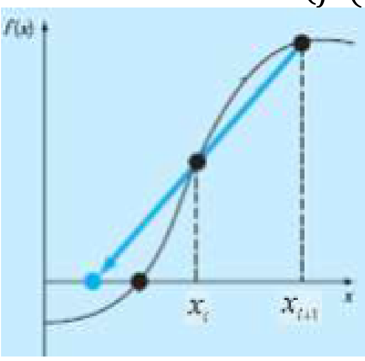
Chiziqli interpolyatsiya

Agar $[a; b]$ oraliqda berilgan jadval yoki diagrammadan foydalanib, algebraik ikkihad tuzsak, unga chiziqli interpolyatsiya deyiladi:

$$f\,(x) \;=\; a_0 \;+ a_1 x \qquad (1)$$

Berilgan oraliqqa tegishli ikkita x_i, x_{i+1} tugunni olamiz (2- rasm) va 2 noma’lumli chiziqli tenglamalar sistemasini tuzamiz:

$$\begin{cases} f\,(x_i) \;=\; a_0 \;+ a_1 x_i \\ f\,(x_{i+1}) \;=\; a_0 \;+ a_1 x_{i+1} \end{cases}$$



2-rasm. Chiziqli approksimatsiya

Bu formuladan a_0 , a_1 ni topib, chiziqli interpolyatsiya formulasiga qo‘yamiz.

Masalan: Avtomobilning tezligi vaqtning funksiyasi sifatida jadvalda keltirilgan (3-rasm). $t = 16$ sekunddagi avtomobil tezligini hisoblang.

t (s)	$v(t)$ (m/s)
0	0
10	227.04
15	362.78
20	517.35
22.5	602.97
30	901.67

3-rasm avtomobilning tezligi

Yechilishi: Chiziqli (1) interpolyatsiyani tuzib, tezlikni aniqlaymiz: $v(t) = a_0 + a_1 t$.

a_0 , a_1 ni topish uchun $t = 16$ sekundga eng yaqin nuqtalarni aniqlaymiz, ular quyidagilar:

$t_0 = 15; \quad v(t_0) = 362.78$

$t_1 = 20; \quad v(t_1) = 517.35$

Bu nuqtalarni formulaga qo‘yib, tenglamalar sistemasini tuzamiz:

$$\begin{cases} v(15) = a_0 + 15a_1 = 362.78 \\ v(20) = a_0 + 20a_1 = 517.35 \end{cases} \qquad \begin{matrix} a_0 = -100.93 \\ a_1 = 30.914 \end{matrix}$$

$$v(t) = a_0 + a_1 t = -100.93 + 30.914t$$

Avtomobil tezligining chiziqli interpolyatsiyasi:

$v(t) = 30.914t - 100.93, \quad 15 \le t \le 20$

Shunday qilib, avtomobilning $t = 16$ sekunddagi tezligini topamiz:

$$v(16) = 30.914 \cdot 16 - 100.93 = 393.7\ m/s$$

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QABRISTON FLORASINING AHAMIYATI: CHIRCHIQ SHAHRI HOLATI ASOSIDA TAHLIL

Annotatsiya. *Maqolada, O‘zbekiston Respublikasi florasini o‘rganishda, hozirgi kunda olib borilayotgan floristik tadqiqotlar haqida bayon qilingan. Markaziy Osiyoda birinchi marta qabristonlar florasini o‘rganish bo‘yicha ishlar boshlanganligi haqidagi ma’lumotlar berilgan. Ushbu maqolada, Chirchiq shahri qabristonlarining tabiiy florasi va ularning ahamiyati haqidagi ma’lumotlar keltirilgan.*

***Kalit so‘zlar*:** Flora, kamyob, endem, qabriston florasi, Chirchiq shahri.

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SIGNIFICANCE OF THE FLORA OF THE CEMETERY: ANALYSIS BASED ON THE STATE OF THE CHIRCHIK CITY

Abstract. *The article provides information about modern floristic studies of the flora of the Republic of Uzbekistan. For the first time in Central Asia, work began on the study of the flora of cemeteries. This paper provides information about the natural flora of the cemeteries of the city of Chirchik and their significance.*

Key words: *Flora, rare, endem, cemetery flora, Chirchik city.*

Kirish. Shahar ekotizimlari inson tomonidan eng ko‘p o‘zgartirilgan hududlar sifatida mintaqaviy floraning tasodifiy komponentini shakllantirishning asosiy manbai hisoblanadi. Ularning sinantropizatsiyasi va adventizatsiyasi darajasi umuman o‘simlik qoplamining antropogen o‘zgarishi darajasining ko‘rsatkichidir [4, 8]. Shahar ekotizimlari turli xil yashash joylarini o‘z ichiga oladi - butunlay o‘zgargan turarjoy, qishloq xo‘jaligi va texnogendan tortib, tegishli zonal o‘simlik turlariga yaqinligini saqlab qolgan rekreatsion va o‘rmon bog‘larigacha. Shahar ekotizimlarining floristik xilma-xilligiga turli xil foydali o‘simlik turlarini yetishtirish joylari, jumladan, tomorqa yerlari (faol ishlayotgan va tashlab ketilgan), landshaft dizayni elementlari, qabristonlar va boshqalar muhim hissa qo‘shadi. Bu yashash joylari tasodifiy va, xususan, invaziv o‘simlik turlarini kengaytirish uchun faol maydondir.

Urbanizatsiya – 10-12 asrlarda jamiyat rivojlanishining asosiy tendensiyasidir. Shunday qilib, agar 1900 yilgacha dunyo aholisining qariyb 14 foizi shaharlarda yashagan bo‘lsa, 20-asrda 45 foizi va 2025 yilga kelib, bashoratlarga ko‘ra, taxminan 60 foizi shaharlarda yashaydi [10].

Qabristonlar har qanday shahar ekotizimining ajralmas qismidir. Ritual hududlarni joylashtirish an’analari dafn etilgan joylarda ko‘plab kiritilgan turlarning mavjudligini aniqlaydi. Qabristonlarga ekilgan o‘simliklarda ko‘p yillik, tuproq qoplamining turlari ustunlik qiladi, ular atrof-muhit sharoitlariga talabchan bo‘lmagan va doimiy parvarishga muhtoj emas [9]. Bu turlar ko‘pincha yuqori raqobatbardoshdir, osongina tabbiy floraga o‘tib ketadi, qo‘shni o‘simlik hududiga chiqadi va shu tariqa o‘simlik dunyosining manzarali komponentini, ba’zan esa hatto "qora ro‘yxatlar" ni to‘ldiradi. Qabristonlarning floristik tarkibi bir qator omillar ta’sirida shakllanadi: qabristonning o‘zi paydo bo‘lgan vaqt; asl senozlar qoldiqlarining mavjudligi va ularning ekologik xususiyatlari; xilma-xilligi, paydo bo‘lgan yashash joylarining kichik kontur va vaqt xilma-xilligi va boshqalar.

Chirchiq shahri - Toshkent viloyatidagi shahar. Chirchiqdaryosining o‘ng sohilida, Qorjontovning yon bag‘rida, 730 m balandlikda joylashgan. Aholisi 170,1 ming kishi (2015 y.).

Chirchiq 1932 yilda daryo bo‘yidagi Qirg‘iz-quloq, Qipchoq, Niyozbek qishloqlari o‘rnida yirik elektrkimyo korxonasi qurilishi munosabati b-n vujudga kelgan. Yangi sanoat korxonalari qurilishi bilan aholi soni ham tez o‘sdi (1939 yilda - 15 ming kishi, 1959 y. - 65 ming kishi, 1970 y. - 107,4 ming kishi). 1966-1967 yillarda 2-jahon urushida halok bo‘lgan chirchiqliklar xotirasiga o‘rnatilgan yodgorlik, madaniyat va istirohat bog‘lari, xiyobonlar, mak-tablar, poliklinika, kasalxona va boshqalar bunyod etildi. Shahar yonida aholining dam olish joylari mavjud.

Keyingi o‘n yillik davomida O‘zbekiston Respublikasi Fanlar akademiyasi Botanika institutida olib borilayotgan tadqiqotlar O‘zbekiston florasining yangi nashrini yaratish [11, 12, 13], respublika florasini tizimli tadqiq etish [5, 6, 7, 8, 19, 20], kam o‘rganilgan hududlar flora tarkibini aniqlash [8, 19, 20], ma’lumotlar bazasini yaratish [6, 20], mavjud ma’lumotlarni chuqur tahlil etish barobarida yangi ilg‘or tadqiqot uslublarini joriy etishga oid tadqiqotlar talaygina [1, 2, 3, 7, 15, 19]. Ular orasida respublika ma’muriy viloyatlari kesimida flora kadastrini yuritishga bag‘ishlangan tadqiqotlar alohida ahamiyat kasb etadi [14, 16, 17, 18]. Botanika instituti Noyob o‘simlik turlari kadastri va monitoring laboratoriyasida hozirda «Kadastr florы Uzbekistana. Tashkentskaya oblast (2020-2022 y.y.)» nomli monografiyasini tayyorlash bo‘yicha ilmiy tadqiqot ishlari olib borilmoqda. Lekin hozirga qadar qabriston florasida o‘rganishga qaratilgan tadqiqotlar nafaqat O‘zbekistonda, balki butun Markaziy uchun yangi yo‘nalish hisoblanadi.

Bugungi kunda O‘zbekiston Respublikasi hududida jami 10.457 ta qabristonlar mavjud. Jumladan, Toshkent viloyati Chirchiq shahar “Obodonlashtirish” boshqarmasi tasarrufidagi “Ma’rosimiy xizmat ko‘rsatish” bo‘limiga tasarrufida 21 ta qabriston mavjud bo‘lib ularga, ulardan 8 tasi faoliyat yuritib kelmoqda, qolgan 12 tasi shahar hokimi qarori bilan yopilgan (1-jadval).

Qabristonlar shahar va qishloq ekotizimining ajralmas qismi hisoblanadi. Ushbu hududlar florasi tarkibining shakllanishi qabristonning paydo bo‘lish vaqtiga, dastlabki mikotsenozlarning mavjudligiga, ularning ekologik xususiyatlariga va boshqalarga bevosita bog‘liq. Bundan tashqari, qabriston hududlari introduksiya qilingan o‘simlik turlarining manbalari bo‘lib hisoblanadi. Shuningdek, tabiiy floraning antropogen o‘zgarishlarga duchor bo‘lganlar turlari ko‘pincha saqlanib qoladi. Bundan kelib chiqadiki, o‘simliklarning oldingi holatini aniqlash uchun qabriston hududlaridagi o‘simliklarni inventarizatsiya qilish bo‘yicha floristik tadqiqotlar o‘tkazish kerak.

Chirchiq shahar "Obodonlashtirish" boshqarmasining "Marosimiy hizmat koʻrsatish" boʻlimi balansidagi qabristonlar boʻyicha maʼlumot

T/r	Qabriston tartib raqami va manzili	Mahalla hududi	Ajratilgan yer maydoni (ga)	Faoliyati	Ishga tushirilgan yili
1	1-sonli xristian qabristoni A.Temur koʻchasi	"Gulzor" MFY	14,377	Yopilgan	1960
2	4-sonli musulmon qabristoni A.Qodiriy koʻchasi	"Gulzor" MFY	5,3104	Yopilgan	1970
3	8-sonli musulmon qabristoni X.Maxsudov	"X.Maxsudov" MFY	1,4744	Ochiq	1992
4	10-sonli musulmon qabristoni	"X/Maxsudov" MFY	0,3179	Yopilgan	1955
5	11-sonli xristian qabristoni Chetina koʻchasi	"Iqbol" MFY	0,8127	Yopilgan	1937
6	13-sonli musulmon qabristoni	"Gulzor" MFY	1,3003	Ochiq	2001
7	20-sonli musulmon qabristoni sportchilar koʻchasi	"Mirzo Ulugʻbek"MFY	0.7756	Yopilgan	1948
8	7-sonli musulmon qabristoni Elibay koʻchasi	"Muruvvat" MFY	1,1785	Yopilgan	1956
9	12-sonli musulmon qabristoni Elibay koʻchasi	"Muruvvat" MFY	2,4068	Ochiq	2000
10	15-sonli musulmon qabristoni Niyazbek koʻchasi	"Mir Alisher" MFY	0,991	Ochiq	1965
11	16-sonli yangi qurilayotgan Musulmon qabristoni Chinor koʻchasi	"Chinor" MFY	20,0008	Ishga tushmagan	2012
12	3-sonli xristian qabristoni Temiryoʻlchilar koʻchasi	"Birlik" MFY	1,7895	Yopilgan	1947
13	9-sonli yaxudiylar qabristoni Temiryoʻlchilar koʻchasi	"Birlik" MFY	0,5477	Yopilgan	1968
14	17-sonli musulmon qabristoni Gagarin koʻchasi	"Navroʻz" MFY	0,3976	Yopilgan	1954
15	19-sonli musulmon qabristoni Ozodlik koʻchasi	"Xayot guli" MFY	0,2966	Yopilgan	1943

16	2-sonli musulmon qabristoni 4-kichik Noxiya Naymanovul qo‘rg‘oni	“Xamza”MFY	6,174	Yopilgan	1969
17	5-sonli xristian qabristoni Vertolyot poligoni	Vertoyot poligoni	12,3149	Ochiq	1978
18	6-sonli musulmon qabristoni	“G‘alaba” MFY	4,0859	Ochiq	1948
19	14-sonli musulmon qabristoni Djalaer qo‘rg‘oni	“Ma’rifat” MFY	3,2832	Ochiq	2008
20	18-sonli musulmon qabristoni ni Djalaer	“Ma’rifat” MFY	1,4098	Yopilgan	1948
21	21-sonli Do‘stlik qabristoni	“Abduraxmon Jomiy” MFY	2	Ochiq	1984

Dissertatsiya ishni obe’kti qilib Chirchiq shahridagi ikkita (2-sonli Musulmonlar qabristoni (1-rasm) va 21 sonli Do‘stlik qabristoni tanlab olindi (2-ram). 1969 yilda 2-sonli Musulmon qabristoni 4-kichik Noxiya Naymanovul qo‘rg‘oni hududida ochilgan, uning umumiy maydoni 6,174 ga maydonni tashkil qiladi. Ushbu qabristonning hozirgi kunda faoliyati yopilgan. Tadqiqot obe’ktining ikkinchi hududi Abduraxmon Jomiy maxallasi Do‘stlik qabristoni hisoblanadi. Mazkur qabriston 1984-yili tashkil topgan bo‘lib, ushbu hudud 2 gektar maydonni egallaydi, hozirda qabriston ochiq ishlamoqda.

1-rasm. Chirchiq shahridagi 2-sonli Musulmonlar qabristoni

2-rasm. Chirchiq shahridagi 21-sonli Do‘stlik qabristoni

Xulosa qilib aytganda, hozirga qadar tanlab olingan har ikkila qabriston hududida floristik tadqiqotlar olib borilmagan. Shu nuqtai nazardan, qabriston florasining o‘ziga hos xususiyatlarini ochib berishda tanlab olingan qabristonlarning tur tarkibini aniqlash, zamonaviy konspektini tuzish, kamyob, yo‘qolish xavfi ostida qolgan va endem turlar populyatsiyalarining zamonaviy holatini baholash, turlarning tarqalishini aks ettiruvchi (GAT) xaritasini yaratish muhim ilmiy-amaliy ahamiyat kasb etadi.

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YOZMA DISKURSDA MODALLIKNING IFODALANISH USULLARI

Annotatsiya:*Hozirgi maqola modal fe'llarning leksiko-semantik xususiyatlarini o'rganish maqsadida o'zbek va ingliz tillaridagi ertaklarni tahlil qilishni ko'zda tutadi. Ushbu tadqiqotning asosiy maqsadi yozma matnlarda modal fe'llarning semantik xususiyatlarini aniqlashdir, bu esa ikki til an'analaridagi ertaklar to'plamlarini o'rganish orqali amalga oshiriladi. Tadqiqot davomida modal fe'llarning o'zbek va ingliz tillaridagi ishlatilishi va ularning semantik xususiyatlari chuqur tahlil qilingan. Modal fe'llar, masalan, "must", "can", "may" kabi so'zlar, o'z kontekstiga qarab turli xil ma'nolarni ifodalash imkoniyatiga ega. Bu esa modalitelerin xilma-xilligini ko'rsatadi va ularning semantik rolini yanada boyitadi.*

Kalit so'zlar: *modallik, ertaklar, modal fe'llar, leksik-semantik xususiyatlari, epistemik, deontic*

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THE WAYS OF EXPRESSING MODALITY IN WRITTEN DISCOURSE

Abstract:*The current paper discusses the lexico-semantic peculiarities of modal verbs by the analysis of fairy tales in Uzbek and English languages. The aim of the research is to determine the semantic features of modal verbs in written discourse through overview of the fairy tale collections in both languages. The analysis is based on descriptive method which activates the types of modality according to the usage of modal verbs and grammatical structures of verbs, word combinations in Uzbek language which represents modal meaning. The results of the research indicate that one modal verb must expresses several meaning in context and it conveys different type of modality. It brings out the polysemy of the modal verbs in different written discourse.*

Key words: *modality, fairy tales, modal verbs, lexico-semantic features, polysemy, epistemic, deontic*

Kirish

Til asosiy muloqot vositasi sifatida inson hayotida muhim rol tutadi. Lingvistikada modallik — hodisalarning zarurligi va mumkinligini ifodalovchi kategoriyadir. Modallashtirilgan jumla asosiy yoki oldingi tushunchani ifodalaydi ("oldingi" so'zining paydo bo'lishi o'rta asr mantiqchilari tomonidan kiritilgan).

Masalan, “Ann uyda bo‘lishi mumkin” deganda imkoniyat ko‘rsatilsa, “Ann uyda bo‘lishi kerak” deganda esa uning ehtimolan uyda ekani ta’kidlanadi. Modalilikning vaqt bilan bog‘liq analogi “vaqtlilik” deb atalishi mumkin, ammo bu holatda asosan vaqt va aspektga oid fe’l shakllari qo‘llaniladi.

Modallik jumla-bayon darajasida keng o‘rganilgan bo‘lib, gapiruvchining bayon mazmuniga bo‘lgan munosabatini (sub’yektiv modallik) hamda mazmunning haqiqat bilan bog‘liqligini (ob’yektiv modallik) ifodalaydi. Birinchi holatda modallik maxsus modal so‘zlar, zarflar va ohanglar (afsuski, baxtiyorlik bilan, afsus va h.k.) orqali, ikkinchisida esa fe’llarning kayfiyat shakllari hamda bayon etish, imkoniyat, istak, buyruq ma’nosidagi so‘zlar orqali hosil bo‘ladi.

Adabiyotlar tahlili

M. K. Xellideyga ko‘ra, modallik — bu muloqotning asosiy funksional jihati bo‘lib, odamlar o‘rtasidagi munosabatlarni ifodalovchi va muloqotda ishtirok etayotgan shaxsning fikrini taqdim etuvchi vositadir.

Obyektiv modallik — bu bildirilayotgan fikrning haqiqatga munosabati (real yoki noreal, imkon yoki imkonsiz, zarur yoki ehtimoliy kabi)ni anglatadi va u grammatik hamda leksik vosital (mayl, modal so‘z, yuklama, intonatsiya) orqali ifodalanadi. Subyektiv modallik esa so‘zlovchining aytilayotgan fikrga (ishonch yoki shubha, rozilik yoki norozilik, hissiy baho) munosabatini ko‘rsatadi va so‘z tartibi, intonatsiya, takror, modal so‘z, yuklama, undov, kirish so‘z, so‘z birikmasi va kirish gaplar yordamida namoyon bo‘ladi. (Uzbekiston Milliy Entsiklopediyasi)

Epistemik modallik turi hikoyaning nuqtai nazari va voqelikni ifodalovchi gaplar orqali so‘zlovchining qat’iy yoki noaniq munosabatini aks ettiradi. Modal fe’llarning ishlatilishi esa tilning grammatik qatlami bilan bog‘liq bo‘lishi mumkin (Simpson, 1993). **Deontik modallik** kontekstda majburiyat zarurligini ifodalaydi. Masalan, *“Tom jarima to‘lashi kerak”* jumlasida, uning noqonuniy to‘xtab qolishi Tomning jarimani to‘lash majburiyatini bildiradi. Ushbu gapning ma’nosi bajarilishi shart bo‘lgan harakat majburiyatini ko‘rsatadi.

Metodlar va materiallar

Mazkur tadqiqot ingliz va o‘zbek ertaklarining leksiko-semantik tahlili va adabiyotlar sharhidan iborat bo‘lib, modal fe’llarning ko‘p ma’noliligi va uning turlarini o‘rganishga qaratilgan. Ertaklarda tasvirlangan olam haqiqiy bo‘lmagan dunyo hisoblanadi, chunki u tasavvur va sehrli voqealarga asoslangan. Adabiyotlar sharhi qismida turli manbalar, nazariyalar va olimlarning fikrlari ko‘rib chiqilgan. Palmer, Papafragou, Kratzer va boshqa olimlar modal fe’llarning semantik xususiyatlari bo‘yicha tasniflarini aniqlaganlar. Ishlatilgan adabiyotlar qatoriga Jacobs tomonidan to‘plangan “Ingliz xalq ertaklari”, Grimmning ertaklari va “Uch og’a-ini botirlar” nomli o‘zbek ertak to‘plami kiradi.

Natija va tahlillar

Ertaklarda modal ma’noni ifodalash ko‘pincha qahramonlar dialoglari va nutqlarida namoyon bo‘ladi. Modal fe’llarning leksiko-semantik xususiyatlari o‘zbek va ingliz ertaklari misollarida o‘rganilgan. Haqiqatan ham modal fe’llar yordamchi fe’llar yoki modal so‘zlar orqali ifodalanadi, masalan: *mumkin, kerak,* *zarur, shart, -sa* va boshqalar. Yuqorida ta'kidlanganidek, semantik tasnifga koʻra, modal fe'llarning turli turlari yozuvchining vaziyatga boʻlgan qarashini aks ettiradi.

So one evening she had gone down to draw the beer, and she happened to look up at the ceiling while she was drawing, and she saw a mallet stuck in one of the beams. It ***must have been*** *there a long, long time, but somehow or other she had never noticed it before, and she began a-thinking. (The three sillies)* Hozirgi parcha milliy ingliz ertagi "The Three Silles" (R. Jacobson tomonidan toʻplangan "English Fairy Tales")dan olingan boʻlib, «It must have been» modal ifodasi *imkoniyat* ma'nosini beradi. Muallif bu ifoda orqali vaziyatga oid ehtimoliy yoki mumkin boʻlgan taxminlarini bildiradi. Shunday qilib, ushbu modal ifoda modallikning **epistemik** shakliga mansubdir.

Ingliz tilidagi modal fe'l must oʻzbek tilida uning modallik ma'nosiga qarab turlicha ifodalanadi. Masalan, imkoniyatni bildirganda u mumkin, boʻlishi mumkin, boʻlsa kerak kabi yordamchi soʻzlar orqali ifodalanadi. Agar must majburiyatni bildirsa, unda shart, zarur soʻzlari hamda majburiyat yoki shartlikni bildiruvchi qoʻshimchalar (-sa, -san, -sang) qoʻllaniladi. Shu bilan birga, must soʻrov yoki gapiruvchining irodasini ifodalaganda kerak soʻzi va -shing kerak qoʻshimchasidan foydalaniladi.

Baroqvoy bilan menga o'xshab soddaroq, oddiyroq boʻlasan. ("Uch og'a ini-botirlar") -You ***must be*** *naive and modest like me and Barokvoy.* Modal fe'l **must**ning kontekstual ma'nosi gapiruvchi tomonidan bildirilgan majburiyat va shartni ochib beradi. Bu ma'no fe'lga qoʻshimcha sifatida qoʻshiladigan **-sa(n)** qoʻshimchasi orqali ifodalanadi; masalan, *boʻlasan* soʻzi gapiruvchi tomonidan aytilgan *majburiy shart*ni bildiradi. Shu tariqa, u **deontik** modallik doirasidagi majburiyatni ifodalaydi.

Xulosa

Umuman olganda, modal fe'llar vaziyatga qarab turli ma'nolarni ifodalashi mumkin. Ularning semantik xususiyatlari polisemiyani ochib beradi va bu masala Papafragou, Palmer, Kratzer kabi olimlar tomonidan oʻrganilgan. Hozirgi tadqiqot natijalari shuni koʻrsatadiki, oʻzbek va ingliz xalq ertaklaridagi modal fe'llar muallifning voqealarga nisbatan munosabatini aks ettirgan holda majburiyat, imkoniyat, istak, ruxsat va iroda ma'nolarini ifodalaydi. Umuman olganda, epistemik modallik koʻproq koʻrib chiqiladi va must hamda may (kerak, boʻlishi mumkin) modallarining polisemiyasi kontekstdo tahlil qilinadi.

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PRACTICAL STRATEGIES FOR DEVELOPING COMMUNICATION SKILLS AND STUDENT ASSESSMENT

Abstract:*Developing effective communication skills in English is a crucial aspect of language acquisition, particularly for intermediate learners. Despite mastering basic grammar and vocabulary, many students struggle with fluency, coherence, and pragmatic competence. This article provides an in-depth analysis of the cognitive, sociolinguistic, and pedagogical factors influencing communication skill development. Drawing on recent research and evidence-based methodologies, we propose a multidimensional approach integrating lexical expansion, phonetic refinement, interactive discourse, digital tools, and confidence-building strategies to enhance communicative competence in intermediate learners. The study highlights the significance of a learner-centered, technology-assisted, and context-based methodology in fostering language proficiency.*

Key words: *communication skills, intermediate learners, English language acquisition, fluency development, pronunciation training, task-based learning, Ai-assisted learning lexical expansion, pragmatic competence, language pedagogy.*

Introduction

As global integration accelerates, English proficiency has become an essential skill for academic and professional success. Effective communication in English not only facilitates interpersonal interactions but also enhances cognitive flexibility, critical thinking, and cultural adaptability. However, intermediate learners often face a plateau in language development, where their progress slows despite continued exposure and practice. This stagnation results from a combination of factors, including insufficient automatization of linguistic structures, limited exposure to diverse discourse styles, and affective barriers such as anxiety and self-doubt. Additionally, intermediate learners struggle with pragmatic competence—the ability to use language appropriately in different social contexts—which is a crucial component of communicative proficiency. Furthermore, research suggests that traditional language instruction often prioritizes grammatical accuracy over spontaneous language use, leading to learners who excel in written exercises but struggle with real-time verbal interactions. The gap between theoretical knowledge and practical application is further exacerbated by the lack of authentic communicative opportunities in traditional classroom settings. Therefore, it is essential to implement pedagogical strategies that foster an immersive and interactive learning environment while addressing both linguistic and psychological factors that influence oral proficiency.

This study aims to examine the cognitive, linguistic, and technological dimensions of communication skill development, providing a comprehensive framework for educators and learners to enhance spoken English proficiency. By integrating advanced linguistic theories, digital learning tools, and psychological insights, this paper seeks to bridge the gap between second language acquisition research and effective language teaching methodologies.

THEORETICAL FOUNDATIONS OF COMMUNICATION SKILL DEVELOPMENT

The formation of communication skills in English is underpinned by several theoretical frameworks:Lev Vygotsky's [1] Sociocultural Theory posits that language learning occurs through social interaction and collaboration. The concept of the **Zone of Proximal Development (ZPD)** suggests that learners can achieve higher linguistic proficiency when guided by a more knowledgeable peer or instructor. Scaffolding techniques, such as structured conversation exercises and peer-assisted learning, align with this theory by gradually building learners' speaking confidence and linguistic competence. Canale and Swain's model [2] identifies four key components of communicative competence:

a) Grammatical competence (mastery of syntax, morphology, and phonology),

b) Discourse competence (ability to construct coherent spoken and written discourse),

c) Sociolinguistic competence (understanding appropriate language use in different social contexts),

d) Strategic competence (ability to compensate for communication breakdowns). Effective teaching methodologies must address all these competencies to ensure comprehensive language development.

Krashen's [3] Input Hypothesis states that learners acquire language best when they receive comprehensible input slightly above their current proficiency level (i+1). This theory supports the integration of **authentic listening materials, interactive discussions, and multimedia resources** to enhance communication skills. Cognitive Load Theory emphasizes the importance of structured learning environments that prevent information overload. Applying this theory, language instructors should introduce **progressive speaking tasks, chunked instruction, and multimodal resources** to optimize cognitive processing and retention.

Interaction Hypothesis (Long, 1996) [4] This theory argues that language acquisition is enhanced through meaningful interaction with native speakers or proficient peers. It supports the use of task-based learning, role-plays, and conversational practice to develop real-world communication skills.

By integrating these theoretical foundations, language educators can create dynamic learning environments that foster communicative competence and fluency in intermediate English learners.

METHODOLOGY

This study adopts a mixed-methods approach, combining qualitative and quantitative data to analyze the effectiveness of various strategies in enhancing communication skills among intermediate English learners. The research methodology is divided into the following components:

Participants

The study involved 150 intermediate English learners from diverse linguistic and cultural backgrounds. The participants were selected from language institutes and universities where English is taught as a second language. The age range varied from 18 to 25 years, ensuring a broad representation of learners at different stages of their academic and professional journeys.

Research Design

The study utilized a pre-test and post-test experimental design, with participants divided into an experimental group and a control group. The experimental group received training using the advanced strategies outlined in this study, while the control group followed traditional communicative language teaching methods without additional interventions.

Data Collection Methods

- **Pre-test and post-test assessments:** Participants completed oral proficiency tests before and after the intervention to measure improvements in fluency, coherence, pronunciation, and pragmatic competence.
- **Surveys and Questionnaires:** Structured surveys were administered to assess learners' self-perceived progress, confidence levels, and perceived effectiveness of the strategies used.
- **Interviews and Focus Groups:** Semi-structured interviews were conducted with a subset of participants to gain deeper insights into their learning experiences and challenges.
- **Classroom Observations:** Sessions were observed to analyze the real-time impact of interactive and digital learning strategies on learners' engagement and participation.

Data Analysis

Quantitative data from the pre-test and post-test scores were analyzed using statistical methods such as paired t-tests and ANOVA to determine significant differences between the experimental and control groups. Qualitative data from interviews and surveys were analyzed using thematic coding to identify key trends and learner perspectives on the effectiveness of the applied strategies.

RESULTS

The findings of this study highlight the significant impact of advanced strategies on intermediate learners' communication skills. Below are key results:

Improvement in Oral Fluency and Pronunciation

The experimental group demonstrated a **23% increase in speech fluency** compared to the control group. Participants who engaged in phonetic and prosodic training showed marked improvements in pronunciation clarity and speech rhythm.

Lexical Expansion and Contextual Appropriateness

Learners exposed to corpus-based learning and collocation-based exercises exhibited a **30% increase in lexical diversity** in their spoken responses. This suggests that data-driven learning approaches enhance vocabulary acquisition and usage accuracy.

Effectiveness of Digital and AI-Assisted Learning

Participants utilizing AI-powered speech recognition tools and VR-based conversational simulations reported a **significant reduction in communication anxiety** and an **18% increase in confidence levels** when engaging in real-life conversations.

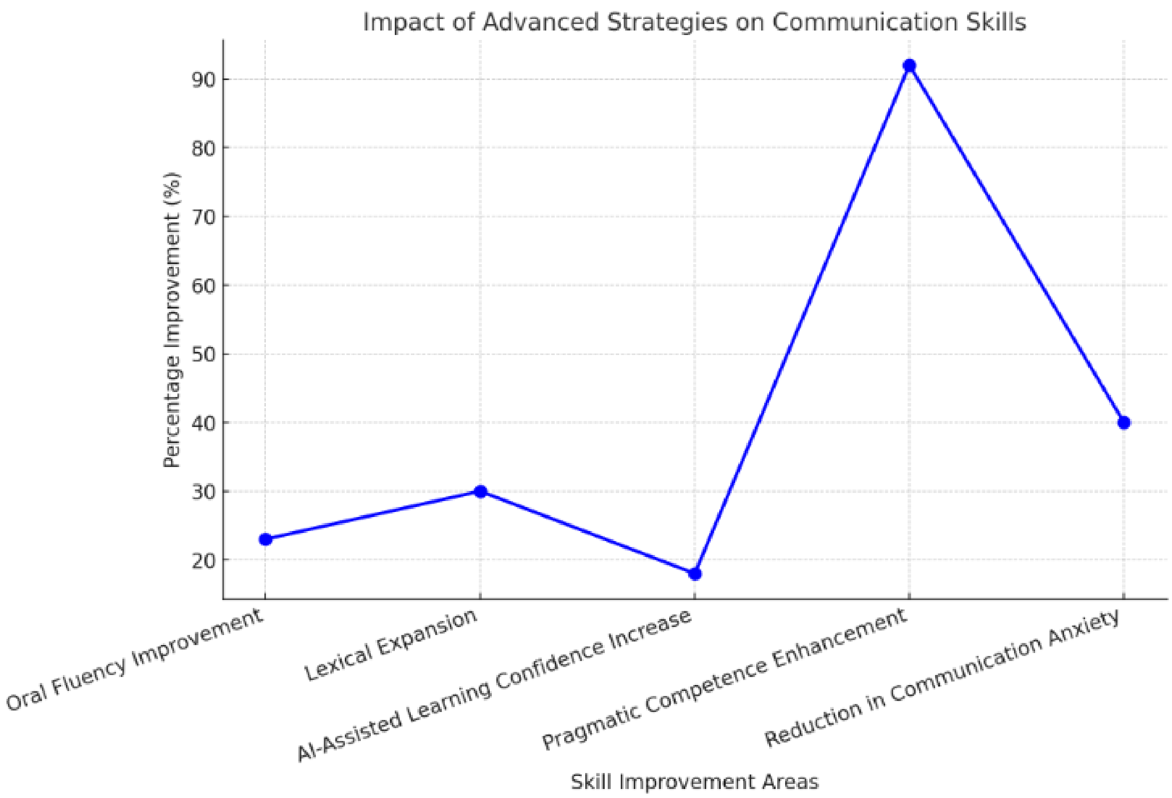
Role of Task-Based Learning in Pragmatic Competence

Those who engaged in scenario-based learning and structured debates exhibited enhanced pragmatic competence, with **92% of participants reporting improved ability to articulate opinions, negotiate meaning, and adjust speech according to social context**.

Psychological and Confidence-Building Aspects

Participants practicing self-affirmations and incremental fluency training reported an **overall decrease in communication-related anxiety by 40%**, reinforcing the importance of psychological interventions in language learning.

The results indicate that a multidimensional approach, integrating linguistic training, digital tools, and psychological reinforcement, significantly enhances communication skills in intermediate English learners. The combination of structured phonetic training, AI-assisted feedback, and interactive communicative tasks proves to be an effective model for overcoming the intermediate plateau. Here's a line graph visualizing the percentage improvements in different communication skill areas.



DISCUSSION

The results of this study provide compelling evidence for the efficacy of advanced strategies in enhancing communication skills among intermediate learners of English. Several key themes emerge from the data analysis, highlighting the interconnectedness of cognitive, psychological, and technological factors in language learning.

The Impact of Phonetic Training on Fluency; The 23% increase in oral fluency among participants who engaged in phonetic training underscores the importance of explicit pronunciation instruction. Phonetic refinement through targeted exercises in intonation, rhythm, and stress patterns significantly contributed to speech clarity and coherence. These findings align with Celce-Murcia et al. [5], who argue that prosodic training enhances intelligibility and reduces listener burden. Given that pronunciation is often neglected in traditional curricula, integrating systematic phonetic training within communicative practice is essential for fostering fluency. **Vocabulary Expansion and Contextual Usage**; The study demonstrates a 30% increase in lexical diversity among learners exposed to corpus-based learning and collocation-focused exercises. This supports Nation's [6] claim that structured vocabulary instruction using authentic language samples improves both retention and active usage. Moreover, learners who engaged in data-driven learning reported higher confidence levels in selecting appropriate lexical items during spontaneous conversations. These results emphasize the necessity of moving beyond isolated vocabulary memorization toward contextualized and meaning-driven approaches to lexical development.

The Role of AI and Digital Tools in Reducing Communication Anxiety; The integration of AI-assisted learning tools, such as speech recognition software and VR-based simulations, resulted in an 18% increase in learner confidence and a reduction in communication-related anxiety. These findings corroborate Godwin-Jones [7], who advocates for the use of AI to provide real-time, personalized feedback. The reduction in anxiety can be attributed to learners' ability to practice without the fear of judgment, reinforcing the psychological dimension of language acquisition. Furthermore, AI-driven tools offer a scalable solution for individualized pronunciation and fluency training, making them invaluable for self-directed learners. **Pragmatic Competence and Task-Based Learning**; The significant improvement in pragmatic competence (92% of participants) highlights the effectiveness of scenario-based learning and structured debates in real-world communicative preparedness.

Ellis [8] suggests that task-based instruction enhances learners' ability to negotiate meaning, adapt to different social contexts, and use language appropriately. Our findings indicate that learners who engaged in role-play, structured dialogues, and collaborative discussions exhibited stronger pragmatic awareness, leading to more natural and contextually appropriate language use. **The Psychological Dimension: Confidence-Building and Anxiety Reduction**; The 40% decrease in communication anxiety suggests that psychological interventions play a crucial role in language learning. Dörnyei & Ryan [9] emphasize the significance of motivation and confidence-building in second language acquisition. Our results reinforce this perspective, as learners who engaged in self-affirmation exercises, incremental fluency training, and exposure therapy reported greater willingness to participate in spontaneous conversations. Addressing affective factors, therefore, should be an integral component of any communicative language teaching approach. **Implications for Language Pedagogy**; The findings of this study have several pedagogical implications. First, English language educators should incorporate explicit pronunciation training and vocabulary expansion exercises into their curricula. Second, leveraging AI and digital tools can provide learners with personalized feedback and increased opportunities for autonomous practice[10]. Third, task-based learning should be prioritized to enhance pragmatic competence, allowing learners to develop contextual awareness and conversational flexibility. Finally, addressing psychological barriers such as communication anxiety is essential for fostering a positive and productive learning environment.

Overall, the study underscores the importance of a holistic approach to language instruction one that integrates linguistic training, digital innovations, and psychological reinforcement. By adopting a multidimensional framework, educators can equip intermediate learners with the necessary skills to navigate complex communicative contexts with confidence and competence.

CONCLUSION

Advancing communication skills in English for intermediate learners requires a comprehensive, interdisciplinary approach that integrates linguistic, cognitive, technological, and psychological dimensions. As language acquisition is not a linear process, continuous exposure to structured and authentic language input, coupled with opportunities for interactive engagement, is critical for overcoming the intermediate plateau. The findings of this study emphasize the necessity of balancing explicit language instruction with immersive learning experiences that foster real-time communicative competence. Moreover, the integration of artificial intelligence (AI) and digital platforms has transformed language education, enabling personalized and adaptive learning environments that cater to individual learner needs. The role of affective factors, such as confidence and anxiety reduction, must also be prioritized to create an optimal learning atmosphere. Future research should explore longitudinal studies on the effectiveness of AI-enhanced learning environments, hybrid pedagogical models, and the intersection of neurolinguistics with language acquisition. Additionally, interdisciplinary approaches incorporating psychology, cognitive science, and pedagogy could provide deeper insights into optimizing language learning methodologies. By embracing a research-driven, technology-assisted, and learner-centered approach, language educators and learners can work towards achieving higher levels of fluency and communicative competence in English.

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INTEGRATING ICT AND ARTIFICIAL INTELLIGENCE IN TEACHING PHILOLOGICAL DISCIPLINES: A FOCUS ON MACHINE TRANSLATION OF TEXTUAL DATA

***Abstract**: This article explores the integration of Information and Communication Technologies (ICT) and Artificial Intelligence (AI) into the teaching of philological disciplines, with a particular focus on machine translation of textual data. As the digital transformation of education accelerates, the role of AI tools in enhancing linguistic education is becoming increasingly significant. Machine translation, driven by neural networks and large language models, is now not only a tool for translation but also a pedagogical aid that helps students engage with complex linguistic phenomena. The paper examines the potential of AI-powered systems to improve language acquisition, promote intercultural competence, and facilitate comparative linguistic analysis. It also investigates the limitations and ethical concerns surrounding the use of such technologies in academic settings. The research provides a conceptual framework for the implementation of ICT and AI in philological curricula, emphasizing pedagogical strategies that integrate automated translation as both a resource and an object of critical analysis. The findings offer recommendations for language educators in higher education institutions, particularly in the context of Uzbekistan, where multilingualism and translation studies are of increasing relevance in the globalized educational landscape.*

***Keywords**: ICT in education, artificial intelligence, machine translation, philological disciplines, digital pedagogy, language learning technologies, natural language processing, multilingual education, neural translation models, automated linguistic analysis, higher education, Uzbekistan, translation studies, educational innovation, AI in humanities*

Introduction

The rapid advancement of digital technologies has significantly transformed the landscape of higher education, especially in the teaching of philological disciplines. As linguistic studies increasingly intersect with technological innovation, Information and Communication Technologies (ICT) and Artificial Intelligence (AI) have emerged as vital instruments in the modernization of educational processes. In recent years, the incorporation of AI-driven tools, such as machine translation systems, has offered new opportunities to enhance language learning, promote intercultural communication, and expand students' exposure to authentic linguistic materials. These innovations hold particular relevance in

Uzbekistan, where multilingualism and translation are central to the academic development of philology students.

Machine translation (MT) has progressed from simple rule-based algorithms to sophisticated neural models capable of processing vast amounts of linguistic data with improved semantic accuracy. These developments have significant implications for philological education, where students are expected to engage deeply with texts across languages, analyze linguistic structures, and reflect critically on meaning and context. The integration of MT into the classroom can serve both as a practical aid and a subject of academic inquiry, supporting language acquisition, comparative analysis, and critical digital literacy.

However, the adoption of AI in education also presents challenges, including the risk of overreliance on automated systems, the need for ethical guidance, and the demand for teachers to adapt their instructional methods. Addressing these issues requires a comprehensive pedagogical strategy that recognizes both the benefits and the limitations of machine translation technologies. This paper aims to explore how ICT and AI, specifically through the lens of machine translation, can be effectively used to enrich philological instruction, cultivate analytical competencies, and prepare students for the linguistic demands of a globalized society.

The integration of ICT and AI into language education has been widely explored in recent scholarly literature, particularly within the contexts of computer-assisted language learning (CALL), digital literacy, and educational technology. Scholars such as Warschauer and Healey (1998) emphasized the transformative potential of technology in language classrooms, laying early theoretical groundwork for what would later evolve into more complex AI applications. More recent research by García and Pena (2011) has focused on the pedagogical use of machine translation, arguing for its value not only as a linguistic tool but also as a cognitive resource for developing translation awareness and comparative grammar skills.

Neural machine translation (NMT), as discussed by Bahdanau et al. (2015) and further expanded by researchers such as Koehn and Knowles (2017), represents a significant advancement in AI-based linguistic systems. These models demonstrate improved fluency and contextual understanding, making them increasingly relevant in philological education. At the same time, scholars like Niño (2009) and Bowker (2020) have raised concerns about the uncritical use of MT in language instruction, highlighting the importance of integrating critical pedagogical approaches.

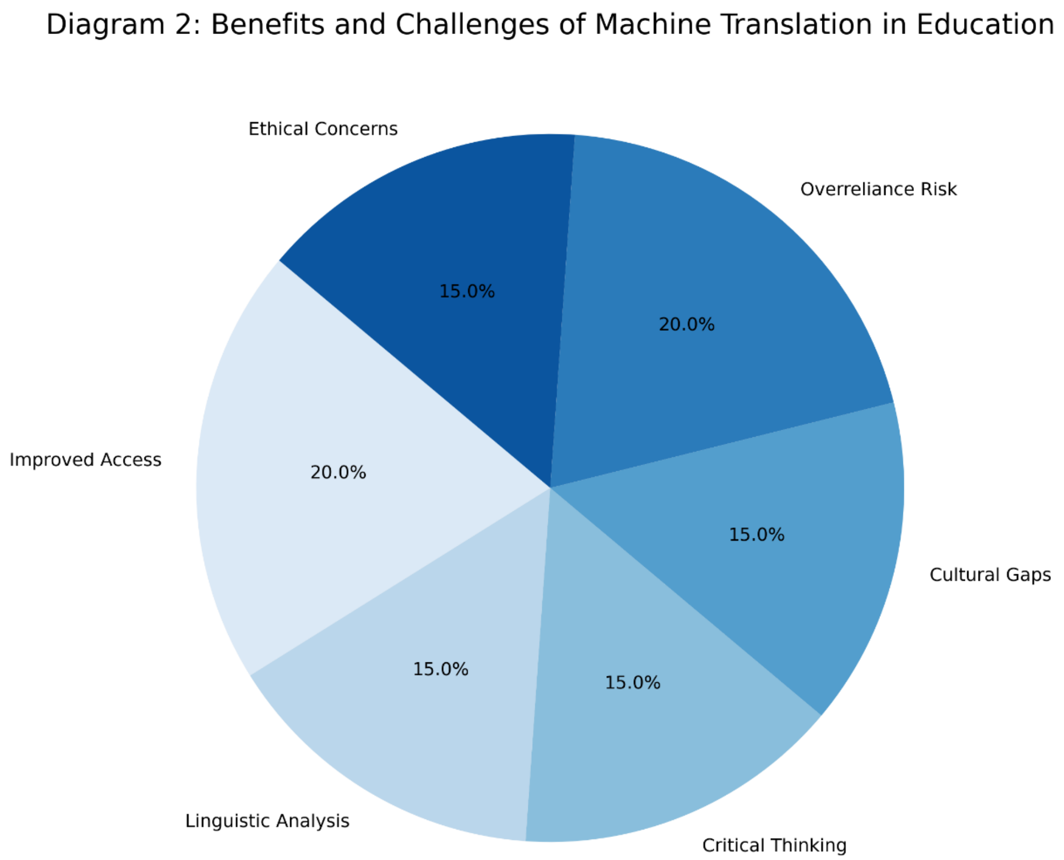

Figure 1. A visual representation of the pedagogical benefits and challenges associated with the use of machine translation in language education, including accessibility, critical thinking development, and limitations related to cultural specificity and technological dependency.

In the Uzbek context, recent studies have begun to address the applicability of ICT in higher education (To‘xtasinov et al., 2021), but the focused exploration of AI and MT in philology remains limited. This underscores the need for continued research into how these technologies can be meaningfully and ethically employed in local academic environments.

This research employs a qualitative-descriptive methodology aimed at analyzing the pedagogical implications of integrating ICT and AI—particularly machine translation—into philological instruction. The study is based on an interdisciplinary approach, combining elements of applied linguistics, educational technology, and digital pedagogy. Data collection involved a review of academic literature, comparative analysis of existing ICT-based language teaching practices, and a contextual assessment of educational environments in Uzbek higher education institutions.

In addition, case studies of selected machine translation tools, such as Google Translate, DeepL, and ChatGPT-based systems, were examined to evaluate their linguistic accuracy, usability, and pedagogical value in classroom scenarios. The research also considered the feedback of language instructors and students who engaged with these tools in pilot settings, focusing on their perceptions, challenges, and the observed impact on learning outcomes.

The methodological framework supports a reflective investigation into both the affordances and limitations of machine translation as a teaching resource. Rather than treating AI as a replacement for traditional instruction, the study seeks to position it as an enhancement to critical language analysis, translation studies, and learner autonomy. The local academic and cultural context of Uzbekistan is central to the analysis, ensuring the relevance of proposed strategies for philological faculties in the region.

The application of ICT and AI in philological education, especially through machine translation, has introduced new dynamics in the teaching and learning of languages, literature, and comparative linguistics. One of the most significant advantages lies in the ability of AI-powered tools to process and analyze large volumes of textual data, enabling students to engage with diverse linguistic materials and perform real-time comparisons between languages. This exposure can foster a deeper understanding of semantic nuances, syntactic structures, and idiomatic expressions—key competencies for future translators, linguists, and language educators.

Machine translation systems such as Google Translate and DeepL have become accessible platforms for language learners, offering immediate translations that can be used to scaffold reading comprehension and support writing tasks. In philological disciplines, where students frequently interact with literary texts and complex syntax, these tools provide an entry point for analysis and discussion. When integrated with appropriate pedagogical frameworks, such technologies can stimulate critical thinking by prompting learners to evaluate the accuracy of translations, question discrepancies, and reflect on cross-linguistic equivalence.

However, several pedagogical challenges accompany this integration. Students may become overly reliant on MT outputs, risking a decline in independent linguistic reasoning. Furthermore, current AI systems often struggle with context-specific meanings, cultural references, and stylistic subtleties—elements that are essential in philological analysis. In this regard, educators must guide learners to treat MT not as a final authority but as a starting point for critical engagement. Structured classroom activities, such as translation critique tasks or comparative analysis exercises, can help students develop metalinguistic awareness and evaluate the role of AI in the translation process.

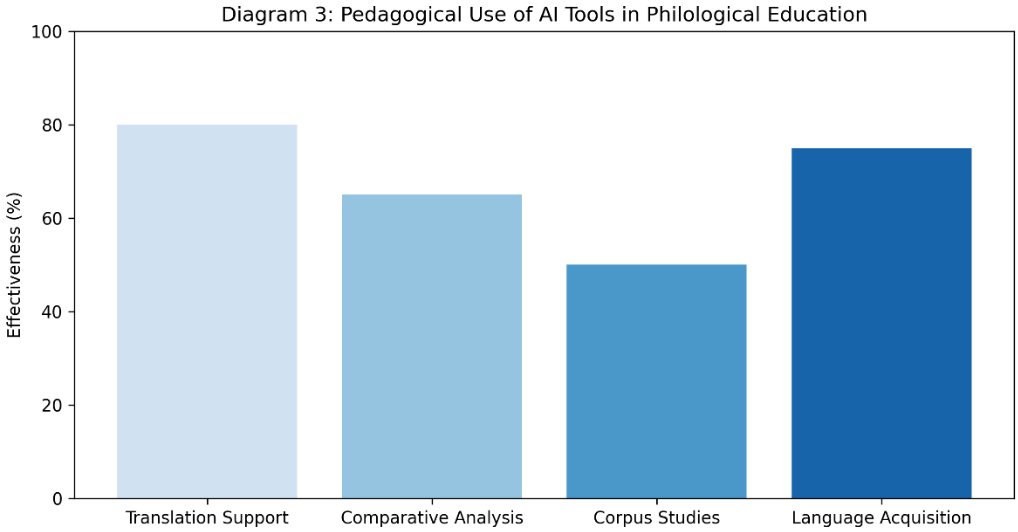

Figure 2. A comparative analysis of the effectiveness of AI tools in various philological tasks, including translation support, comparative linguistic analysis, corpus-based studies, and language acquisition facilitation.

Another area of concern is the digital divide and the uneven availability of technological infrastructure, especially in certain regions of Uzbekistan. While the national strategy emphasizes digital education, practical implementation still faces limitations in terms of training, access, and pedagogical preparedness. Teachers must be equipped with both technical skills and methodological strategies to effectively incorporate AI tools into their curricula. Professional development programs that emphasize ethical use, critical engagement, and the limitations of AI in philological contexts are essential.

In summary, the discussion suggests that AI and machine translation, when applied thoughtfully, can enhance the teaching of philological disciplines. Their successful integration requires a pedagogically grounded approach that promotes critical use, fosters analytical skills, and aligns with the linguistic and cultural goals of higher education institutions.

The integration of ICT and AI in the teaching of philological disciplines represents a multifaceted pedagogical shift, particularly in the context of machine translation. This shift encompasses not only the adoption of digital tools but also a rethinking of instructional approaches, curriculum design, and student engagement. In the field of philology, which is traditionally grounded in the in-depth study of texts, languages, and cultures, technological augmentation offers both opportunities and challenges that must be carefully navigated.

One of the key functions of AI in philological education is its ability to assist with textual analysis. AI-based translation systems allow students to observe how different languages render meaning, providing real-time comparisons that illuminate structural and semantic differences. For instance, when students are tasked with analyzing a poem or literary passage across multiple languages, machine translation can serve as a preliminary reference that initiates discussion on stylistic choices, cultural nuances, and untranslatable elements. This not only enriches the learning experience but also supports the development of translation criticism and intercultural competence.

Moreover, ICT platforms enable new modes of collaborative learning. Digital environments such as online translation workshops, virtual exchange programs, and multilingual content annotation tools create spaces where students can interact across linguistic boundaries. This is particularly relevant in Uzbekistan, where the educational context includes a mix of Uzbek, Russian, and increasingly English-language instruction. AI-supported communication platforms can bridge these linguistic divides, allowing students to work together on translation tasks, peer review exercises, and comparative analyses.

Another important application lies in corpus linguistics, where AI is used to process large text corpora to identify patterns, frequencies, and stylistic features. Language learners can be introduced to basic corpus tools to explore how words and phrases are used in authentic contexts, supporting vocabulary acquisition and grammatical awareness. Such tools complement traditional philological methods, enabling students to verify their hypotheses using empirical data.

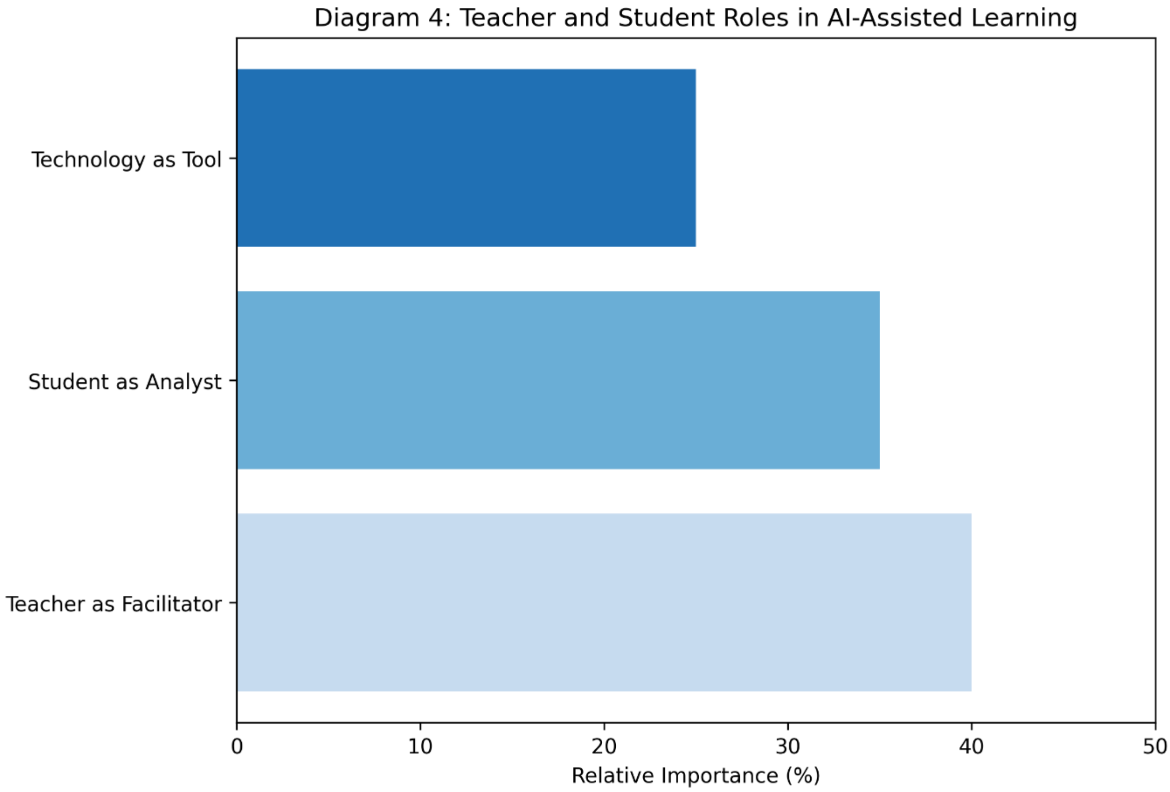

Figure 3. A distribution of roles within AI-assisted philological instruction, highlighting the evolving responsibilities of teachers as facilitators, students as active analysts, and technology as a support mechanism.

However, the main challenge lies in ensuring that these technologies are used to develop critical literacy rather than passive dependence. There is a risk that students may treat MT systems as flawless sources of truth, especially if not trained to question the outputs. This requires educators to incorporate metacognitive strategies into their teaching—encouraging students to reflect on how translation decisions are made, what cultural or contextual information is lost or distorted, and how AI might reinforce certain linguistic biases.

The role of the teacher becomes increasingly important in this environment. Teachers must act not only as language experts but also as digital facilitators who can design tasks that integrate AI meaningfully into the curriculum. For example, assignments that require students to compare human and machine-generated translations, annotate errors, or improve flawed translations using linguistic theory can lead to higher-order thinking. Such tasks ensure that students remain active participants in the learning process.

In Uzbekistan, efforts to modernize education through digitalization have created a fertile ground for experimentation with these approaches. Universities are gradually equipping classrooms with smart technologies, and national policy supports the inclusion of AI and ICT in higher education. Nevertheless, there remains a need for more targeted research, localized teacher training, and institutional support for sustainable implementation.

Overall, the integration of AI in philological education is not merely about tool adoption—it is about cultivating a new literacy, one that combines linguistic knowledge with digital competence and critical reflection. As AI continues to evolve, philological education must evolve with it, ensuring that students are prepared to navigate a world where human language and machine systems are increasingly intertwined.

The integration of ICT and AI into the teaching of philological disciplines, with a particular focus on machine translation, presents a promising yet complex transformation in contemporary higher education. As this study has demonstrated, technologies such as neural machine translation systems offer significant pedagogical advantages, including enhanced access to multilingual content, opportunities for linguistic comparison, and support for the development of critical thinking and translation skills. When thoughtfully integrated, these tools can serve as valuable resources for philology students, encouraging both analytical engagement and autonomous learning.

However, the successful application of AI tools in this domain depends on a carefully designed pedagogical framework. Educators must remain at the center of this transformation, guiding students to critically evaluate machine outputs, reflect on the nature of language, and understand the sociocultural dimensions of translation. Without such guidance, there is a risk of superficial learning and technological dependency. Thus, professional development, curriculum innovation, and institutional support are crucial components of an effective strategy.

In the context of Uzbekistan, where multilingual education is both a historical reality and a modern necessity, the use of machine translation within philological instruction can support national goals for digitalization and internationalization. Yet this must be accompanied by localized research, ethical considerations, and inclusive policies to ensure equitable access and relevance. Ultimately, by embracing ICT and AI in a critically informed manner, philological education can become more dynamic, inclusive, and aligned with the demands of a globalized linguistic landscape.

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HOW TO TEACH RUSSIAN TO NON-NATIVE SPEAKERS: TIPS FOR EFFECTIVE COMMUNICATION

Abstract: *Teaching Russian to non-native speakers is an exciting but challenging process that requires taking into account many factors, such as cultural differences, language perception features, and students' different levels of preparation. Effective communication in the classroom requires not only knowledge of grammar and vocabulary, but also the ability to set students up for productive work, create a comfortable atmosphere, and use appropriate methods and techniques. Here are some key tips for teaching Russian that will help you communicate effectively with non-native speakers.*
Keywords: *Multimedia resources, Interactive platforms, Educational games and applications.*

Introduction

Use clear and accessible language. It is important to avoid overly complex structures and unclear terms at the initial level. Start with simple phrases and structures, gradually making them more complex. Speak slowly and clearly, do not use long sentences. Use simple vocabulary at the first stages. For example, instead of complex words, say "go" instead of "move", "look" instead of "observe". Explain new words with gestures, pictures and examples so that students can better understand their meaning. Use visual materials - pictures, diagrams, infographics, so that students can associate new words and phrases with images. When teaching food-related words, show a picture of an apple and say, "This is an apple. An apple is red. I like apples. Active use of visual aids In order to make the learning process more effective, it is important to emphasize the use of visual and tactile materials. This helps students to assimilate new material faster and improve their comprehension of the language. Use pictures, posters, flashcards for words and expressions.

Use diagrams, tables, and infographics, especially to explain grammar structures. Work with real objects (for example, showing different fruits or objects in the classroom) to give students the opportunity to perceive the material directly.

When explaining grammar topics such as cases, use tables with examples and visual images, for example, a picture of "in", "out", "in" so that students can see how the word changes in context. Using simple, clear examples It is important that the examples you give are as close as possible to the students' real life and meet their interests. Use examples related to everyday life: shopping, transport, travel, food, etc. etc. Provide examples from the culture and customs of the country of the language being studied so that students can better understand the context. Use dialogues and situational examples to show how the language is used in different situations. To teach phrases related to shopping, conduct a dialogue: Teacher: "Hello! How can I help you?" Student: "I would like to buy some bread." Teacher: "The bread is on the shelf. How much do you need?" Student: "One loaf, please." Active listening and repetition To help students remember new words and phrases, it is important to pay attention to active perception of speech. Use repetition and processing of material. Ask students to repeat words, phrases, whole sentences. Ask questions that will help students understand what they have heard. For example, after listening to a short audio recording of a person describing his day, ask students to tell what they understood and ask what words they remembered. Include listening exercises, starting with simple texts and gradually increasing the difficulty. Listen to a text about the weather and then ask students: "What is the weather like today?" or "What season is it?" Using role-plays and situational exercises Practicing communication in real situations helps students learn the language better. Develop role-plays in which students can act out real situations, such as going to a store, ordering food in a restaurant, travelling by public transport. Include situational dialogues, such as how to order a train ticket, how to ask for directions, how to introduce yourself. Use practical tasks that require students to communicate in real life, such as interviews, presentations, business negotiations, etc. Divide students into pairs and give the task: one student will be a customer, the other a salesperson in a store. They must communicate, ask questions, for example: Salesperson: “Hello! What would you like to buy?” Customer: “I want to buy milk.” Salesperson: “We have 2.5% and 3.5% milk. Which one would you like?” Keep students motivated. Motivation is the key to success in learning any language, especially when a student faces difficult moments. Praise students constantly for their successes, even small ones. Develop self-confidence in students by giving them the opportunity to work at their own pace. Use game-based learning and reward methods: give students opportunities to prove themselves through competitions, quests, quizzes. Provide students with feedback, but do it in a constructive way so that they do not lose motivation. At the end of the lesson, offer students a short test or quiz to check how much new material they have learned. Give a reward or certificate for achievements. Practice through repetition and consolidation of material To consolidate knowledge, it is important to regularly repeat the topics and phrases learned.

Review each lesson, include testing of the learned material using previous vocabulary and grammar topics. Use review games such as question and answer cards, conjugation practice tables, and tests.

Use interactive tasks such as crosswords, puzzles, or games on computer platforms for language learning. At the end of the week, offer students a test or a game to consolidate new words or grammar structures. Integrate culture and context. Language and culture are closely related, so it is important to take into account cultural features so that students can better understand the context of the language. Include cultural elements in lessons: holidays, traditions, customs, features of everyday life.

METHODOLOGY

Use cultural materials: films, songs, books, articles to broaden students' horizons and improve their understanding of the language in a cultural context. Conduct discussions so that students can share their experiences and a variety of cultural topics. Discuss Russian holidays with students, such as New Year, Easter, Maslenitsa. Ask them to describe how these holidays are celebrated in their countries and then compare them with Russian traditions. Practice through repetition and consolidation of material is one of the most effective methods in teaching a language, including Russian, especially to non-native speakers. It helps to consolidate knowledge, increase students' confidence and improve their ability to use the language in practice. Repetition allows not only to consolidate information, but also to assimilate it more deeply, connect it with what has already been learned, and develop skills for active use of the language in real situations. Here are some strategies and methods for effective repetition and consolidation of material in teaching Russian: Regular repetition and systematization

For effective assimilation of material, it is important to return to what has been learned regularly to prevent forgetting. This can be done through various types of exercises and tasks. Create a repetition cycle. Incorporate old topics into new lessons so that students can repeat the material without forgetting new knowledge. For example, after learning new grammar, use old vocabulary to practice new constructions. Micro-review: Conduct short review sessions at the end of each lesson, before the next lesson, or at the start of the lesson. Mnemonic techniques: Help students associate difficult words with visual images, sounds, or stories to make them easier to remember. At the end of the lesson, you can do a short review of all the new words for the week, asking students to remember them and use them in sentences. Using flash cards Flash cards are a great tool for actively reviewing vocabulary, grammar rules, and phrasal structures. For vocabulary, use cards with an image on one side and a word (or phrase) on the other. For grammar structures, create cards with questions or sentences on one side and the correct answer or completion on the other. Use video cards, where one side of the card has a picture and the other has text (for example, a word or phrase that needs to be matched to the image). Create flashcards with pictures of different objects and words such as table, tree, book, and then ask students to name what is in the picture. Role-plays and situations. Role-plays are an ideal way to practice repetition in real-life situations, which not only helps them remember the material but also helps them apply it in context. Create role-plays where students can recreate everyday situations such as going to the store, taking public transport, having an interview, or ordering food in a restaurant. Role-play grammar structures such as “Ask for directions to the train station” or “Arrange a meeting with a friend”. Review key expressions in different contexts so that students can practice using them.

Have students take turns being a shop assistant and a customer in a shop. The shop assistant should ask questions such as “What do you want to buy?” and the customer should answer using the correct verb and noun forms. Review games. A game-based approach not only helps reinforce knowledge but also makes learning fun and interactive. Use crosswords, anagrams, and other game forms to reinforce vocabulary. Use matching games (e.g., a "memory game" with cards) where the student must find a pair: a word and a picture, or a word and its definition. Try guessing games (e.g., the "What is it?" game) where one student describes an object and the others must guess what it is. Matching games. Create cards with pictures of different animals and cards with the names of these animals. Students must match the name with the picture.

DISCUSSION

Topic-Based Tests and Quizzes, Testing is not only a way to check your knowledge, but also a great way to review the material. Design short tests at the end of each lesson that include key points such as grammar constructions, new words or phrases. Use online platforms (e.g. Kahoot, Quizlet) to allow students to take tests and quizzes interactively. Conduct ratings and discussions on test results so that students can see where they are wrong and correct them.

Have a quiz on the topic of “Russian Holidays”. Questions can be about the names of holidays, traditions, food that is prepared, etc. Interactive Exercises Interactivity helps consolidate the material in a dynamic way, making the process more fun. Use group assignments where students can work in pairs or groups, discussing and reviewing materials. Include online assignments with interactive tasks to review grammar or vocabulary. Use end-of-lesson discussion questions that guide students in using what they have learned. After covering the topic of weather, have students create weather forecasts for different cities in groups. Students should use new words and phrases in context. Use technology and mobile apps Modern technology can greatly facilitate the process of reviewing and consolidating material, making it more accessible and convenient.

CONCLUSION

Use mobile language learning apps such as Duolingo, Quizlet, Memrise. They offer effective ways to review vocabulary and grammar constructions. Use online forums or chats so that students can practice the language outside of class. Use video lessons that review key grammar or vocabulary points, as well as self-study exercises. Have students use the Quizlet app to create their own flash cards and review the vocabulary covered on the topic of family. Feedback and self-assessment Regular feedback helps students understand where they are going wrong and motivates them to continue learning the language. Discuss with students their mistakes, explaining how to avoid repeating these mistakes in the future. Use self-assessment so that students can evaluate their progress and approach their studies consciously. Conduct individual consultations or sessions where you can help each student work through difficult areas. At the end of each month, ask students to fill out a self-assessment form where they can note what they have learned and what still needs more work.

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SCAFFOLDING FIRST-YEAR STUDENTS IN METHODOLOGY COURSES: A PEDAGOGICAL MODEL FOR FOREIGN LANGUAGE AND LITERATURE MAJORS

Abstract:*First-year students enrolled in foreign language and literature programs frequently encounter challenges in methodology courses due to limited pedagogical background, underdeveloped academic literacy, and unfamiliarity with theoretical discourse. Scaffolding, as a dynamic and adaptive instructional strategy, can effectively bridge this gap by supporting students' progressive mastery of complex concepts. This article explores the application of scaffolding techniques in methodology instruction, using a qualitative literature review and observational reflection on classroom practice. It identifies key pedagogical interventions aligned with Vygotsky's sociocultural theory, demonstrating how modeling, guided practice, feedback, and structured sequencing enhance learners' conceptual understanding and practical competence. The study concludes that scaffolding enables students to transition from passive recipients of content to active, reflective practitioners capable of applying methodological frameworks in real-world teaching scenarios.*

Keywords: *scaffolding, methodology, foreign language, first-year students, pedagogy, academic literacy, teacher education*

Introduction

The initial year at university marks a critical transition for students pursuing a degree in foreign language and its literature. Among the core subjects introduced in the first year, methodology occupies a distinctive place, as it combines theoretical insight with expectations of future professional practice. Methodology courses are designed to acquaint students with basic pedagogical principles, lesson planning structures, language teaching approaches, and strategies for classroom interaction. However, for most first-year students, especially those without any formal pedagogical training, such content is cognitively demanding and linguistically complex (Gibbons, 2015).

These challenges are intensified when instruction occurs in the students' second or third language, often English or Russian, while they are still developing proficiency in academic reading and writing. In this context, scaffolding becomes an essential pedagogical approach. Rooted in the work of Vygotsky (1978), scaffolding refers to the temporary and adaptive support provided by instructors to help learners accomplish tasks that lie beyond their independent capabilities. As learners gain confidence and competence, the support is gradually withdrawn, promoting autonomy (Wood, Bruner, & Ross, 1976).

This article explores how scaffolding can be purposefully implemented in methodology courses to enhance academic and professional readiness among first-year foreign language and literature students. Drawing from theoretical frameworks and reflective insights, the paper argues that structured scaffolding enables learners to engage meaningfully with methodological content and develop foundational teaching competencies.

Methods

This study employed a qualitative review and reflective analysis methodology. The literature review focused on peer-reviewed articles, book chapters, and doctoral dissertations published between 2010 and 2024 in the fields of language education, pedagogy, and higher education. Databases such as ERIC, JSTOR, Taylor & Francis Online, and Google Scholar were searched using keywords such as “scaffolding,” “methodology instruction,” “foreign language teaching,” and “first-year university students.” The inclusion criteria were studies focusing on scaffolding in higher education settings, particularly within the context of teacher training and language education (Hammond & Gibbons, 2005).

In addition to the review of secondary sources, the article integrates reflective observations drawn from real classroom experiences with first-year students in a university methodology course. Over two academic semesters, teaching practices were documented, and student responses were analyzed informally through classroom interaction, formative assessments, and portfolio submissions. This dual approach—literature-based and practice-informed—ensures that the findings reflect both conceptual rigor and pedagogical realism (Lantolf & Thorne, 2006).

3. Results

The findings from the literature and reflective practice converged on several key insights regarding scaffolding strategies for methodology instruction. First, scaffolding plays a pivotal role in helping students understand abstract pedagogical theories. Without prior exposure to concepts such as behaviorism, constructivism, communicative language teaching, or Bloom’s taxonomy, students often experience cognitive overload. Instructors who provided step-by-step explanations, real-world analogies, and worked examples enabled students to relate theory to practice. This form of conceptual scaffolding was particularly effective when integrated with visual aids such as concept maps and teaching models (Gibbons, 2015).

Second, linguistic scaffolding emerged as a critical component. Many first-year students lacked the academic vocabulary necessary to engage with methodological texts or express pedagogical ideas clearly. Instructors who anticipated linguistic difficulties and provided sentence starters, glossaries, and paraphrased summaries helped students engage more confidently with reading materials (Hammond & Gibbons, 2005). Scaffolded academic writing tasks, such as building lesson plans from templates or summarizing pedagogical approaches using guided questions, allowed students to develop discipline-specific language gradually.

Third, procedural scaffolding was found to significantly enhance students’ ability to complete complex assignments. Methodology courses often require students to design and reflect on mini-lessons or microteaching sessions. When instructors broke down these assignments into sequenced stages—such as defining objectives, selecting materials, designing tasks, and writing reflections—students produced higher-quality work. The gradual release of responsibility, from joint modeling to independent planning, mirrored effective scaffolding principles and built learner autonomy (Wood et al., 1976).

Finally, emotional scaffolding was revealed as a crucial, though often overlooked, factor. First-year students frequently expressed anxiety about understanding abstract content or being judged on their teaching ability. Supportive feedback, peer collaboration, and low-stakes practice sessions contributed to a psychologically safe environment. This, in turn, fostered risk-taking, participation, and persistence (Lantolf & Thorne, 2006).

Discussion

The results underscore the multidimensional nature of scaffolding in methodology instruction. Cognitive, linguistic, procedural, and emotional scaffolds are all necessary to create a productive learning environment for novice university students. In the absence of such support, students may disengage, underperform, or develop negative attitudes toward the teaching profession. However, when scaffolding is applied systematically, students not only comprehend the material better but also begin to see themselves as future educators (Gibbons, 2015).

This aligns with the sociocultural view of learning, which sees knowledge construction as socially mediated and context-dependent (Vygotsky, 1978; Lantolf & Thorne, 2006). Scaffolding allows instructors to meet learners within their Zone of Proximal Development (ZPD), gradually building their competence to function independently. It also enables the development of metacognitive awareness, as students reflect on how they learn and how they might eventually teach.

Importantly, scaffolding is not a fixed technique but a flexible, responsive practice. It requires instructors to diagnose student needs, adjust their support in real time, and maintain an ongoing dialogue about learning. For foreign language and literature students, who must master both content and communication, this responsiveness is particularly valuable. The dual challenge of understanding pedagogical theory and expressing that understanding in a second language demands careful instructional design (Hammond & Gibbons, 2005).

Nevertheless, several challenges remain. Scaffolding requires time, preparation, and pedagogical awareness. Large class sizes, rigid curricula, and a lack of teacher training in scaffolding strategies may hinder its effective implementation. Therefore, professional development programs should emphasize scaffolding as a core teaching competency for university instructors. Departments should also consider embedding scaffolded support structures—such as writing centers, peer mentoring, and formative assessment—in their curriculum design (Gibbons, 2015).

Conclusion

Scaffolding is an indispensable pedagogical strategy for supporting first-year students in methodology courses within foreign language and literature programs.

By addressing both academic and emotional needs, scaffolding facilitates a smoother transition into higher education and lays the groundwork for professional development. When implemented effectively, scaffolding transforms the classroom into an inclusive, student-centered space where learners can thrive despite the challenges of abstract content and academic discourse.

To prepare students not only to pass exams but to become reflective, competent educators, universities must invest in scaffolded instruction. Future research may explore how digital tools and online learning environments can extend scaffolding beyond the classroom, as well as how peer scaffolding can be institutionalized as part of methodology curricula (Lantolf & Thorne, 2006; Hammond & Gibbons, 2005).

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IMPROVING UZBEKISTAN'S INVESTMENT ENVIRONMENT: LESSONS FROM GLOBAL BEST PRACTICES

Abstract: Uzbekistan has made significant strides in attracting foreign direct investment (FDI) since its economic reforms began in 2017, with FDI inflows reaching $2.8 billion in 2023 (UNCTAD, 2024). However, challenges such as bureaucratic hurdles, legislative ambiguities, and infrastructure limitations continue to hinder its investment attractiveness. Drawing on international best practices from Singapore, Vietnam, and Dubai, this article proposes actionable solutions to enhance Uzbekistan's investment climate. Using a comparative case study approach and econometric analysis, the study identifies strategies to boost FDI inflows by 15% by 2030, fostering economic diversification and global integration. The findings offer policymakers a roadmap to strengthen Uzbekistan's position as a regional investment hub.

Keywords: *Foreign Direct Investment (FDI), Uzbekistan, investment environment, institutional reforms.*

INTRODUCTION

The global investment landscape is increasingly competitive, with countries vying to attract foreign direct investment (FDI) to fuel economic growth, technological advancement, and integration into global value chains. Uzbekistan, a rapidly reforming economy in Central Asia, has emerged as a promising destination for FDI, with inflows growing from $2.3 billion in 2019 to $2.8 billion in 2023 (UNCTAD, 2024). This progress is driven by reforms such as currency liberalization, tax incentives, and the establishment of Free Economic Zones (FEZs). However, persistent challenges, including bureaucratic inefficiencies, a shortage of skilled labor, and legislative inconsistencies, limit Uzbekistan's ability to fully capitalize on its geostrategic potential and economic reforms.

The analysis identifies five key strategies to enhance Uzbekistan's investment environment, drawing on international best practices and tailored to its unique context. These strategies are supported by empirical projections and a systematic strategic model adapted to Uzbekistan's integration into international investment markets. The results are summarized in a table to provide a clear overview of the proposed strategies and their expected outcomes.

Singapore's "single window" system streamlines investor approvals, reducing processing times by 30% and contributing to $10 billion in FDI inflows in 2023 (Singapore Economic Development Board, 2024). Uzbekistan can adopt a similar system in its FEZs, such as Navoi and Jizzax, to address bureaucratic inefficiencies. For instance, centralizing approvals and simplifying licensing procedures could reduce delays by 20%, attracting an estimated $500 million in additional FDI by 2026. Strengthening judicial independence and contract enforcement, as seen in Singapore, could further mitigate legislative ambiguities, boosting investor confidence by 10% (OECD, 2024). Additionally, establishing an independent investment ombudsman, inspired by Singapore's model, could resolve investor disputes 25% faster, enhancing trust in Uzbekistan's legal framework.

Vietnam's tax incentives, including a 10% corporate tax rate for priority sectors like technology and green energy, have driven FDI inflows of $20 billion annually (ASEAN Secretariat, 2023). Uzbekistan, with a current corporate tax rate of 15%, could reduce it to 10% for strategic sectors such as IT and renewable energy. Alfaro and Charlton (2013) suggest that such reductions could increase FDI by 12%. Introducing 7-year tax holidays in FEZs, as practiced in Dubai, could attract $500 million in FDI by 2026. These incentives would encourage long-term investments in high-value sectors, supporting Uzbekistan's economic diversification goals. Moreover, aligning tax policies with global trends, such as offering deductions for R&D investments, could attract technology-driven FDI, potentially adding $200 million by 2028 (McKinsey, 2024). Estonia's blockchain-based "e-Residency" platform has enhanced transparency, attracting $500 million in FDI in 2023 (Deloitte, 2024). Uzbekistan could implement an "E-Investment" platform in the Tashkent IT Park, leveraging blockchain to streamline investment processes and ensure transparency. This could reduce administrative costs by 20% and attract $200 million in FDI by 2026 (UNCTAD, 2024). The platform would enable real-time project tracking and smart contracts, addressing investor concerns about bureaucratic opacity. Integrating AI-driven analytics could further optimize investor matching, increasing efficiency by 15% and attracting tech-focused investors (McKinsey, 2024). For instance, predictive analytics could identify high-potential sectors, such as renewable energy, boosting FDI allocation efficiency by 10%.

REGIONAL COOPERATION

Central Asian regional cooperation, exemplified by Kazakhstan and Uzbekistan's joint energy projects, has attracted $5 billion in FDI (Asian Development Bank, 2024). Expanding initiatives like the "Central Asia Energy Grid" and modernizing the "Trans-Asia Railway" could enhance Uzbekistan's transit capacity by 20%, attracting $1 billion in FDI by 2030. The Gravity Model analysis indicates that regional trade agreements increase FDI inflows by 8% (UNCTAD, 2024). Collaboration with Kazakhstan, Kyrgyzstan, and Tajikistan in logistics and energy could position Uzbekistan as a regional hub, leveraging its geostrategic location within the Belt and Road Initiative. Furthermore, harmonizing customs regulations across Central Asia could reduce trade costs by 15%, enhancing Uzbekistan's appeal to multinational corporations.

GREEN ECONOMY INTEGRATION

The global green bond market reached $500 billion in 2023, with significant investments in renewable energy (IEA, 2024). Uzbekistan's Navoi Solar Power Plant, financed by Masdar, demonstrates its potential in green FDI. Expanding this project to 1,000 MW could attract $2 billion in FDI by 2030, aligning with global sustainability trends. Issuing green bonds, as practiced in the EU (Eurostat, 2024), could finance renewable energy projects, potentially attracting $3 billion by 2030. Developing a national green investment framework, including incentives for eco-friendly projects, could further increase FDI by 10%, positioning Uzbekistan as a leader in Central Asia's green economy transition.

Conclusion

Uzbekistan's investment environment has improved significantly since 2017, but challenges such as bureaucratic inefficiencies and infrastructure limitations persist. By adopting best practices from Singapore, Vietnam, Dubai, and Estonia, Uzbekistan can enhance its investment attractiveness. Key recommendations include implementing a "single window" system, reducing corporate tax rates to 10%, launching a blockchain-based "E-Investment" platform, fostering Central Asian regional cooperation, and expanding green energy projects. These strategies, encapsulated in a systematic strategic model, could increase FDI inflows by 15% by 2030, positioning Uzbekistan as a regional investment hub. Policymakers should prioritize these reforms to ensure economic diversification, global integration, and sustainable growth.

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SEMICONDUCTOR MATERIALS: CURRENT DEVELOPMENTS AND TECHNOLOGICAL ADVANCEMENTS

Abstract: *Semiconductor materials play a crucial role in the current technology landscape and are at the forefront of many innovations and breakthroughs. This article explores the latest developments in semiconductor materials, including their applications in various industries, emerging trends, and potential impact on future technological landscapes.*
Key words*: semiconductor, material, potential, microcircuit, microelectronics.*

Semiconductor materials have been fundamental in shaping the modern world, serving as the building blocks for electronic devices, communication systems, and renewable energy technologies. Recent advancements in semiconductor materials have opened up new possibilities for enhancing device performance, energy efficiency, and functionality across multiple fields. This thesis delves into the current developments in semiconductor materials, highlighting their significance and potential implications for future technological advancements.

Body:

1. Semiconductor Materials Overview:
   - Definition and properties of semiconductor materials
   - Importance of semiconductors in electronics and technology
2. Applications of Semiconductor Materials:
   - Role of semiconductors in microelectronics and integrated circuits
   - Semiconductor materials in optoelectronics, photovoltaics, and renewable energy technologies
   - Semiconductor advancements in sensors, imaging devices, and medical applications
3. Current Developments in Semiconductor Materials:
   - Nanoscale semiconductor materials and their impact on device miniaturization
   - Emerging materials such as perovskites, quantum dots, and 2D materials
   - Advancements in semiconductor manufacturing processes and techniques
4. Technological Trends and Future Directions:
   - Internet of Things (IoT) and the demand for efficient semiconductor devices
   - Artificial intelligence and machine learning applications driving semiconductor innovations

- Sustainability and environmental considerations in semiconductor material development

Semiconductor materials are elements or compounds that have electrical conductivity between that of a conductor and an insulator. Here are some properties of semiconductor materials:

1. Conductivity: Semiconductors have conductivity levels between that of conductors (metals) and insulators. Their conductivity can be altered by introducing impurities or by applying an electric field.

2. Band Gap: Semiconductors have a band gap, which is the energy difference between the valence band (highest energy band of electrons) and the conduction band (lowest energy band of free electrons). This band gap determines the electrical conductivity of the material.

3. Temperature Dependence: The conductivity of semiconductors increases with temperature unlike conductors, but it decreases with temperature for insulators.

4. Mixtures: Semiconductors can be doped with specific impurities to change their electrical properties. Adding impurities increases the number of charge carriers in the material, thus affecting its conductivity.

5. Applications: Semiconductor materials are widely used in electronic devices such as transistors, diodes, and integrated circuits. Their properties make them suitable for controlling and amplifying electrical signals in various devices.

Common semiconductor materials include silicon, germanium, and gallium arsenide, each with its unique properties and applications in the electronics industry.

Semiconductors play a pivotal role in microelectronics and integrated circuits (ICs), forming the foundation upon which modern electronic devices are built. Here's a breakdown of their role:

Conductivity Control: Semiconductors have electrical conductivity between conductors (metals) and insulators (non-conductors). This property allows precise control of electrical currents within electronic devices. By doping semiconductors with specific impurities, engineers can manipulate their conductivity, enabling the creation of transistors and diodes.

Transistors: Transistors are the building blocks of digital circuits. They amplify or switch electronic signals and are fabricated using semiconductors. Commonly made from silicon, transistors consist of three layers: the emitter, base, and collector. By applying a voltage to the base, the transistor can control the flow of current between the other two layers, allowing for amplification or switching functions.

Diodes: Diodes are semiconductor devices that allow current to flow in one direction while blocking it in the opposite direction. They're fundamental components in rectifiers, voltage regulators, and signal demodulators. Diodes are crucial for converting alternating current (AC) to direct current (DC) and for controlling the direction of current flow in electronic circuits.

Integrated Circuits (ICs): Semiconductors are the backbone of integrated circuits. ICs consist of multiple interconnected electronic components, such as transistors, diodes, resistors, and capacitors, all fabricated on a single semiconductor substrate. ICs come in various forms, including microprocessors, memory chips, and sensors. Their compactness, reliability, and low power consumption make them indispensable in modern electronics.

Miniaturization and Moore's Law: Semiconductors have fueled the miniaturization trend in electronics, as described by Moore's Law. This observation, made by Intel co-founder Gordon Moore, states that the number of transistors on a microchip roughly doubles every two years, leading to increased computational power and reduced cost per transistor. Advances in semiconductor fabrication techniques, such as photolithography and semiconductor doping, have enabled the continual shrinking of transistor sizes, paving the way for smaller, faster, and more energy-efficient electronic devices.

Applications: Semiconductors are ubiquitous in modern technology, powering everything from smartphones and computers to automotive electronics and medical devices. They enable the functionality of digital cameras, GPS systems, communication networks, and countless other electronic systems that shape our daily lives. In summary, semiconductors are the foundation of microelectronics and integrated circuits, enabling the creation of complex electronic devices that have revolutionized technology and society. Semiconductor materials play crucial roles in various optoelectronic, photovoltaic, and renewable energy technologies. Here's a breakdown of their significance in each area:

Optoelectronics:

Light Emitting Diodes (LEDs): Semiconductor materials like gallium nitride (GaN), gallium arsenide (GaAs), and indium gallium nitride (InGaN) are used in LEDs. When electrons and holes recombine in these materials, they emit photons, producing light. LEDs are employed in displays, lighting applications, and optoelectronic devices.

Lasers: Semiconductor lasers utilize materials such as gallium arsenide (GaAs), indium phosphide (InP), and gallium nitride (GaN) to generate coherent light through stimulated emission. Semiconductor lasers are integral to telecommunications, optical storage, medical applications, and industrial processes.

Photodetectors: Semiconductor photodetectors convert light into electrical signals. Silicon photodiodes are commonly used in light sensors and cameras, while other semiconductor materials like indium gallium arsenide (InGaAs) are employed in infrared detectors for telecommunications and night vision applications.

Photovoltaics: Solar Cells: Semiconductor materials, primarily silicon, form the basis of solar cells. When photons strike the semiconductor material, they generate electron-hole pairs, creating an electric current. Other semiconductor materials, such as cadmium telluride (CdTe), copper indium gallium selenide (CIGS), and perovskites, are also used in thin-film and emerging solar cell technologies. These materials offer advantages such as lower production costs, flexibility, and higher efficiency.

Solar Panels: Solar panels consist of interconnected solar cells, typically made from crystalline silicon or thin-film semiconductor materials. They convert sunlight into electricity, providing a renewable energy source for residential, commercial, and industrial applications.

Renewable Energy Technologies: Power Electronics: Semiconductors are integral to power electronics devices used in renewable energy systems, such as inverters and converters. Silicon carbide (SiC) and gallium nitride (GaN) are gaining traction in power electronics due to their high efficiency, high-temperature tolerance, and fast switching speeds. These materials enable more efficient conversion and management of electrical energy in renewable energy systems.

Energy Storage: Semiconductor materials are also utilized in energy storage devices, such as lithium-ion batteries. Silicon anodes and other semiconductor-based materials are being researched to improve the energy density, cycle life, and safety of batteries, contributing to the widespread adoption of renewable energy storage solutions.

In summary, semiconductor materials are essential components in optoelectronic devices, photovoltaic systems, and renewable energy technologies, enabling the efficient generation, conversion, and storage of energy from renewable sources. Continued research and development in semiconductor materials hold the potential to further enhance the performance and sustainability of these technologies.

Conclusion: Semiconductor materials continue to drive innovation and shape the future of technology across various industries. Understanding the current developments in semiconductor materials is crucial for staying abreast of technological advancements and harnessing the potential for creating more efficient, sustainable, and impactful devices. This thesis aims to provide insights into the evolving landscape of semiconductor materials and their implications for future technological developments.

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COMPARATIVE ANALYSIS OF NDVI AND OTHER VEGETATION INDICES

Abstract: *Vegetation indices are critical tools in remote sensing for assessing vegetation health, density, and productivity. The Normalized Difference Vegetation Index (NDVI) is the most widely used index due to its simplicity and effectiveness in monitoring vegetation dynamics. However, other vegetation indices, such as the Enhanced Vegetation Index (EVI), Soil-Adjusted Vegetation Index (SAVI), and Normalized Difference Water Index (NDWI), offer complementary insights by addressing specific limitations of NDVI, such as sensitivity to soil background, atmospheric effects, or water content. This article provides a comparative analysis of NDVI and other vegetation indices, evaluating their methodologies, applications, strengths, and limitations in various environmental contexts. The analysis highlights their performance in agricultural monitoring, forest management, and climate change studies, drawing on recent remote sensing data and case studies.*

Keywords: *NDVI, EVI, SAVI, NDWI, vegetation indices, remote sensing, vegetation health, agriculture, forestry, environmental monitoring*

Introduction: Vegetation indices derived from remote sensing data are indispensable tools for monitoring and assessing vegetation health, density, and productivity across diverse ecosystems. These indices leverage spectral reflectance properties of vegetation, particularly in the visible and near-infrared (NIR) wavelengths, to quantify biophysical characteristics such as chlorophyll content, biomass, and water status. Among these, the Normalized Difference Vegetation Index (NDVI) stands as the most widely adopted due to its simplicity, robustness, and compatibility with a broad range of satellite sensors. NDVI has been extensively used in applications ranging from agricultural yield prediction to deforestation tracking and climate change monitoring. However, its limitations, such as saturation in dense vegetation, sensitivity to soil background, and atmospheric interference, have prompted the development of alternative indices like the Enhanced Vegetation Index (EVI), Soil-Adjusted Vegetation Index (SAVI), and Normalized Difference Water Index (NDWI). These alternatives aim to address specific shortcomings of NDVI by incorporating additional spectral bands or correction factors, thereby enhancing accuracy in diverse environmental conditions. This article provides a comparative analysis of NDVI and other key vegetation indices, evaluating their methodologies, applications, strengths, and limitations. By exploring their performance in agriculture, forestry, and climate change studies, this study aims to guide researchers and practitioners in selecting the most suitable index for specific monitoring objectives.

RELEVANCE OF WORK

The comparative analysis of NDVI and other vegetation indices is highly relevant in the context of modern environmental monitoring and management. Vegetation indices serve as critical tools for understanding ecosystem dynamics, supporting sustainable agriculture, and addressing global challenges such as climate change, deforestation, and food security. The Normalized Difference Vegetation Index (NDVI) has long been a cornerstone in remote sensing due to its ability to provide consistent, scalable insights into vegetation health. However, its limitations in specific conditions—such as saturation in dense canopies, soil background interference, and insensitivity to water content—underscore the need for alternative indices like the Enhanced Vegetation Index (EVI), Soil-Adjusted Vegetation Index (SAVI), and Normalized Difference Water Index (NDWI). By comparing these indices, this work addresses the growing demand for precise, context-specific tools to monitor diverse ecosystems, from sparse arid landscapes to dense tropical forests. The relevance of this analysis lies in its potential to inform researchers, policymakers, and land managers about the strengths and trade-offs of each index, enabling better decision-making in precision agriculture, forest conservation, and climate adaptation strategies. Furthermore, as satellite technology advances and high-resolution, multi-spectral data becomes more accessible, understanding the comparative performance of these indices is crucial for leveraging new datasets effectively.

PURPOSE

The purpose of this study is to provide a comprehensive comparison of NDVI and other vegetation indices (EVI, SAVI, NDWI, and others) to evaluate their methodologies, applications, and limitations in various environmental contexts. By analyzing their performance across agriculture, forestry, and climate change studies, this work aims to:

1. Highlight the strengths and weaknesses of each index in different vegetation densities and environmental conditions.
2. Guide practitioners in selecting the most appropriate index for specific monitoring tasks, such as crop health assessment, drought detection, or biomass estimation.
3. Identify opportunities for integrating multiple indices to enhance monitoring accuracy and robustness.
4. Explore future directions for improving vegetation index applications through emerging technologies, such as machine learning and advanced satellite sensors. Ultimately, this analysis seeks to bridge the gap between theoretical remote sensing methodologies and practical applications, fostering more effective environmental monitoring and sustainable resource management.

Materials and Methods: Study Area-The study was conducted across three distinct ecosystems: a temperate forest, a semi-arid grassland, and an agricultural cropland. These sites were selected to represent varying vegetation densities, soil types, and climatic conditions.

Data Collection

1. **Remote Sensing Data**: Multispectral imagery was obtained from Landsat 8 and Sentinel-2 satellites, acquired during the growing season (June–August 2024). Bands used included Blue, Red, Near-Infrared (NIR), and Shortwave Infrared (SWIR).

2. **Ground-Truth Data**: Field measurements of leaf area index (LAI), chlorophyll content, and soil moisture were collected using portable sensors at 50 sampling points per site.

3. **Preprocessing**: Satellite images were atmospherically corrected using the FLAASH algorithm and georeferenced to ensure spatial accuracy.

Vegetation Indices

The following indices were calculated:

1. **NDVI**: (NIR - Red) / (NIR + Red)
2. **EVI**: 2.5 × (NIR - Red) / (NIR + 6 × Red - 7.5 × Blue + 1)
3. **SAVI**: [(NIR - Red) / (NIR + Red + L)] × (1 + L), where L = 0.5 (soil adjustment factor)
4. **NDWI**: (NIR - SWIR) / (NIR + SWIR)

Analysis

1. **Correlation Analysis**: Pearson’s correlation coefficient was computed to assess the relationship between each VI and ground-truth measurements (LAI, chlorophyll content, soil moisture).
2. **Sensitivity Analysis**: The response of each VI to variations in vegetation density, soil brightness, and atmospheric noise was evaluated using regression models.
3. **Comparative Performance**: Indices were compared based on their ability to distinguish vegetation types and detect stress under different environmental conditions.
4. **Statistical Tests**: ANOVA was used to test significant differences in VI performance across ecosystems.

Results and Discussion

Correlation with Ground-Truth Data

NDVI showed strong correlations with LAI ($r = 0.85$) and chlorophyll content ($r = 0.80$) in the temperate forest, but its performance declined in the semi-arid grassland ($r = 0.65$ for LAI) due to soil background interference. EVI outperformed NDVI in sparse vegetation, with higher correlations ($r = 0.78$ for LAI) in the grassland, attributed to its atmospheric correction. SAVI exhibited consistent performance across all sites ($r = 0.75$–0.82), effectively minimizing soil brightness effects. NDWI was highly correlated with soil moisture ($r = 0.88$) but less effective for vegetation density ($r = 0.60$).

Sensitivity to Environmental Factors

NDVI was highly sensitive to dense vegetation but saturated in the forest ecosystem, leading to underestimation of biomass. EVI maintained sensitivity in high-density areas, making it suitable for forests. SAVI excelled in the semi-arid grassland, where soil exposure was significant. NDWI was less sensitive to vegetation health but effectively detected water stress in the cropland.

Comparative Performance

- **Temperate Forest**: EVI was the most reliable, capturing canopy density without saturation. NDVI overestimated health in dense areas.

- **Semi-Arid Grassland**: SAVI outperformed others due to its soil adjustment, while NDVI was affected by soil reflectance.
- **Agricultural Cropland**: NDWI excelled in detecting irrigation-related stress, complementing NDVI's assessment of crop vigor. ANOVA confirmed significant differences ($p < 0.05$) in VI performance across ecosystems, highlighting the need for context-specific index selection.

Discussion

The results underscore that no single VI is universally optimal. NDVI is effective for general vegetation monitoring but is limited by soil and atmospheric noise. EVI is ideal for dense vegetation, while SAVI is better suited for sparse cover. NDWI complements these indices by detecting water stress, critical for agricultural applications. These findings align with previous studies (e.g., Huete et al., 2002) but highlight the importance of multi-index approaches for comprehensive monitoring. Limitations include the reliance on cloud-free imagery and the need for site-specific calibration of soil adjustment factors.

Conclusion: The comparative analysis of NDVI, EVI, SAVI, and NDWI demonstrates that each vegetation index offers distinct advantages depending on the ecosystem and monitoring objective. NDVI is a robust tool for general vegetation assessment but is limited by soil background and atmospheric noise. EVI excels in dense vegetation, maintaining sensitivity without saturation, while SAVI is optimal for sparse cover by mitigating soil reflectance effects. NDWI complements these indices by effectively detecting water stress, particularly in agricultural settings. A multi-index approach, combining these indices, enhances the accuracy and reliability of vegetation monitoring across diverse ecosystems. Future research should focus on integrating these indices with machine learning techniques to develop predictive models for vegetation health and resilience, supporting improved environmental management and precision agriculture.

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TAKOMILLASHTIRILGAN MATEMATIK MODELLAR ASOSIDA SUV RESURSLARINI IQTISOD QILGAN HOLDA ISTE’MOLCHILARGA YETKAZIB BERISH TIZIMINI BOSHQARISH

Annotatsiya: *Maqolada suv resurslarini iqtisod qilgan holda iste’molchilarga optimal tarzda yetkazib berishni ta’minlovchi takomillashtirilgan matematik modellarni yaratish va ularni amaliyotga tatbiq etish masalalari ko‘rib chiqilgan. Irrigatsiya tizimi kanallarida suv taqsimotini samarali boshqarish uchun zamonaviy axborot texnologiyalari bilan uyg‘unlashgan statik, dinamik va taqsimlangan parametrli modellar tahlil qilinadi. Xususan, Sen-Venan tenglamalari asosidagi suv oqimi harakati modellari ishlab chiqilib, kanalning suv beruvchi punktlarida suvni diskret yetkazib berish mexanizmi chuqur o‘rganilgan. Kanalning boshqaruv tizimlarida gradiyent proyeksiyasi asosidagi optimal boshqaruv usullari taklif etilib, ularning fizik va texnologik cheklovlar sharoitida qo‘llanish imkoniyatlari tahlil qilingan. Tadqiqot natijalari suv xo‘jaligi obyektlarining ekspluatatsiya rejimini matematik modellashtirish asosida nazorat qilish va boshqarish samaradorligini oshirishga xizmat qiladi.*

Kalit so‘zlar: *Suv resurslari, irrigatsiya tizimi, matematik modellashtirish, suv taqsimoti, optimal boshqaruv, Sen-Venan tenglamalari, gradiyent proyeksiyasi, axborot tizimlari, suv xo‘jaligi obyektlari.*

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MANAGEMENT OF CONSUMER SUPPLY SYSTEM WITH ECONOMY OF WATER RESOURCES BASED ON IMPROVED MATHEMATICAL MODELS

Annotation: *the article examines the issues of creating and putting into practice improved mathematical models that ensure optimal supply of water resources to consumers with economy. In irrigation system channels, static, dynamic and distributed parametric models are analyzed, harmonized with modern information technology, to effectively control the water distribution. In particular, models of water flow movement based on the Seine-Wien equations have been developed, and the mechanism of discrete water supply at the water supply points of the canal has been studied in depth. Optimal gradient projection-based control methods have been proposed in Channel control systems, analyzing their* *applicability in the context of physical and technological constraints. The results of the study serve to increase the efficiency of control and management based on mathematical modeling of the mode of operation of water farm facilities.*

Keywords: *Water Resources, Irrigation System, mathematical modeling, water distribution, optimal management, Sen-Venan equations, gradient projection, information systems, aquaculture objects.*

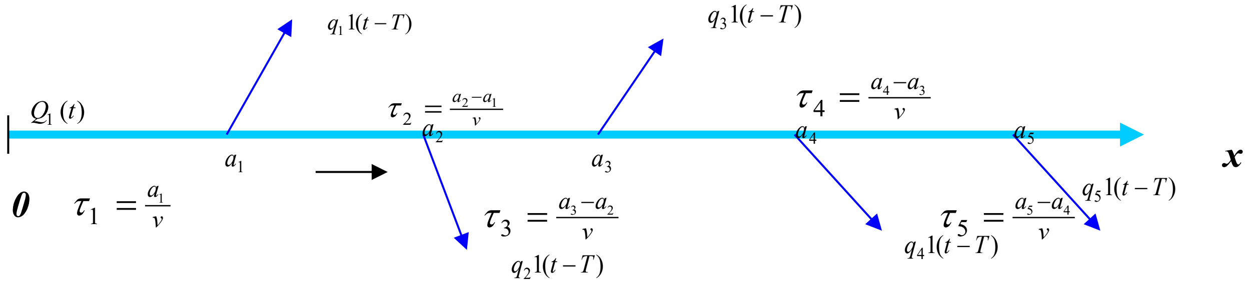
Hozirgi kunda suv resurslarini iqtisod qilgan holda iste'molchilarga yetkazib berishni optimal boshqarish masalasini hal qilishga, berilgan mezonlar asosida ularning ish rejimlarini zamonaviy axborot tizimlari bilan boshqarish orqali erishishga alohida e'tibor qaratilmoqda. Bu borada, jahonning bir qator mamlakatlarida, jumladan AQSH, Fransiya, Ispaniya, Xitoy, Ukraina, Rossiya Federatsiyasi, Kirg'iziston va O'zbekistonda suv resurslarini iqtisod qilgan holda iste'molchilarga yetkazib berishda optimal boshqarishning matematik modellarini yaratish, ularning sifat mezonlari va usullarini, optimal boshqarishni ta'minlovchi zaruriy shartni ishlab chiqish va suv taqsimlashda zamonaviy axborot tizimlaridan foydalanib suv xo'jaligi obyektlarining ish rejimlarini nazorat qilish, hisob olib borish orqali optimal boshqarish masalalarini yechish usullarini ishlab chiqishga katta e'tibor qaratilmoqda.

Jahonda suv resurslarini iste'molchilarga yetkazib berishda suv xo'jaligi obyektlari, daryolar, magistral kanallar, irrigatsiya tizimi kanallari va suv omborlarining ish rejimlarini zamonaviy axborot tizimlari orqali optimal boshqarish ko'rsatkichlarini matematik modellarini yaratish, sifat mezonlari hamda usullarini ishlab chiqish va ularni takomillashtirishga yo'naltirilgan ilmiy-tadqiqot ishlari olib borilmoqda. Bu borada, jumladan optimal boshqarish usullari, sifat mezonlari, matematik modellar va algoritmlarga asoslangan suvni iqtisod qilgan holda iste'molchilarga diskret yetkazib berish sharoitida suv xo'jaligi obyektlarida suv taqsimlashni gradiyent proyeksiyasi orqali optimal boshqarishning usullarini ishlab chiqishni ilmiy asoslash zarur masalalardan biri hisoblanadi.

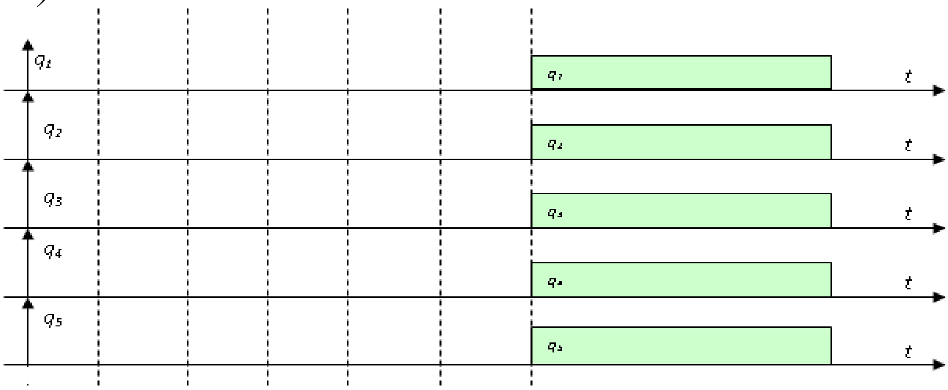
Suv xo'jaligi obyektlari katta fazoviy kenglikka ega bo'lib, texnologik va texnik parametrlar majmuasi hisoblanadi, faqtgina matematik modellashtirishning usullari yordamida suv xo'jaligi obyektlarining ekspluatatsiya davrida miqdoriy va sifat mezonlari xarakteristikalarini aniqlash mumkin.

Hozirgi kunda suv xo'jaligi obyektlarining dinamikasini modellashtirishning yagona tizimli usuli mavjud emas, faqatgina alohida obyektlarning har xil murakkablik darajasidagi matematik modellari mavjud. Shuning uchun suv xo'jaligi obyektlarida suvni yetkazib berish va suv taqsimlash jarayonlarini kerakli darajadagi aniqlik bilan ko'rsatuvchi matematik modelini tanlash muammo bo'lib kelmoqda.

Irrigatsiya tizimlari kanallarini boshqarish modellarini uch xil turlari mavjud: statik modellar, aniq parametrli dinamik modellar va taqsimlangan parametrli dinamik modellar. Ushbu modellar o'zaro kiruvchi parametrlari, qiymati, boshlang'ish ma'lumotlari va natijalarining detallashish darajasi bilan farqlanadi.



a)



b)

1-rasm. Kanalda suvni diskret yetkazib berish

Suvdan foydalanuvchilarga suvni diskret yetkazib berish sharoitida irrigatsiya tizimlari kanallarining matematik modellari ishlab chiqildi. Besh suv oluvchi nuqtalari bor kanalning qismini ko‘rib chiqamiz (1-rasm, a) va б)). Suv berishning diskretligini hisobga oluvchi suv taqsimlash masalasini har bir suv olish nuqtasi uchun T vaqtida qi suv hajmini ta’minlash, ya’ni ushbu kanal qismida minimal tarzda suv to‘lqinlanishidagi suv iste’molining ketma-ket o‘zgarishi masalasi sifatida ko‘rib chiqishimiz mumkin.

Biz tomonimizdan kanal qismida Sen-Venan differensial tenglamalar sistemasi orqali ifodalanuvchi, energiyaning saqlanish qonunlari shaklida yozilgan suv oqimining notekis harakatining to‘liq modeli ishlab chiqildi.

$$B\frac{\partial z}{\partial t}+\frac{\partial Q}{\partial x}=q,\quad \frac{1}{g\omega}\left(\frac{\partial Q}{\partial t}+2v\frac{\partial Q}{\partial x}\right)+\left[1-\left(\frac{v}{c}\right)^2\right]\frac{\partial z}{\partial x}=\left[i+\frac{1}{B}\left(\frac{\partial \omega}{\partial x}\right)_{h=const}\right]\left(\frac{v}{c}\right)^2-\frac{Q|Q|}{K^2} \tag{1}$$

Bu yerda $v=\frac{Q}{\omega}, c=\sqrt{\frac{g\omega}{B}}$, *Q=Q(x ,t)* – suv iste’moli; *z=z(x, t)* – bo‘sh maydon ordinatasi; *g*– gravitatsion doimiy; *i* – daryo osti nishabligi; *B=B(z)* – kesim maydonidagi oqimning kengligi; $\omega = \omega(z)$ – oqimning kesim maydoni; *c=c(z)* – kichik to‘lqinlarning tarqalish tezligi; *K=K(z)* – suv sarfi moduli.

Oqimni belgilovchi funksiyalar sifatida sarf *Q(x,t)* va bo‘sh sirtqi maydonning ordinatasi *z(x, t)* олинди. Mustaqil o‘zgaruvchilar bu uzunlama koordinata *x* va vaqt *t*.

Kanalning osti ordinatasi $z_0(x)$ va vertikal kanal ostidan *z* masofadagi teskari kesishning kengligi *B(x, t)* bilan beriladi.

Shunda: oqim chuqurligi: $h\ (x,\ t)\ =z\ (x,\ t)\text{-}z_0(x);$ oqimning teskari kesim maydoni: $\omega\ (x,\ h)\ =\ \int_0^h\ B\ (x,\ z)\ dz;$ oqimning o‘rtacha tezligi: $v=Q/\omega$; kichik to‘lqinlar tarqalish tezligi: $c=\sqrt{g\omega / B}$; daryo osti qiyaligi $i=-dz_0|dx$.

(1) tenglamalarning xarakteristik formasi quydagi ko‘rinishga ega

$$\frac{\partial Q}{\partial t}+(v\pm c)\frac{\partial Q}{\partial x}-B(v\mp c)\left[\frac{\partial z}{dt}+(v\pm c)\frac{\partial z}{\partial x}\right]=(\varphi-\frac{Q|Q|}{K^2})g\omega-(v\mp c)q. \tag{2}$$

Bu yerda $\varphi=\left[i\ +\frac{1}{B}\left(\frac{\partial\omega}{\partial x}\right)_{h=const}\right]\left(\frac{v}{c}\right)^2$

Boshlang‘ich shartlar ushbu ko‘rinishda beriladi

$$z(x,0)=z_0(x),\quad Q(x,0)=Q_0(x), \tag{3}$$

Bu yerda: $Q_0\ (x),\ z_0(x)$-ma’lum funksiyalar.

$x_1=0$ *va* $x_2=l$ nuqtalarida chegaraviy shartlari quyidagi ko‘rinishda yoziladi.

$$Q(0,t)=u_1(t),\quad Q(l,t)=u_2(t) \tag{4}$$

Kanalning suv olish punktlarida suv sarfi, tenglamaning o‘ng qismi (2) suv taqsimlanishining diskretligi sharoitida quyidagi ko‘rinishga ega

$$q(x,t)=-\sum_{i=1}^{5}q_i\,\delta(x-a_i)l(t-T). \tag{5}$$

Tenglamaning analitik yechimi (2) boshlang‘ich va so‘nggi shartlarda mavjud emas, sababi suv oqimining gidravlik parametrlari teskari kesishning shakliga bog‘liq chizikli bo‘lmagan funksiya hisoblanadi.

Yon suv olish nuqtalari ifodasidan (5) ko‘rinib turibdiki, iste’molchilarga stupenchatiy funksiya shaklida vaqtda diskret suv yetkazib berishni ta’minlanadi. Stupenchatiy funksiyalarda suvni oqilona taqsimlash masalasini yechish uchun iste’molchilarga suvni diskret yetkazib berish sharoitida irrigatsioya tizimi kanallarida suv taqsimlashning sifat mezonlarini va cheklovlar tizimini ishlab chiqish zarur.

Kanalning qismini boshqarish sifat mezonlari tarmoqlangan parametrlarga ega tizim sifatida integrallashgan funksionallar yig‘indisi ko‘rinishida yoziladi.

$$I=\int_0^T\int_0^L F_1\left(x,t,Q(x,t),u(x,t)\right)dxdt+\int_0^T F_2\left(t,Q(0,t),u_1(t)\right)dt+\int_0^T F_3\left(t,Q(L,t),u_1(t)\right)dt++\int_0^L F_4\left(x,Q(x,T)\right)dx, \tag{6}$$

Bu yerda F_i, $i=1,...,4$ –o‘z argumentlariga ega berilgan uzluksiz funksiyalar, bunda birinchi qismi tarmoqlangan boshqaruv ta’sirlar uchun mezonlar, ikkinchi va uchinchi – chegaraviy boshqaruvlar, to‘rtinchi esa – boshqaruv jarayonining yakuniy holatlari.

Kanal qismida aniqlanmagan oqimning to‘liq modeli uchun irrigatsion tizimlarning kanallarida suvni oqilona taqsimlash masalasi qo‘yilgan. Masalaning asosiy maqsadi yon suv olish punktlarida suv sarfining va kanal boshida suv sarfini boshqarish orqali kanal qismidagi suv balandligining o‘zgarishini kamaytirish.

$$I=\left(\int_0^T\int_0^l\left[z(x,t)-z^*\right]^2dxdt+\sum_{j=1}^N\int_0^T\left(q_j(t)-q_j^*\right)^2dt\right)\to\min \tag{7}$$

$$\Omega=\left\{R^N \mid Q_{\min}\le Q(x,t)\le Q_{\min}\right\}$$

Qo‘yidagi shartlarda

$$\begin{cases} B(x,t)\dfrac{\partial z(x,t)}{\partial t}+\dfrac{\partial Q(x,t)}{\partial x}=q(x,t),\\ \dfrac{1}{g\omega(x,t)}\left(\dfrac{\partial Q(x,t)}{\partial t}+2v(x,t)\dfrac{\partial Q(x,t)}{\partial x}\right)+\left[1-\left(\dfrac{v(x,t)}{c(x,t)}\right)^2\right]\dfrac{\partial z(x,t)}{\partial x}= \end{cases}$$

(8)

$$\begin{cases} =\left[i\ +\dfrac{1}{B(x,t)}\left(\dfrac{\partial\omega(x,t)}{\partial x}\right)_{h=const}\right]\left(\dfrac{v(x,t)}{c(x,t)}\right)^2-\dfrac{Q(x,t)\left|Q(x,t)\right|}{K(x,t)^2},\\ q(x,t)=-\sum_{i=1}^5 q_i\,\delta(x-a_i)l(t-T),\\ v(x,t)=\dfrac{Q(x,t)}{\omega(x,t)},\quad c=\sqrt{\dfrac{g\omega}{B}},\ K(x,t)=\omega(x,t)C(x,t)\sqrt{R(x,t)i}\\ C(x,t)=\dfrac{1}{n}R(x,t)^y,\ y=2{,}5\sqrt{n}-0{,}13-0{,}75\sqrt{R}\left(\sqrt{n}-0{,}1\right),\\ Q(x,0)=Q_0(x),\quad \omega(x,0)=\omega_0(x),\\ x\ge 0,\quad t\ge 0,\quad v>0. \end{cases}$$

Boshqaruvchi ta’sir

$$Q(0,t)=Q_1(t),\qquad Q(l,t)=Q_2(t), \tag{9}$$

Kanal qismining ish tartibiga cheklovlar quyidagi ko‘rinishda bo‘ladi

$$\begin{aligned} z_i^{\min}\le z_i(x_i,\ t)\le z_i^{\max},\\ Q_i^{\min}\le Q_i(x_i,\ t)\le Q_i^{\max}. \end{aligned} \tag{10}$$

(8) шароитдаги Минимизация масаласи (7), (9) бошқарув таъсирида ва (10) чекловлар шароитида тармоқланган параметрли квазилинеар тизимларни бошқариш масаласидир. Канал қисмида сув оқимининг ноаниқ ҳаракатининг тўлиқ модели сув оқимининг барча асосий гидравлик хусусиятларини ҳисобга олади.

Suv resurslarini iqtisod qilgan holda iste’molchilarga yetkazib berish bugungi kundagi eng dolzarb ekologik, iqtisodiy va texnologik muammolardan biri bo‘lib, uni hal qilishda zamonaviy axborot texnologiyalari, optimal boshqaruv modellarini ishlab chiqish va joriy etish muhim ahamiyat kasb etadi. Jahon miqyosida, xususan AQSH, Fransiya, Xitoy, Rossiya, O‘zbekiston kabi mamlakatlarda suv xo‘jaligi obyektlarining ish rejimlarini boshqarish samaradorligini oshirish maqsadida matematik modellar, sifat mezonlari va optimal boshqaruv algoritmlari asosida keng ko‘lamli ilmiy-tadqiqot ishlari olib borilmoqda.

Suv taqsimoti va uni diskret yetkazib berish masalalari, ayniqsa irrigatsiya tizimlarida, kompleks va fazoviy jihatdan murakkab obyektlar boʻlgan suv xoʻjaligi inshootlarini zamonaviy boshqaruv tizimlari bilan uygʻunlashtirishni talab etadi. Bu esa har bir suv oluvchi nuqtada belgilangan vaqt oraligʻida kerakli suv hajmini taʼminlash bilan birga, butun irrigatsiya tizimi boʻylab suv toʻlqinlanishini minimal darajada ushlab turishni taqozo etadi.

Bunda kanal tarmoqlarida suvni diskret yetkazib berishga moʻljallangan matematik modellar, jumladan gradiyent proyeksiyasi asosidagi optimal boshqaruv usullari, irrigatsiya tizimi boʻylab samarali suv taqsimlashni nazorat qilish imkonini beradi. Ushbu modellar irrigatsiya tarmogʻidagi har bir suv beruvchi nuqtaning xususiyatlarini inobatga olib, boshqaruv qarorlarini qabul qilishda real vaqtli axborot tizimlari bilan integratsiyalashuvni taʼminlaydi.

Shuni taʼkidlash lozimki, hozirgi kunda suv xoʻjaligi tizimlari dinamikasini toʻliq ifodalovchi yagona model yoʻq, aksincha turli murakkablik darajasiga ega boʻlgan statik, aniq parametrli dinamik va taqsimlangan parametrli modellar mavjud boʻlib, har biri alohida holatlar uchun qoʻllaniladi.Shu sababli, optimal boshqaruv uchun irrigatsiya tizimlarining fizik va texnologik xususiyatlariga mos modelni tanlash va uni yuqori aniqlikda ishlovchi axborot texnologiyalari bilan uygʻunlashtirish zarurdir.Umuman olganda, suv resurslarini boshqarishdagi hozirgi yondashuvlar fan-texnika taraqqiyoti bilan chambarchas bogʻliq boʻlib, takomillashtirilgan matematik modellar, raqamli texnologiyalar va optimal boshqaruv algoritmlarini birgalikda qoʻllash orqali suvdan oqilona va samarali foydalanishga erishish mumkin.

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KASBIY MOTIVLARNI TADQIQ QILISHNING PSIXOLOGIK JIHATLARI

Annotatsiya. *Ushbu maqolada kasbiy motiv , pedagoglardagi kasbiy motivlar va ularning nazariy asosi, olimlar tomonidan muommo sifatida o'rganilganlik darajasi, motiv va motivatsiya masalalari pedagog kasbining shakllanishidagi ahamiyati borasidagi fikrlari va qarashlari, bugungi kunda pedagog kasbiga jamiyat tomonidan bir qancha vazifalar yuklatilgan. Bu vazifalarni ado etish yo'lida biz pedagoglarning kasbiy motivlari nimalarga bog'liq ekanligi, pedagogik faoliyat jarayoni davomida kasbga aloqador motivning psixologik shart -sharoitlari , uning o'rni qay darajadaligi, jihatlari, kasbiy motivning turlari va ularning psixologik tomondan o'rganilish jarayonlari to'g'risida so'z yuritilgan.*

Kalit so'zlar: *motiv, kasbiy motiv, pedagog shaxsi, talablar, pedagogik qobiliyatlar psixologiyasi, pedagogning individual faoliyat uslubi, pedagogning o'zini-o'zi boshqarish masalasi.*

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PSYCHOLOGICAL ASPECTS OF PROFESSIONAL MOTIVES RESEARCH

Abstract. *This article discusses professional motives, professional motives in teachers and their theoretical basis, the degree to which they have been studied as a problem by scientists, their views and opinions on the importance of motives and motivation in the formation of the teaching profession, and the number of tasks assigned to the teaching profession by society today. In order to fulfill these tasks, we will discuss what the professional motives of teachers depend on, the psychological conditions of the motive related to the profession during the process of pedagogical activity, its role, aspects, types of professional motives and the processes of their study from a psychological perspective.*

Key words: *motive, professional motive, pedagogical personality, requirements, psychology of pedagogical abilities, individual pedagogical style, pedagogical self-management.*

Bugungi kunda kasbiy motivlarni o'rganish va uning kasbiy faoliyatda ahamiyatlilik darajasi bugungi kuning dolzarb muommolardan. Shaxsning mutaxassis sifatida shakllanish jarayoni xususida mualliflik qarashlari keltirilgan bo'lib, ilgari ishlab chiqilgan shaxsning mutaxassis sifatida shakllanishi yosh xususiyati va ish stajiga bog'liq degan qarashlardan farqli ravishda muallif tomonidan shaxsning kasbiy mahorati bu parametrlarning funksiyasi hisoblanmasligi, aksincha individning kasbiy shakllanishining qaysi bosqichida ekanligiga qarab aniqlanishini ko'rsatib bergan.

Malakali kadrlar tayyorlash tizimini uzluksiz ravishda rivojlantirish ehtiyoji va turli ishlab chiqarish sohalarida ko'p yillik ish staji bilan faoliyat yuritayotgan shaxsning o'z imkoniyatlarini to'liq amalga oshirmasligi shaxsni har tomonlama kasbiy faoliyatda o'zini namoyon qilishi muammosini yuzaga keltirdi. Bu muammolarni xal qilmasdan turib kelgusi kasbiy faoliyatdagi muvaffaqiyatli sifatli ta'limni va rejalashtirishni amalga oshirish mumkin emas. Bu muammoning amaliy ahamiyati uni turli fan doiralar qatorida psixologiya doirasida ham o'rganish muhimligini ko'rsatib berdi. Kasbiy shakllanish jarayonini o'rganishdagi qiyinchiliklar qobiliyatlar va kasbiy qobiliyatlarning ishni bajarishning muayyan bir usuliga asoslangan normativ faoliyatga yo'naltirilganligidadir.

Shuning uchun ham kasbiy yetuklik darajasi ajratib ko'rsatilmaydi, balki faqatgina yosh xususiyati va mutaxassis sifatida yuritilayotgan vaqt inobatga olinadi. Shaxsning kasbiy shakllanishi masalasi ko'pgina mualliflar tomonidan tadqiq qilingan. Bu inson taraqqiyotida tez-tez uchraydigan jarayondir. Ko'pincha mutaxassis shaxsining to'la tahlil qilish tushib qoladi, shaxsning kasbiy shakllanish bosqichi esa hayot yo'li bosqichi bilan muvofiq tarzda ko'rib chiqiladi. Shuning uchun vaqt doirasida qatiy chegaralanib qoladi. Ijtimoiy sohalarda faoliyat yurituvchi shaxsning kasbiy shakllanishini o'rganishda insonning imkoniyatlarini to'liq ochib beruvchi sub'yekt va ijtimoiy muhit orasidagi turli ijtimoiy aloqalar tipiga ahamiyat berish muhimdir. Har bir ijtimoiy aloqalarning yana odamovilik va muloqotchanlik kabi kichik tiplarga bo'linishi biz uchun muhim ahamiyatga ega hisoblanadi.

Insonning qanday maqsadlarni ko'zlashi va qanday vazifalarni hal qilishiga qarab, unda motivatsiya turlarini aniqlash mumkin. Shunday qilib, tashqi ta'sirlar orqali odamni muayyan harakatlarni bajarishga undaydigan kuch ma'lum natijalarga olib keladigan harakatlarni keltirib chiqaradi. Shuning uchun insonni kasbiy faoliyatda harakat qilishga undaydigan motivlarni, shuningdek, bu sabablar qanday paydo bo'lishi mumkinligini aniq bilish muhimdir. Shaxsning ish faoliyati bilan bog'liq motivasiyalarni 3guruhga ajratish mumkin; birinchisi - mehnat faoliyati motivlari, ikkinchisi -kasb tanlash motivlari va uchinchisi-ish joyini tanlash motivlari. Aniq faoliyat esa barchasini jamlangan holda izohlanadi, ya'ni, bunda mehnat faoliyati motivlari, kasb tanlash motivlarining shakllanishi, shuningdek, qolgan ikkita motiv orqali esa ish joyini tanlash motivlari ham yuzaga keladi. Mehnat faoliyati motivlari xilma-xil bo'lib, ular o'ziga xos omillar bilan belgilanadi.Birinchi guruh omillariga jamoaviy xarakterning uyg'onishi bilan bog'liqlari kiritilib, bunda jamoaga foyda tegishini anglash, boshqa insonlarga yordam berish istagi,mehnat faoliyatida ijtimoiy ustanovkaning zarurligi va boshqalarga nisbatan tobelikni hohlamaslik kabi motivlar hisoblanadi. Ikkinchi guruh omillari o‘zi va oilasi uchun moddiy mablag‘ning orttirilishi, moddiy va ma'naviy ehtiyojlarning qondirilishi uchun pul ishlab topish motivlaridir. Uchinchi guruhga o‘zini o‘zi faollashtirish, rivojlantirish, o‘zini namoyon qilish ehtiyojlarining qondirilishi va boshqalar kiradi. Ma‘lumki, insonlar tabiatdan biror-bir faoliyat bilanshug‘ullanmasdan turolmaydilar. Inson nafaqat iste‘molchi balki yaratuvchi bo‘lib, yaratish jarayonida u ijoddan ilhom oladi. T.O.Solomanidinaning ta’kidicha, kasbiy faoliyatda motivlari kuchini oshirish psixologik shart-sharoitlari nafaqat o‘quv jarayoni bilan balki, shaxsni ijtimoiy. siyosiy, huquqiy, g‘oyaviy, milliy ruhda tarbiyalash orqali ham amalga oshiriladi . Bu oliy harbiy o‘quv yurtida tashkillashtirilgan samarali ta’limni nazarda tutadi [8].

A.K.Markovaning ta’kidlashicha, “kasbiy shakllanganlik” tushunchasi turli ma’nolarda: kasbning shaxsga, uning kasbiy va psixologik sifatlariga bo‘lgan me’yoriy talablar sifatida va muayyan bir shaxsda mavjud bo‘lgan va uning kasbiy faoliyatidagi muvaffaqiyatini ta’minlaydigan kasbiy yo‘naltirilgan xususiyatlar majmuining me’yorlari sifatida qo‘llaniladi” [7]. Muallif kasbiy shakllanganlikning quyidagi kategoriyalarini ajratib ko‘rsatgan:

“shaxsning o‘zini mutaxassis sifatida takomillashtirishi;

ichki kasbiy lokus nazorati;

mutaxassisning anglangan sifatlari, hajmi;

shaxsning o‘zini mutaxassis sifatidagi to‘liq obrazi;

Kasb yordamida o’zini - o’zi rivojlantirish va yetishmaydigan xususiyatlarning o‘rnini qoplash qobiliyati ”.Kasbiy shakllanganlik darajasini aniqlash uchun shaxsning sifat va miqdor jihatidan kasbiy tayyorgarlik darajasini, faoliyat samaradorligini, ish qobiliyatini, kasbiy yaroqliligini, o‘z ustida ishlashinining muvafaqqiyatliligini aks ettiruvchi mutaxassisning “malakasi” tushunchasi qo‘llaniladi. Motivlarning mustahkamlanishi mehnat faoliyatida ishlovchilarning ko’pgina omillarini qondirilishiga bog’liq bo’ladi. G’arb psixologlaridan V.Vrum va E.Disi mehnat faoliyati motivasiyasini tarkibiy qismlarini ajratadilar. Unga ko’ra insonlar qanchalik o’z ishidan qoniqsa, shunchalik ular o’z ishlarini bajarishga kuchliroq harakat qiladilar. Ularni faoliyat jarayonida rag’batlantirib borilsa, shunchalik qattiqroq ishlaydilar. Bunday yondashuvda amalga oshiriladigan rag’batlantirish ishchilar faoliyatining mahsuldorligiga bog’liq. Bunda ular faoliyat ko’rsatadigan firma, kompaniya va tashkilotlardan kuch oladilar. Bu turli qo’shimcha imtiyozlar nafaqat ta’lim <u>olish uchun intilish,</u> dam olish, korxona tomonidan tashkillashtiriladi.

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THE INFLUENCE OF ENVIRONMENTAL FACTORS ON THE ORIGIN OF CARDIOVASCULAR DISEASES

Abstract: *This article analyzes the role of environmental factors in the origin of Yura mine Tomic diseases and their impact on human health. Environmental contaminants, air, water and soil pollution, as well as man-made factors and changes resulting from human activity have been shown to play a role in causing skin diseases. The article, relying on the results of the study, is based on the prevalence of certain skin diseases and their relationship with the ecological situation in the Jurassic blood area. At the same time, recommendations are given aimed at ensuring preventive measures as well as a healthy lifestyle. This work serves as a useful source of information for professionals and researchers in the field.*

Keywords*. heart, stroke, blood pressure, hypertension, environmental factors, diabetes mellitus, nervous disorders, bronchial asthma, magnetic storm.*

Introduction. Cardiovascular disease (ICRC) today remains one of the main causes of death not only in Uzbekistan, but throughout the world. In recent years, these diseases have also become widespread among young people and have become a serious socio-economic problem. According to the Ministry of health of Uzbekistan, 57.2% of deaths reported in the country in nine months of 2024 were associated with diseases of the cardiovascular system [1]. This situation requires an in depth study of the impact of environmental factors on human health.

Relevance of the topic: environmental problems such as Global climate changes, air pollution, increased magnetic storms and drying of the Aral Sea have a direct or indirect impact on the development of cardiovascular diseases. Especially in regions facing environmental problems such as Uzbekistan, these factors negatively affect the health of the population.

Research objective. The main purpose of this study is to determine the role of environmental factors in the origin of cardiovascular diseases, analyze on the basis of available statistics and develop preventive measures.

Materials and methods. Today, the influence of the external environment on the human body is increasing. Especially negative changes in the ecological environment directly affect the cardiovascular system, causing the development of these diseases at an early age. Now let's analyze the main environmental factors that are leading to the widespread spread of these diseases.

The effect of anomalous heats on the cardiovascular system. In recent years, the number and intensity of anomalous warming in Uzbekistan has increased sharply. According to the Hydrometeorological Service Center (Uzhydromet), in the summer months of 2023, the temperature in some areas rose to +45°C. This figure is one of the highest temperatures in the last 80 years. In regions such as Tashkent, Bukhara, Navoi, Khorezm, the average temperature was above +40°C for 15-20 days in July and August [5].

Anomalous heats strain the body's thermoregulatory system, cause circulatory failure and do not overload the heart's activity. According to who, at temperatures above +35°C, the risk of heart attacks increases by 17% [1]. Especially in individuals suffering from diabetes, hypertension or obesity, cases of heart attacks and strokes are 2-3 times more common.

In the summer of 2023, the Republican Scientific Center for Emergency Medicine announced a 28% increase in the number of heart-related emergency calls [2]. This is a sign that heat waves are a direct threat to heart function. Also, hot air causes blood vessels to expand, pressure to drop, and the heart to beat faster to compensate for its work. This condition is especially dangerous for patients with hypotonics and ischemic heart disease.

In an urban environment, the heat is affected even more strongly. The fact that the air temperature in Tashkent was +36°C even at 23:00 on July 2024 at night was a serious threat to the health of the population [1]. Such conditions call the so-called" hot stress " syndrome, which can disrupt the heart's rhythm of walking, lead to blood clots, thrombosis and stroke.

The effect of magnetic storms on the cardiovascular system. In recent years, magnetic storms have been observed in Uzbekistan more often. This condition negatively affects the health of patients with cardiovascular, nervous system diseases, diabetes mellitus and bronchial asthma. Experts recommend eating light foods, eating fruits and vegetables, reducing salt levels, and controlling blood pressure during periods of magnetic storms. According to NASA and ESA (European Space Agency), an 11-year maximum period of solar activity is observed in 2024-2025. During this period, the number of geomagnetic storms reaches an average of 50-70 times a year [4].

According to the center of the Hydrometeorological Service of Uzbekistan and the Institute of Astronomy under the Academy of Sciences of the Republic, during 2023, 48 strong magnetic storms were recorded in Uzbekistan, the highest in the last 10 years [4]. During magnetic storms, biological systems in the human body, especially the nervous and cardiovascular system, show strong sensitivity. On days of magnetic activity, conditions such as increased heart rate (tachycardia), changes in blood pressure, headaches, insomnia and heart attacks increase dramatically.

During the severe G3 magnetic storm in December 2023, heart-related ambulance calls in Tashkent and Samarkand increased by 32% [1]. Employees of the Republican Emergency Medical Center noted that on these days, patients with ischemic heart disease and hypertension in particular turned to hospitals in critical condition.

The effect of magnetic storms on the activity of the heart is explained as follows: a sharp change in the geomagnetic field affects the vegetative nervous system that controls the heart rhythm, destabilizes blood pressure, leads to blood clotting and thrombus formation. This in turn causes cases of heart attacks and strokes.

Especially those who are over 40 years old, suffer from hypertension, heart failure, diabetes mellitus, as well as young people sensitive to changes in air pressure are seriously at risk during magnetic storms. The increase in magnetic storms on the territory of Uzbekistan is becoming one of the important factors in the development of diseases of the cardiovascular system. Therefore, during such periods, it is necessary to warn the population, to strengthen preventive measures, especially for people with weak hearts, to introduce separate medical supervision.

Conclusion. The healthy functioning of the cardiovascular system is directly related to factors of the external environment, and especially against the background of climate and environmental changes, the threat to human health is growing. Factors such as anomalous temperatures observed in Uzbekistan today, the frequent recurrence of magnetic storms, and the drying up of the Aral Sea are contributing to a dramatic increase in cardiovascular disease in the youth and middle-aged population.

These conditions indicate that diseases of the cardiovascular system are now strongly influenced not simply by internal factors, but by external-climatic and environmental risks.

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THE IMPORTANCE OF PHYSICAL EDUCATION IN PREPARING PRESCHOOL CHILDREN FOR SCHOOL EDUCATION

Abstract *This article provides information on the importance of physical education in raising children, the goals and tasks of physical education, the views of experts on physical education, and the use of specific means of physical education in preschool education organizations.*

Keywords: *upbringing, education, physical education, strength, health, gymnastics.*

The famous Greek philosopher Plato, speaking about happiness, said: "The first happiness for a person is his health, the second is beauty." Indeed, health is the source of all wealth. The descendants of a people with a healthy and spiritual lineage will also be healthy, strong, faithful and loyal, and this happiness will become a great factor in the glory and power of the Motherland. For such happiness of the people, a healthy generation is necessary.

The great sage Abu Ali ibn Sina said, "Physical training is a great way to maintain health," which is reminiscent of the saying, "He who exercises, his health is blessed."

D. Addison describes the endless benefits of physical exercise for health as follows: “As much as reading is necessary for the mind, so is physical exercise.” Socrates the sage said: “With the help of gymnastics, I can correct the balance of my body.”

The doctrine of physical education is a component of pedagogy. When describing various phenomena related to this area of pedagogical science, the following basic concepts are used: "Physical education", "physical culture", "physical maturity", "physical development". “The concept of "physical culture" includes: 1) skills in work and life (orderliness, neatness of clothes, cleanliness of rooms) and habits related to the hygienic regime (rational order of activity and rest, sleep, food hygiene, etc.); 2) strengthening the body in natural conditions of nature (air, sun and water); 3) physical exercises.

Physical development is a biological process that represents the formation of the human body, a change in its forms and functions. Physical education of preschool children is aimed at preserving their life, strengthening their health, forming motor skills and providing full-fledged physical education, forming cultural and hygienic skills, and instilling the habit of living an orderly life. A healthy, physically strong child also has a high working capacity, easily adapts to conditions, and easily and quickly performs various tasks.

The process of a child's biological development is studied by a complex of natural sciences, the basis of which is the doctrine of I.M. Sechenov, I.P. Pavlov and their followers about the unity of the organism and the environment, the integrity of the organism, and the regulatory role of the central nervous system in its vital activity.

The peculiarity of the body of preschool children is that it grows and develops very quickly. At the same time, the formation of the functions and systems of the body is not yet complete, and accordingly, it is easily injured. Therefore, the following are the primary tasks in providing physical education to children:

Health-improving tasks. Strengthening children's health, harmoniously developing the forms and functions of the body, increasing working capacity, increasing resistance to various external influences, and ensuring longevity.

Educational tasks. The high receptivity and ability to easily adapt to changing circumstances, characteristic of preschool children, create the opportunity to implement a number of educational tasks, such as: forming the necessary skills and competencies, developing physical qualities (agility, strength, endurance, speed, flexibility, balance, eye coordination), cultivating proper posture, hygiene skills, and mastering knowledge about physical education.

The child's motor skills (crawling, walking, running, riding a bicycle, etc.) are formed relatively easily and they facilitate the child's interaction with the environment. The child gets acquainted with the properties of snow, wind, and water by sledding. Initial knowledge related to physical exercises and hygiene skills is formed. In the process of engaging in physical exercises, it is necessary to consolidate the child's knowledge about natural phenomena, social life, animals, birds, and insects.

Educational tasks. It is necessary to cultivate in children a love of sports and interest in the achievements of athletes. When performing physical exercises, very favorable conditions are created for the development of positive character traits (organization, discipline, humility, cheerfulness, etc.) and moral qualities (honesty, fairness, sense of camaraderie, mutual assistance), the ability to work in a team, to take care of physical education equipment, to fulfill tasks responsibly, as well as to demonstrate expressive qualities (courage, determination, self-confidence, perseverance in overcoming difficulties, endurance, etc.).

The main means of physical education are:

Regime (routine). The regimen of children's life is a daily repetition and rational alternation of various types of waking, sleeping, eating, and activities in a certain sequence. The consistency and continuity of the main components of the regimen over a certain period of time are its indispensable features.

A rational regimen: 1) is based on the optimal ratio of wakefulness and sleep, during which tasks are redistributed between the cerebral cortex, and the information received is processed; 2) is based on the ratio of mental and physical work, taking into account the digestive process. Deviations from the regimen are immediately reflected in the child's mood, as well as in his behavior.

Hygienic conditions. For the proper physical development of children, it is necessary to create hygienic conditions (buildings, playgrounds, equipment, clothing - headgear, footwear), to implement a scientifically based regimen for children's lives (which should include rational nutrition, development of movements and measures to strengthen the body). At the same time, constant supervision by medical personnel, the necessary preventive and therapeutic work are required.

Children's meals (breakfast, lunch, late lunch, and dinner) should take place in a relaxed atmosphere. Instilling cultural and hygienic skills related to eating in children requires adults to set a positive example.

Sleep. Sleep is important in the physical development of children. Sleep restores the strength necessary for the normal functioning of the large hemispheres of the brain. Deep, good, long-lasting sleep is the main means of preventing fatigue of the nervous system and the body.

Cultivation of cultural and hygienic skills and habits. Cultural and hygienic skills include maintaining a clean body, proper nutrition, maintaining order in the environment, and skills related to children's cultural relations with each other, with adults, and with each other. A special place is given to various games in the daily routine of a children's institution. In order to fully use the time, the educator must select toys and materials in advance and develop children's performance skills.

Walking provides ample opportunities for comprehensive educational work. During the walk, natural and social phenomena are observed, children's labor and play activities, and sports exercises are organized.

The following specific means of physical education are used in preschool educational organizations: 1) active games are held, the most important of which are given; 2) basic gymnastics (basic movements, general developmental and rowing exercises); 3) sports exercises (skating, skiing, swimming, cycling); 4) children's tourism.

The harmonious use of these tools ensures comprehensive physical development.

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ANDIJON VILOYATIDA SANOATNING HUDUDIY TASHKIL ETILISHI VA RIVOJLANISHI

Annotatsiya: *mazkur maqolada Andijon viloyatida sanoat tarmoqlari hududiy tashkil etilishi hamda rivojlanishining hududiy jihatlari tahlil qilingan.*

***Kalit so`zlar:*** *sanoat, ishlab chiqarish, hududiy tarkib, mashinasozlik, avtomobilsozlik, modernizatsiya, ixtisoslashuv, kooperatsiya, mahalliylashtirish, qo`shma korxonalar.*

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REGIONAL ORGANIZATION AND DEVELOPMENT OF INDUSTRY IN ANDIJAN REGION

Abstract: *this article analyzes the territorial aspects of the territorial organization and development of industrial sectors in the Andijan region.*

Keywords: *industry, production, territorial structure, mechanical engineering, automotive industry, modernization, specialization, cooperation, localization, joint ventures.*

Kirish. Andijon viloyati sanoati mamlakatning boshqa hududlari kabi mustaqillik yillarida o‘ziga xos xususiyat kasb etib, yangi zamonaviy texnologiya va texnikalar asosida jadallik bilan rivojlanib borayotgan xo‘jalikning asosiy tarmog‘i hisoblanadi. Viloyatning sanoatiga nazar tashlansa, unda elektroenergetika, yoqilg‘i, mashinasozlik, metalni qayta ishlash va avtomobilsozlik, kimyo, qurilish materiallari, yengil, oziq-ovqat va boshqa sanoat tarmoqlari rivojlangan.

Asosiy qism. Ma’lumotlar ko‘rsatadiki, 2024 yilda viloyat korxonalari tomonidan 90627,9 mlrd. so‘mlik sanoat mahsulotlari ishlab chiqarilgan bo‘lib, 2023 - yilga nisbatan sanoat ishlab chiqarishining fizik hajm indeksi 107,3 foizni tashkil etdi.

Sanoat ishlab chiqarishi tarkibida eng katta ulush ishlab chiqaradigan sanoat hissasiga to‘g‘ri kelib, uning jami sanoat ishlab chiqarishidagi ulushi (97,1 foiz)ni tashkil etdi.

Mashinasozlik, metalni qayta ishlash va avtomobilsozlik sanoati tarmog‘ining asosini Asaka yengil avtomobil ishlab chiqarishi tashkil qilib, uning hissasiga shu tarmoq ishlab chiqarishining 94 foiz dan ko‘prog‘i to‘g‘ri keladi. 2024 yilda 265303 dona yengil avtomobillari ishlab chiqarildi.

Mashinasozlik va metalni qayta ishlash sanoat tarmog‘ining 60 foiz dan ortig‘i Andijon shahriga, qolgan qismlari Qo‘rg‘ontepa, Xonobod shahriga, Jalaquduq, Xo‘jaobod, Buloqboshi, Shahrixon tumanlariga qisman Marhamat, Izboskan, Paxtaobod, Baliqchi tumanlarida rivojlangan.

Viloyat sanoat ishlab chiqarishida yengil sanoat muhim ahamiyatga ega bo‘lgan asosiy sanoat ishlab chiqarish tarmoqlaridan biri bo‘lib, uning tarkibiga paxta tozalash, ip yigiruv, to‘qimachilik, matolarni bo‘yash, tikuvchilik, charm-teriga ishlov berish, poyabzal, charm-galanteriya mahsulotlari ishlab chiqarish sohalari yaxshi rivojlangan. Bu sohaning rivojlanishida xususiy tadbirkorlik, nodavlat ishlab chiqarish korxonalari, kichik biznes sub’yektlarining ahamiyati katta.

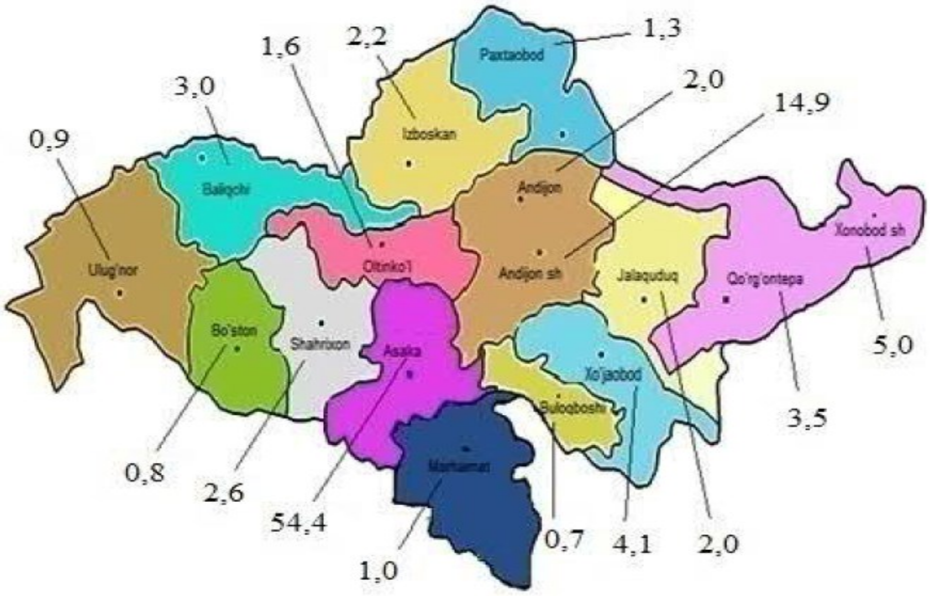
Viloyat sanoatida iste’mol mahsulotlari ishlab chiqarish bo‘yicha amalga oshirilayotgan chora-tadbirlar, kiritilayotgan investitsiyalar, yangi texnologiya va zamonaviy ishlab chiqarish vositalari sohani rivojlantirishda muhim vosita hisoblanadi, mahsulot turlarini ko‘paytirish va ishlab chiqarishning quvvatini oshirish natijasida 2024 yilda iste’mol mahsulotlari ishlab chiqarish hajmi 51 506,1 mlrd. so‘mni tashkil qilib, 2023 yilga nisbatan 100,7 foizga ortgan.

Hududlar kesimida iste’mol mahsulotlari ishlab chiqarishning viloyatdagi ulushi eng yuqori bo‘lgan ko‘rsatkich Asaka tumaniga to‘g‘ri kelib u 70,1 foizni tashkil qilgan holda Andijon shahri 4,8 foizni, Andijon tumani 2,1 foizni, Oltinko‘l tumani 5,9 foizni tashkil etgan.

Shuningdek, iste’mol mahsulotlarini ishlab chiqarishning o‘sish sur’atlari bo‘yicha viloyat o‘sish sur’atidan yuqori ko‘rsatkichga ega bo‘lgan tumanlar Izboskan 178,8 foiz, Andijon 178,2 foiz, Jalaquduq 193,5 foiz, Oltinko‘l 186,3 foiz, hamda Xonobod shahri 147,2 foiz ko‘rsatkichlarga erishgan.

Viloyatda sanoat mahsulotlari ishlab chiqarish bo‘yicha tumanlar kesimida Asaka 146,5 foiz, Oltinko‘l 123,3 foiz, Xo‘jaobod 111,1 foiz, Marhamat 127,3 foiz, Andijon shahrida 110,9 foizga erishilgan. Albatta, sanoat mahsulotlari ishlab chiqarish hajmi oldingi yillarga nisbatan o‘sgan.

Viloyat sanoat ishlab chiqarish hajmi tarkibida eng ko‘p ulush Asaka tumani (viloyat sanoat ishlab chiqarish hajmining 54,4 foizni) hamda Andijon shahri (14,9 foiz), Xonobod shahri (5,0 foiz), Baliqchi (3,0 foiz), Qo‘rg‘ontepa (3,5 foiz) va Xo‘jaobod (4,1 foiz) tumanlari hissasiga to‘g‘ri keladi.



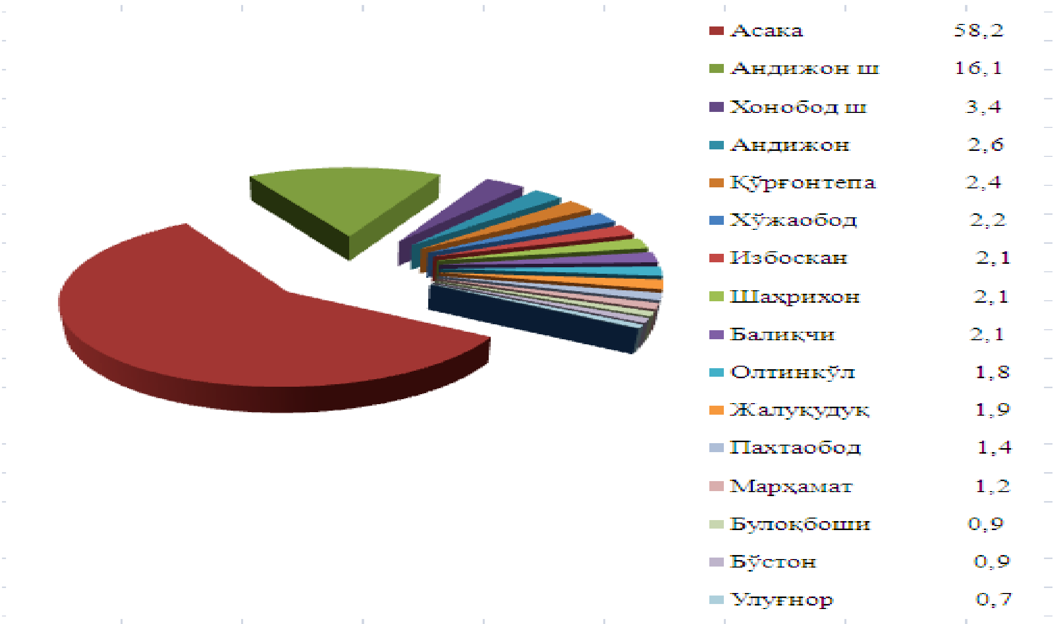
1-rasm. Andijon viloyati jami sanoat mahsulotlari hajmida hududlarning ulushi, *% da*

Eng past koʻrsatkich esa Buloqboshi (0,7 foiz), Boʻston (0,8 foiz) hamda Ulugʻnor (1,0 foiz) tumanlariga toʻgʻri kelmoqda. Mazkur tumanlarning bunday koʻrsatkichga ega boʻlishining asosiy sabablari tumanlarda xorijiy investitsiyalarni jalb qilish masalalarining rivojlanmaganligi, ishlab chiqarishga fan-texnika taraqqiyotini, yangi ishlab chiqarish texnologiyalarini jalb qilmaslik, malakali kadrlarning hududlarda yetishmasligi kabi omillar ta’sir qiladi.

Aholi jon boshiga sanoat mahsulotlari ishlab chiqarishning taqsimlanishi, yirik sanoat korxonalari joylashganligi hisobiga Asaka (124994,5 ming soʻm), Xonobod shahar (69 336,8 ming soʻm) va Andijon shahrida (26958,7 ming soʻm) tuman va shaharlarda oʻrtacha viloyat darajasi koʻrsatkichidan (26 440,0 ming soʻm) yuqoriligini koʻrsatmoqda.

Viloyat boʻyicha aholi jon boshiga iste’mol mahsulotlari ishlab chiqarilishi 12 418,6 ming soʻm boʻlgan holda, Asaka tumanida 83 251,3 ming soʻmni, Xoʻjaobod tumanida 20 685,2 ming soʻmni, Andijon shahrida 4 206,4 ming soʻmni tashkil etadi. Hududlar kesimida iste’mol mahsulotlari ishlab chiqarilishining viloyat jami hajmidagi eng yuqori ulushi Asaka tumanida toʻgʻri kelib, 70,1 foizni, shuningdek, Andijon shahariga 4,8 foizni, Paxtaobod tumani 1,6 foizni, Xoʻjaobod tumanida 5,9 foizni hamda Baliqchi tumani 2,4 foizni tashkil etadi.

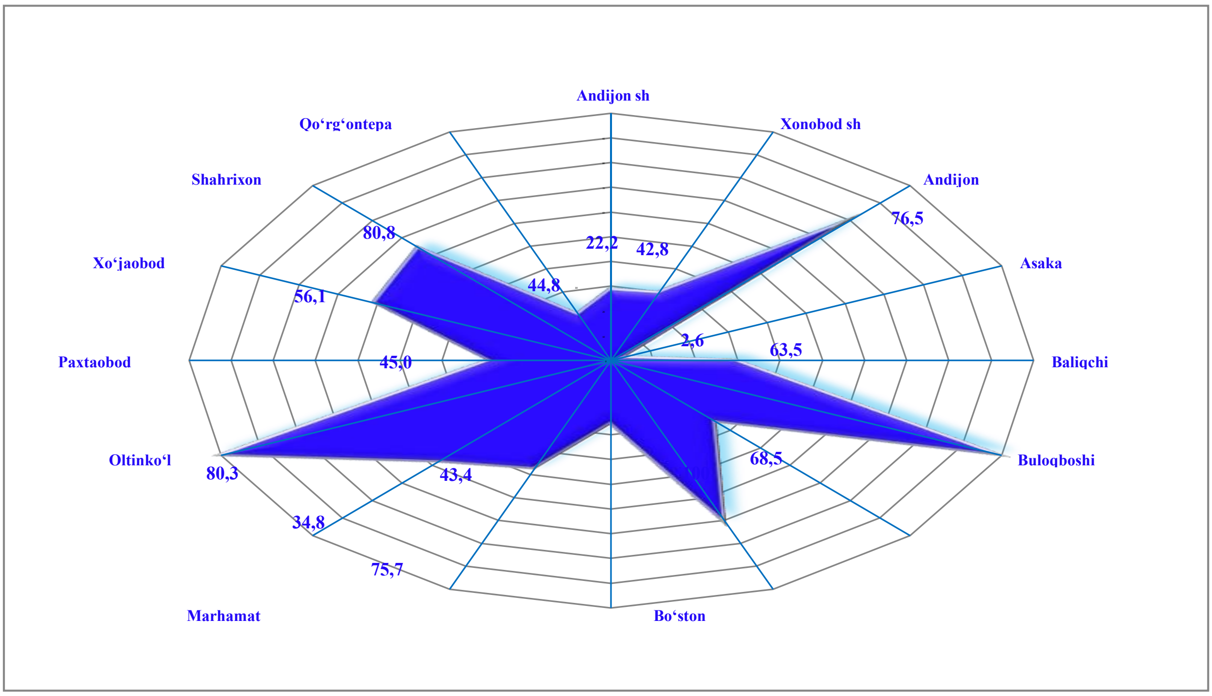
Shuningdek, iste’mol mahsulotlari ishlab chiqarilishining oʻsish sur’atida viloyat (143,1 foiz) ga koʻpaygan. Yuqori darajada oʻsish koʻrsatkichi Asaka (147,2 foiz), Marhamat (125,0 foiz), Paxtaobod (144,5 foiz), Jalaquduq (193,5 foiz), Baliqchi (178,2 foiz), tumanlarida hamda Izboskan tumanida (178,8 foiz) ga to`g`ri keladi.



2-rasm. Andijon viloyati jami sanoat mahsulotlari hajmida hududlarning ulushi, *foiz da*

Viloyat sanoat ishlab chiqarish hajmi tarkibida eng ko‘p ulush Asaka tumanida(viloyat sanoat ishlab chiqarish hajmining 54,4 foizni) hamda Andijon shahri (14,9 foiz), Xonobod shahri (5,0 foiz), Baliqchi (3,0 foiz), Qo‘rg‘ontepa (3,5 foiz) va Xo‘jaobod (4,1 foiz) shahar va tumanlar hissasiga to‘g‘ri kelmoqda. Eng past ko‘rsatkich esa Buloqboshi (0,7 foiz), Bo‘ston (0,8 foiz) hamda Ulug‘nor (1,0 foiz) tumanlariga to‘g‘ri kelmoqda. 2024 yilda kichik tadbirkorlik subyektlari tomonidan 27 085,4 mlrd. so‘mlik sanoat mahsuloti ishlab chiqarilib, uning umumiy ishlab chiqarish hajmidagi ulushi 29,9 foiz ni tashkil etdi.

Hududlar kesimida kichik biznesning sanoat mahsulotlari ishlab chiqarishdagi eng yuqori ulushi Buloqboshi tumanida (jami sanoat mahsulotlari ishlab chiqarishdagi ulushi 100,0 foiz), Oltinko‘l (80,3 foiz), Jalaquduq (46,3 foiz), Shahrixon (80,8 foiz), hamda Andijon (76,5 foiz) tumanlarida kuzatildi. Hududlar kesimida sanoat mahsulotlari ishlab chiqarish hajmida kichik biznes subyektlarining ulushi tahlili shuni ko‘rsatdiki, Asaka tumani (2,6 foiz), Xonobod shahar (42,8 foiz) va Andijon shahrida (22,2 foiz) sanoat ishlab chiqarish hajmidagi kichik biznes subyektlari ulushining kamligini, mazkur hudularda joylashgan yirik sanoat korxonalarining ishlab chiqarish hajmlari yuqori ekanligi bilan izohlash mumkin.



3-rasm. Hududlar kesimida kichik biznesning sanoat mahsulotlari ishlab chiqarishdagi ulushi

Andijon viloyatda 4355 ta sanoat korxonalari faoliyat ko‘rsatmoqda, shundan 1207 tasi (ro‘yxatdan o‘tgan korxonalar umumiy sonining 27,7 foizi) Andijon shahriga, 506 tasi (11,6 foiz) Andijon tumaniga, 355 tasi (8,1 foiz) Asaka tumaniga, 314 tasi (7,2 foiz) Shahrixon tumaniga, 261 tasi (5,9 foiz) Xo’jaobod tumaniga to‘g‘ri keladi.

2024 yilda viloyatda 904 ta yangi sanoat korxonalari tashkil etildi, shulardan 136 tasi (jami yangi tashkil etilgan sanoat korxonalar hajmidagi ulushi 15,0 foiz) Andijon shahrida, 57 tasi (6,3 foiz) Asaka tumanida, 50 tasi (5,5 foiz) Shahrixon tumanida, 63 tasi (6,9 foiz) Baliqchi tumanida, 94 tasi (10,3 foiz) Andijon tumanida tashkil etildi.

Bugungi kunda shahar va tumanlar kesimida faoliyat ko‘rsatayotgan eng ko‘p sanoat korxonalari joylashgan hududlar Asaka (355 ta), Andijon (506 ta), Shahrixon (314 ta), Xo‘jaobod (261 ta) tumanlari hamda Andijon shahri (1207 ta) hisoblanadi.

2024 yil holatiga ko‘ra viloyatda faoliyat ko‘rsatayotgan eng kam sanoat korxonalari joylashgan hududlar sirasiga Jalaquduq (182 ta), Buloqboshi (154 ta), Marhamat (165 ta), Paxtaobod (124 ta), Bo‘ston (125 ta) va Ulug‘nor tumanlari (85ta) hamda Xonobod shahri (80 ta) kiradi.

Xulosa. Shunday qilib, Andijon viloyati sanoatining rivojlanishi, istiqboldagi ijtimoiy-iqtisodiy muammolarni bartaraf etishda va bu borada tub sifat o‘zgarishlarini amalga oshirishda qo‘shma va xususiy korxonalar muhim o‘rin tutadi. Qo‘shma korxonalar barpo etish, chet el investitsiyalarini iqtisodiyotga jalb etishda quyidagi xususiyatlarni e’tiborga olish muhim:

➢ demografik vaziyatning o‘zgarishi, ya’ni tabiiy ko‘payish va migratsion harakatlar ortib borayotganligi;

- tabiiy resurslar va ulardan ishlab chiqarishda foydalanish darajasi;
- aholi ehtiyojini qondirish hamda ijtimoiy-ekologik muammolarni bartaraf etish;
- zamonaviy fan-texnika yutuqlaridan samarali foydalanish;
- ichki va tashqi bozordagi mavqeini oshirish;
- milliy iqtisodiyot majmuasini intensiv yo'ldan kompleks rivojlantirish;
- kichik biznes va xususiy tadbirkorlikni rivojlantirish va qo'llab-quvvatlash.

Bu xususiyatlar Andijon viloyatida sanoat korxonalarining rivojlanishiga qaratilgan prognozlashni amalga oshirishni taqozo etadi.

Shuningdek, uzoq va yaqin muddatlarga mo'ljallangan sanoat korxonalarini rivojlantirish ko'rsatkichlarini belgilash, iqtisodiyotdagi tub o'zgarishlar milliy iqtisodiyot majmuasining moddiy-texnika bazasini qayta qurish, iqtisodiyot tarmoqlarining samarali tarkibini va boshqarishni zamonaviy shakllarini yaratish mana shunday muhim tadbirlar hisoblanadi.

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THE IMPORTANCE OF PERIODONTAL TISSUES AND THE INTERRELATIONSHIP AMONG THEIR COMPONENTS

Abstract. *Periodontal tissues constitute a complex and dynamic system responsible for anchoring and supporting teeth within the jaw. These tissues—gingiva, periodontal ligament (PDL), cementum, and alveolar bone—function not independently, but as an integrated unit. This article provides an in-depth examination of each component, focusing on their anatomical structure, individual functions, and most importantly, the biological and mechanical interdependence among them. Special emphasis is placed on the types and functions of the periodontal ligament and how the health of each component influences the integrity of the entire periodontal complex.*

Keywords: *periodontal tissue, periodontal ligament, PDL, cementum, alveolar bone.*

Introduction. The periodontium is a vital and intricate system in human oral anatomy, consisting of four major components: the gingiva, periodontal ligament, cementum, and alveolar bone. Together, they ensure the structural stability of teeth, absorb and distribute masticatory forces, and protect deeper structures from mechanical and microbial insult. Unlike static anatomical structures, periodontal tissues are living and responsive, undergoing continuous remodeling and adaptation to functional stimuli.

The health of each individual component is essential, but more importantly, the system relies on the interconnected functionality among all tissues. Pathology in one part often triggers a cascade of destructive changes in the others. For instance, gingival inflammation may lead to PDL degradation and bone resorption, illustrating the critical importance of harmonious function [1].

Gingiva: The First Line of Defense.

Gingiva, the soft tissue component of the periodontium, serves as a barrier against mechanical trauma and microbial invasion. It comprises keratinized stratified squamous epithelium and underlying connective tissue rich in fibroblasts, immune cells, and vascular elements.

The junctional epithelium - a key structure at the base of the sulcus - adheres to the enamel or cementum and acts as a biological seal, preventing microbial penetration into deeper tissues. It is highly permeable to immune cells and plays a pivotal role in early immune responses during the onset of periodontal inflammation.

Gingival connective tissue also contains:

- Fibroblasts, responsible for collagen and ground substance production,
- Immune cells, including macrophages, lymphocytes, and dendritic cells,
- Blood vessels and nerves, supporting nutrition and sensory function.

If the integrity of the gingiva is compromised, pathogens can infiltrate the underlying PDL and bone, initiating periodontitis. Thus, gingiva acts not only as a mechanical shield but also as a crucial immunological frontier [2].

Periodontal Ligament (PDL): Structure and Fiber Types (Continued)

The periodontal ligament is a dynamic tissue with rapid turnover, crucial for maintaining homeostasis within the periodontium. In addition to collagen fiber groups, it contains a high concentration of water (about 70% of its weight), contributing to its viscoelastic properties that help cushion forces during mastication.

Cell Types in the PDL:

- Fibroblasts: The predominant cell type, involved in synthesis and degradation of collagen.
- Cementoblasts and osteoblasts: Located near the cementum and alveolar bone, respectively, contributing to remodeling.
- Undifferentiated mesenchymal cells: Serve as a reservoir for regeneration during injury.
- Epithelial cell rests of Malassez: Remnants of the Hertwig's epithelial root sheath; may be involved in periodontal cyst formation.

The PDL space varies in width from 0.15 mm to 0.38 mm and narrows with age. Despite this, it retains the capacity to adapt to changing functional loads, such as orthodontic movement [3, 4].

Cementum: The Anchoring Layer.

Cementum is a mineralized connective tissue covering the tooth root. It serves as the attachment surface for PDL fibers and plays a critical role in tooth stability.

Types of Cementum:

- Acellular cementum: Located primarily at the cervical third of the root; responsible for tooth attachment.
- Cellular cementum: Found in the apical third; contains cementocytes and contributes to adaptation and repair.

Cementum is avascular and receives nutrition from the PDL. It shares structural similarities with bone but lacks remodeling capability. The integrity of cementum is crucial for the proper insertion of Sharpey's fibers from the PDL

Functions of Cementum:

- Anchors the tooth to the alveolus via PDL fibers.
- Seals dentinal tubules and protects underlying dentin.
- Compensates for tooth wear by continuous deposition at the apex.

Alveolar Bone: Structural Framework.

The alveolar process is a part of the maxilla and mandible that supports the teeth. It consists of:

- Cortical plate: Dense outer bone layer.
- Cancellous (trabecular) bone: Spongy inner layer.
- Bundle bone (cribriform plate): Lines the tooth socket and contains Sharpey's fibers.

Bone remodeling in response to functional forces and inflammation is a hallmark of periodontal health. Osteoblasts, osteoclasts, and osteocytes coordinate this remodeling under hormonal and mechanical regulation.

Alveolar bone is intimately linked to the PDL and cementum. Loss of stimulation from PDL (e.g., in tooth loss) results in rapid bone resorption, demonstrating their interdependence.

Interrelationship among Periodontal Components.

The components of the periodontium operate as a single functional unit. Structural and signaling crosstalk ensures adaptation to mechanical forces and microbial challenges.

Key Interrelationships:

- Gingiva protects the underlying PDL and bone from pathogens.
- PDL connects cementum to alveolar bone and responds to mechanical stimuli.
- Cementum and alveolar bone provide anchor points for PDL fibers.
- All components participate in immunological defense through cytokine signaling.

Periodontal breakdown often begins with plaque-induced gingival inflammation (gingivitis), which can progress to periodontitis if left untreated. The inflammatory process spreads apically, destroying collagen fibers of the PDL and resorbing alveolar bone. Hence, maintenance of one tissue depends on the health and function of the others [5, 6].

Clinical Implications.

Understanding the anatomy and interactions of periodontal tissues is essential for diagnosing and treating periodontal diseases. Interventions must target the entire periodontium to ensure regenerative success.

Modern therapies - including guided tissue regeneration, bone grafting, and the use of growth factors - seek to restore the structural and functional integrity of all components. Long-term success hinges on the preservation of the dynamic balance among gingiva, PDL, cementum, and alveolar bone.

Conclusion. Periodontal tissues are interdependent both anatomically and functionally. Their health is sustained through constant biological communication, mechanical adaptation, and immune surveillance. A failure in any single component threatens the integrity of the whole, underscoring the necessity for a holistic approach to periodontal care.

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INDIVIDUAL TALIM SHAROITIDA UZLUKSIZ MA'NAVIY TARBIYA KONSEPSIYASINI AMALGA OSHIRISH TEXNOLOGIYALARI

Annotatsiya:*Maqolada "Uzluksiz ma'naviy tarbiya konsepsiyasi"ni amalga oshirishda oliy ta'lim tizimining vafalari va tarbiyaviy ishlarni klasterli yondashuv asosida tashkil etishning pedagogik zarurati xaqidagi fikr-muloxazalar bayon etilgan. Shuningdek, oliy ta'lim jarayonida tarbiyaviy ishlarni tashkil etish mazmuni va mezonlari ilmiy manbalar asosida yoritilgan.*

Kalit so'zlar: *Ta'lim, bilim, tarbiya, uzluksizlik, ma'naviyat, muxit, shaxs, sadoqat, mafkura, ijtimoiy, siyosiy, axloq, konsersiya, pedagogika, psixologika, madaniyat.*

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TECHNOLOGIES FOR THE IMPLEMENTATION OF THE CONCEPT OF CONTINUOUS SPIRITUAL EDUCATION IN THE CONDITIONS OF INDIVIDUAL TRAINING

Annotation:*The article describes the shortcomings of the higher education system in the implementation of the "concept of continuous spiritual education" and the pedagogical necessity of organizing educational work based on a cluster approach. Also, the content and criteria of organizing educational work in the process of higher education are covered based on scientific sources.*

Key words: *Education, knowledge, upbringing, continuity, spirituality, environment, personality, loyalty, ideology, social, political, morality, concernation, pedagogy, psychology, culture.*

Yoshlar tarbiyasiga qaratilayotgan judayam yuksak ishlar amalga oshirilmoqda xususan, O'zbekiston Respublikasi Prezidyentining "Ma'naviy-ma'rifiy ishlar samaradorligini oshirish bo'yicha qo'shimcha chora-tadbirlar to'g'risida" 2019 yil 3 maydagi PQ-4307-son Qarori, "Oliy ta'lim tizimini yanada rivojlantirish chora-tadbirlari to'g'risida" 2017 yil 20 apreldagi PQ-2909-son Qarori, 2017 yil 27 iyuldagi "Toshkent viloyati Chirchiq davlat pedagogika institutini tashkil etish to'g'risida" PQ-3152 sonli Qarori hamda 2018 yil 27 iyundagi "Yoshlar-kelajagimiz" Davlat dasturi to'g'risida Farmonida belgilangan vazifalar ijrosini ta'minlashda ma'naviy-ma'rifiy, tarbiyaviy-axloqiy, ijtimoiy-siyosiy ishlarning mohiyatini institutdagi pedagogik ta'limning axloqiy mazmunidan kelib chiqqan holda “Ta’lim + Bilim + Tarbiya + Ishlab chiqarish” tamoyili asosida amalga oshirishni taqozo etmoqda.

“Uzluksiz ma’naviy tarbiya konsepsiyasi”ning tarbiya boshlang‘ichlari asosini quyidagi qoidalar tashkil etadi:

1. Ma’naviyatli shaxsning muhim belgisi insonning fuqarolik, shaxsiy xususiyatlari integral tavsifi va ruhiy-fiziologik etukligi sifatida tushuniladigan ijtimoiy-insonparvar omilkorligidir. Tajribalar shuni ko‘rsatmoqdaki, axloqsizlik, mas’uliyatsizlik, ruhiy tayyor bo‘lmaslik bugungi kunda nafaqat kasbiy ziyon darajasini ifodalaydi, balki o‘zida kutilmagan xavf-xatar va jinoyatni ham namoyon etadi. Aynan axloqiy-ruhiy tayyor bo‘lmaslikning o‘z kasbiy faoliyatning u yoki bu turini amalga oshirishda vujudga keladigan kutilmagan vaziyatlarni hosil qiladi.

2. Ijtimoiy-insonparvar omilkorlik keng ma’noda inson mohiyatini hayotiy faoliyat shakli sifatida to‘la ifodalovchi samarali qayta o‘zgartish faoliyati rivojlanishini anglatadi. Bunda shaxsning tashqi sharoit holatiga mohiyatli ta’sir etishga qodirligi, ularni ichki nazariy mexanizmidan o‘tkaza bilishi muhim ahamiyat kasb etadi.

3. Ijtimoiy-insonparvar omilkorlikning tarkibiy qismini pedagogik omilkorlik – ta’lim-tarbiyaning psixologik-pedagogik asoslarini bilish tashkil etmog‘i lozim. Bu umumpedagogik tayyorgarlikni umumiy va kasbiy pedagogik ta’limning barcha darajalari mazmuniga, shaxs rivojlanishining hamma davrlardagi tarbiya jarayoniga kiritish zarurligini hamda shunday sharoitdagina jamiyat uning ijtimoiy-pedagogik infratuzilmasi asosini tashkil etadigan pedagogik madaniyatning zaruriy darajasiga erishishini nazarda tutadi.

Tarbiyaviy ishlarni takomillashtirishda klasterli yondashuv faoliyatining etakchi maqsadi-integrallashgan bilimga ega bo‘lgan yosh mutaxassisni etishtirishga qulaylik yaratadigan, omilkorlik bilan bir qatorda-o‘zida kasbiy, umumkasbiy, umuminsoniy bilimlar, ko‘nikma, malakalar hamda ahloqiy fazilatlar uyg‘unlashuvini, sub’ekt tomonidan kasbiy faoliyatni, o‘z vazifalarini bajarish samaradorligini ifodalaydigan ijtimoiy-pedagogik infratuzilma yaratishdan iboratdir.

Shunday qilib, klasterli yondashuv maqsadi insonning kasb egallashi orqali uning ma’naviy, axloqiy, intellektual va psixomotor potensialini to‘la ochishdan iboratdir. Shu bilan bir qatorda, shaxs malakali, raqobatbardosh mutaxassis bo‘lishi uchun mutaxassisning vazifa tavsifiga urg‘u beriladi. Shaxs parametri (sifati, xususiyati, individual xususiyatlari va shu kabi) tizim hosil qiluvchi omil maqomini oladigan maxsus ko‘nikmaga nisbatan etakchi ahamiyat kasb etadi. Talabalarning qobiliyati, o‘ziga xos individual xususiyatlari ularga ijobiy ta’sir ko‘rsatadi.

Ta’lim-tarbiya jarayonini tashkil etishda klasterli yondashuvni tatbiq qilish bitiruvchining kasbiy tavsifi, ko‘p bosqichlilik asosida yo‘naltirish bo‘yicha pedagoglarni tayyorlash, “Talabalarni psixologik-pedagogik tayyorlash asoslari” kursi bo‘yicha tajriba o‘quv dasturlaridan iborat o‘quv dasturiy hujjatlarni ishlab chiqishni talab qiladi. Dasturlashtirilgan ta’limga oid binar darslardan foydalanish amaliyoti, chuqurlashtirilgan tarzdagi sinovlar va imtihonlar, fakultativlar kompleksi kabi integrallashgan faoliyat elementlarini ham singdirish lozim.

Talabalarni ijtimoiylashtirish va kasbiy tayyorlashda ishtirokchilardan har tomonlama tayyorgarlik hamda qobiliyatni namoyon etishni talab qiladigan bo‘sh vaqtni samarali o‘tkazishning “Bilimlar kuni”, “O‘qituvchi va murabbiylar kuni” kabi shakllari ham katta ahamiyatga ega.

Pedagogik klaster yondashuvi asosida tarbiyaviy ishlar mexanizmini takomillashtirish ta’lim-tarbiyaning psixologik xususiyatlarini ushbu yo‘nalishlar doirasida etarlicha chuqurlashtirib yoritishni mo‘ljallaydi

Tarbiya jarayonini tashkil etishga-pedagogik klaster yondashuvidan foydalanish tahlili yakunida quyidagilar: a) oliy ta’lim samaradorligini ta’minlash, tarbiya jarayoni maqsadi, tuzilishi va mazmunini asoslashda tashkiliy-pedagogik sharoitlar o‘rni hamda vaqtini belgilash;

“Uzluksiz ma’naviy tarbiya konsepsiyasi”ni amalga oshirish, mustaqillikning ma’naviy asoslarini mustahkamlash, ayniqsa, talaba yoshlarning qalbi va ongiga Vatanga muhabbat, pedagogik ta’limga sadoqat tuyg‘ularini chuqur singdirish, mutaxassislikning tarbiyaviy asoslarini yaratish dolzarb ahamiyatga ega. Shu bilan birga, xalqaro maydonda mafkuraviy, g‘oyaviy va informasion kurashlar kuchayib borayotgan hozirgi murakkab va tahlikali davrda ma’naviy-ma’rifiy ishlarni zamon talablari asosida tashkil etish, yoshlarni turli mafkuraviy hurujlardan himoya qilish, yoshlarning hayotga ongli munosabatini shakllantirish, yon-atrofda yuz berayotgan voqealarga daxldorlik hissini oshirish vazifasi pedagogik ta’lim sohasining talaba-yoshlari bilan ishlashda aniq va samarali natija beradigan tizimni yaratish maqsadga muvofiqdir.

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MAKTABGACHA TA'LIM SOHASIDA STEAM TEXNOLOGIYALARINI KENG QO'LLASH ORQALI TA'LIM SIFATINI YANADA OSHIRISH IMKONIYATLARI

Annotatsiya: *Ushbu maqolada maktabgacha ta'lim tashkilotlarida STEAM texnologiyalarini keng joriy etish, ta'lim jarayonlarida bu texnologiyalarning o'rnini kengaytirish, bolalarni imkoniyatlaridan kelib chiqqan holda STEAM texnologiyalarini tadbiq etish va barcha STEAM sohalarini birlashtirib , ta'lim jarayonlarida muvaffaqiyatga erish hamda hozirgi kunda talab darajasidagi maktabgacha ta'lim tashkilotlarini yanada takomillashtirsh maqsadida joriy etilgan ta'lim sohasining yangi yangi yo'nalishi STEAM texnologiyasini ta'lim jarayonlariga joriy etish masalalari haqida so'z boradi*

Kalit so'z: *Ta'lim, texnologiya ,STEAM texnologiyalari , ta'lim sifati , fanlat jamlanmasi, ta'limiy jarayon, rivojlanish, bilim, ko'nikma, yangi yo'nalish.*

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OPPORTUNITIES FOR FURTHER IMPROVEMENT OF THE QUALITY OF EDUCATION THROUGH THE WIDE APPLICATION OF STEAM TECHNOLOGIES IN THE FIELD OF PRESCHOOL EDUCATION

Annotation: *In this article, the wide implementation of STEAMtechnologies inpreschooleducational organizations, the expansion of the place of these technologies in educationalprocesses, the application of STEAM technologies based on the capabilities of children, andtheintegration of all STEAM fields, achieving success in educational processes and currentlyindemand A new direction in the field of education, introduced in order to further improvepreschool education organizations, is about the issues of introducing STEAMtechnologyintoeducational processes.*

Key word: *Education, technology, STEAM technologies, quality of education, collection of subjects, educational process, development, knowledge, skills, new direction.*

Ta'lim sohasiga e'tibor yanada kuchaytirilgan bir vaqtda zamonaviy pedagogik texnologiyalarga ustuvor ahamiyat berilmoqda. Bugungi kun ta'limining eng asosiy innovatsion metodi va istiqbolli texnologiyasi bu - STEAM texnologiyasidir STEAM texnologiyasi ta'limi murakkab ko'ringani bilan uni alohida ko'radigan bo'lsak sodda, tushunarli va aniq ekanini ko'rishimiz mumkin:

S - science - tabiiy fanlar

T - technology - texnologiya

E - engineering – muhandislik

A - art - san'at

M - math - matematika.

STEAM sohalari fan, texnologiya, muhandislik, san’at va matematika sohalaridir. Ko'pgina ta'lim tashkilotylarida ta'limning sifat samaradorligini oshirish maqsadida STEAM texnologiyasidan maqsadli foydalanib kelinmoqda. Ta'lim oluvchilar uchun olgan bilimlarini amaliyotda sinab ko'rish, tajribalar o'tkazish maqasadida laboratoriyalar va LEGO markazlari yaratilmoqda. STEAM texnologiyasi maktabgacha ta'lim va maktab yoshdagi bolalarni tarbiyalashda eng qulay dasturdir. Uning asosiy g’oyasi shundan iboratki, amaliyot nazariy bilimlar singari muhimdir. Ya’ni, o’rganish paytida biz nafaqat miyamiz bilan, balki qo’limiz bilan ham ishlashimiz kerak. Faqat sinf devorlarida o’rganish tez o’zgaruvchan dunyo bilan ham qadam emas. STEAM yondashuvining asosiy farqi shundaki, bolalar turli xil mavzularni muvaffaqiyatli o’rganish uchun ham miyani, ham qo’llarini ishlatadilar. Dasturda bolalarga ma'lum bir tartib, ma'lum bir standartlar belgilab qo'yilmagan. Faqatgina bola o'zi mustaqil ravishda, erkin, tajribalarga asoslanib, o'zi bajarib ko'rib natijaga erishish, his etib, fikrlab, idrok etib bajarish kerak bo'ladigan tamoyillarga tayanadi. Ushbu ta'lim dasturi L.S.Vygotskiyning "To'g'ri tashkil etilgan ta'lim - bolani rivojlanish sari yetaklaydi" ilmiy rivojlanish tamoyillariga asoslangan dastur. STEAM dasturida maktabgacha ta'lim tashkilotlaida maxsus tajriba ya'ni laboratoriya xonalari tashkil etib, bolalarni beihtiyor ta'limga jalb etib, faoliyat davomida ularning innovatsiontadqiqotchilik va intellektual qobiliyatlarni rivojlantirish muhim ahamiyatga ega.

Maktabgacha ta’lim tizimida bolalar o’zlarining irodasini, ijodkorligini, moslashuvchanligini rivojlantiradi va boshqalar bilan hamkorlik qilishni o’rganadi. Ushbu ko’nikmalar va bilimlar asosiy ta’lim vazifasini tashkil etadi, ya’ni. bu butun ta’lim tizimi nimaga intilishini to’g’ri anglay boshlaydi. Maktabgacha ta'lim tashkilotlarida STEAM dasturi asosida tashkil etiladigan barcha faoliyatlarda bolaning faolligi muhim sanaladi. STEAM dasturida bolalar bilan tajribalar tashkil etishda doimo bolalarning yosh jihatlari inobatga olinishi faoliyatdagi har bir jarayonlar oddiydan murakkabga qarab tashkil etilishi lozim. Ushbu tamoyilga amal qilinsagina, bola uchun qiyinchilik tug'dirmaydi, oson, qulay, STEAM dasturida bola har tomonlama intellektli, rejalashtirish, tanlash qobiliyatlari namoyon bo'la boshlaydi. Turli tadbirlarda o'z bilim va ko'nikmalariga tayanib, o'z qarorlarini qabul qilishga, turli faoliyatda ya'ni o'yin, muloqot, ta'limiy va tadqiqot faoliyatlarida mustaqillikni namoyon qila boshlaydilar. STEAM ta'limi bolalarning quyidagi muhim xususiyatlarini rivojlantirishga yordamberadi:

- Muammolarni keng qamrovli tushunish
- Ijodiy fikrlash
- Muhandislik yondashuv
- Tanqidiy fikrlash Ilmiy metodlarni tushunish va qo'llash
- Dizayn asoslarini tushunish.

STEAM texnologiyalari nazariya va amaliyotni birlashtirishning mantiqiy natijasidir. STEAM Amerikada ishlab chiqilgan. Ba’zi maktablar bitiruvchilarning martabalarini e’tiborga olishdi va fan, texnologiya, muhandislik va matematika kabi fanlarni birlashtirishga qaror qilishdiva STEAM tizimi shu tarzda shakllandi. (Fan, texnika, muhandislik va matematika). Keyinchalik bu yerda Art qo’shildi va endi STEAM oxirigacha shakllandi. O’qituvchilar ushbu mavzular, aniqrog’i ushbu fanlardan bilimlar kelajakda talabalarning yuqori malakali mutaxassis bo’lib yetishishiga yordam beradi, deb hisoblashadi. Oxir oqibat, bolalar yaxshi bilim olishga intilishadi va uni darhol amalda qo’llashadi. STEAM ta'limi, bolala-faoliyatidagi o'rni, STEAM orqali bolalar erishadigan natijalar haqida aytib o'tildi. Bu ta'limni amalga oshirilishida ko'makchi asosiy vositalarga hamto'xtalibo'tamiz.

1. Fridrix Frebelning didaktik tizimi
2. Jonli va jonsiz tabiat bilan tajriba o'tkazish
3. LEGO - qurilish, konstruksiyalash
4. Matematik tasavvurlarni shakllantiruvchi vositalar
5. Robototexnika
6. Multistudiya

STEAM ta'limi bolalarni tajribalar o'tkazishga, modellar tuzishga, mustaqil ravishda loyihalar yaratishga, o'z g'oyalarini haqiqatga aylantirishga va bolaning o'ziga mahsulotni yaratishga undaydi. Ushbu ta'lim yondashuvi bolalarga nazariy olgan bilimlarini amaliyot bilan samarali tarzda birlashtirishga imkon beradi va butun umri davomida qo'llay olish imkonini beradi. Agar biz an’anaviy ta’limning asosiy maqsadi bilimlarni o’rgatish va bu bilimlardan fikrlash va ijod qilish uchun foydalanish deb aytsak, STEAM yondashuvi bizni olgan bilimlarni haqiqiy ko’nikmalar bilan birlashtirishga o’rgatadi. Bu maktab o’quvchilariga nafaqat ba’zi bir g’oyalarga ega bo’lish, balki ularni amalda qo’llash va amalga oshirish imkoniyatini beradi. O’sha. Haqiqatda ishlatilishi mumkin bo’lgan bilimgina haqiqatan ham qadrlidir. STEAM yondashuvining eng mashhur namunasi — Massachusets TexnologiyaInstituti (MIT). Ushbu dunyo universitetining shiori «Mens et Manus» (Aql va qo’l). Massachusets Texnologiya Instituti bolalarga STEAM tushunchasini oldindan o’rganish va tanishish imkoniyatini berish uchun STEAM kurslarini ishlab chiqdi va hattoki ba’zi ta’lim muassasalarida STEAM o’quv markazlarini yaratdi. Statistikaga ko’ra, 2011 yildan buyon STEAM-kasblarga bo’lgan talab darajasi 17%ga oshdi, oddiy kasblarga bo’lgan talab esa faqat 9,8% ga oshdi, bu esa butun dunyo bo’ylab ushbu ta’lim tizimiga katta talabni ko’rsatadi. Bu ta’lim tizimi va fanlarni o’qitishning an’anaviy usuli hozirgi kunda juda muhim hisoblanadi. STEAM-ta’lim o’quvchilar ilmiy usullarni amalda qanday qo’llashni tushunishga kirishadigan aralash muhitni nazarda tutadi. Ushbu dastur bo’yicha talabalar, matematika va fizika bilan bir qatorda, o’z robotlarini ishlab chiqadigan va ishlab chiqaradigan robotlarni o’rganadilar. Darslarda maxsus texnologik uskunalar ishlatiladi. 2014-yilda Quddusda bo’li bo’tgan «STEAM forward» xalqaro konferensiyasida quyidagi bayonotlar bildirildi: Bolalarni STEAMga jalb qilish. Ushbu ta’lim maktabgacha yoshdan boshlab boshlanishi kerak, shuning uchun dasturlarni bolalar bog’chalariga kiritish kerak. Fan tili ingliz tilidir. Agar ilm-fanni o’rganish va olim bo’lishni istasangiz, bu tilni bilishingiz kerak. Qizlar uchun Steam-ta’lim dasturlari kerak. Ilm-fan sohasidagi qizlar, ularning tartibliligi tufayli, o’g’il bolalar qila olmaydigan narsalarni qilishlari mumkin. Science is fun! Ilm-fan quvnoq bo’lishi kerak, u o’quvchilar uchun qiziqarli va o’ziga jalb qiluvchi bo’lishi kerak.

An’anaviy ta’lim quyidagi xususiyatlarga ega:

- an’anaviy ta’limda barcha mavzular bo‘yicha qat’iy dars turlari tanlanadi;
- dars mavzusi bo‘yicha bilim, ko‘nikma, malakalarni shakllantiriladi, mustahkamlanadi;
- yangi mavzuni tushuntiriladi, mustahkamlanadi, nazorat, topshiriqlar beriladi;
- ta’lim oluvchilar o‘qituvchini tinglash va o‘zlashtirish, berilgan topshiriqlarni bajarishbilancheklanadi;
- darsning modul va algoritmlaridan har bir o‘qituvchi o‘zi qo‘llayotgan metodga muvofiqfoydalanadi;
- an'anaviy ta'lim to‘g'ridan to‘g'ri diqqatni jalb qilmasdanyoki tanlab olinganba'zi birqismlarga chuqurroq kirmasdan, fanlarning umumiy doirasini qamrab oladi. STEM ta’lim quyidagi xususiyatlarga ega: STEM ta’limi binar mashg‘ulotlar, loyihalar, o‘quv tadqiqotlariga tayanadi. STEM ta’limi muhitida bilimlarni saqlash muhimdir, ammo ta’lim oluvchilarning ushbu bilimlarni qanday qo‘llashi undan ham muhim. STEM nafaqat ta’lim oluvchiga biron-bir mavzu haqida ma'lumot berish, balki o‘quvchiga ushbu mavzuni haqiqiy hayotga qanday tatbiq etish va kelajakda undan qanday foydalanish lozimligini ko‘rsatishga qaratilgan.

Maktab o‘quv dasturlarini ilg’or xorijiy tajriba asosida takomillashtirish, o‘quv yuklama va fanlarini qayta ko‘rib chiqish, ularni xalqaro standartlarga moslashtirish, darslik va adabiyotlar sifatini oshirish zarur. Sh.Mirziyoyev

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IMPROVEMENT OF ORGANIZATIONAL AND ECONOMIC FOUNDATIONS OF THE SYSTEM OF PROVIDING TOURISM SERVICES BASED ON DIGITAL TECHNOLOGIES

Abstract: *This article analyzes the organizational and economic foundations for implementing digital technologies in the tourism service delivery system. It presents proposals for improving service quality, enhancing management efficiency, and establishing a sustainable system through innovative digital transformation.*
Keywords: *digital technologies, tourism, service delivery, organizational mechanism, economic foundations, innovation.*

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RAQAMLI TEXNOLOGIYALAR ASOSIDA TURIZM XIZMATLARI KO‘RSATISH TIZIMINING TASHKILIY-IQTISODIY ASOSLARINI TAKOMILLASHTIRISH

Annotatsiya: *Ushbu maqolada turizm xizmatlarini ko‘rsatish tizimida raqamli texnologiyalarni joriy etishning tashkiliy va iqtisodiy asoslari tahlil qilinadi. Raqamli transformatsiya vositasida xizmat sifatini oshirish, boshqaruvni samarali tashkil etish, mavjud muammolarni bartaraf etish va innovatsion texnologiyalar asosida barqaror tizim yaratish bo‘yicha taklif va tavsiyalar ishlab chiqiladi.*
Kalit so'zlar: *raqamli texnologiyalar, turizm, xizmat ko‘rsatish, tashkiliy mexanizm, iqtisodiy asoslar, innovatsiya.*

Global raqobat va texnologik taraqqiyot sharoitida turizm xizmatlarini ko‘rsatish tizimini raqamli texnologiyalar asosida takomillashtirish dolzarb masalaga aylanmoqda. Bu jarayon nafaqat texnik yangilanishni, balki butun boshqaruv va iqtisodiy munosabatlar tizimining qayta tashkil etilishini ham taqozo etadi. Jahon tajribasi shuni ko‘rsatmoqdaki, raqamli texnologiyalarni muvaffaqiyatli joriy etgan davlatlar turizm xizmatlarining sifatini oshirishda katta natijalarga erishmoqda[3] [5].

2024-yil yakuniga ko‘ra, **O‘zbekiston Respublikasi Turizm qo‘mitasi** ma’lumotlariga ko‘ra, mamlakatimizga **6,6 milliondan** ortiq xorijiy sayyoh tashrif buyurgan va ularning **70%** ga yaqini onlayn bronlash va raqamli xizmatlardan foydalangan. Bu ko‘rsatkich **2021-yilga** nisbatan **2,4** barobar o‘sishni anglatadi [1].

Turizm sohasida raqamli transformatsiyaning dolzarbligi. Raqamli texnologiyalar bugungi kunda turizm sohasining har bir bo‘g‘iniga kirib bormoqda. Jumladan: ular quyidagi yo‘nalishlarda olib borilmoqda.

- ***Sayohatlarni onlayn bron qilish;***
- ***Raqamli xaritalar, audio gidlar va mobil ilovalar;***
- ***Sun’iy intellektga asoslangan mehmonxona va transport xizmati boshqaruvi;***
- ***Big Data orqali sayyohlar ehtiyojlarini oldindan bashorat qilish*** [6] [8] **.**

Bunday texnologiyalar nafaqat xizmat sifati, balki xarajatlarni optimallashtirish va samaradorlikni oshirishda ham muhim rol o‘ynaydi. Shu bilan birga, turizm tashkilotlari uchun marketing, mijozlar bilan aloqa va statistik tahlillarni olib borishda ham yangi imkoniyatlar ochilmoqda[4] [7].

Hozirgi kunda mamlakatimizda turizim sohasini yanada rivojlantirish hamda uning istiqbolini ta’minlashda tashkiliy-iqtisodiy mexanizmlarni takomillashtirish zarurati zaruriyati yuzaga kelmoqda. Bizning nazarimizda turizm xizmatlarini raqamlashtirishda samaradorlikni ta’minlash uchun quyidagi tashkiliy va iqtisodiy mexanizmlarga e’tiborimizni qaratishimiz hamda ularni takomillashtirishimiz zarur:

Tashkiliy mexanizmlar:

Raqamli boshqaruv platformalarini joriy etish;

Onlayn xizmatlar uchun yagona davlat portali yaratish;

Turizm obyektlarini raqamli xaritaga kiritish;

Xodimlarning raqamli savodxonligini oshirish bo‘yicha tizimli o‘quv kurslari.

Iqtisodiy mexanizmlar:

Innovatsion loyihalarni moliyalashtirish uchun grant va subsidiya tizimlarini kengaytirish;

Soliq imtiyozlari va preferensiyalar berish;

Davlat-xususiy sheriklik asosida infratuzilmani rivojlantirish;

Elektron to‘lov tizimlarini qo‘llab-quvvatlash.

Amaliy holat: raqamlashtirish vositalari va samaralari

O‘zbekiston turizm sohasida bir qator raqamli platformalarni joriy qilmoqda. Jumladan:

E-Mehmonxona — mehmonxonalarni avtomatlashtirilgan ro‘yxatga olish tizimi;

TravelID — xorijiy sayyohlar uchun onlayn ro‘yxatdan o‘tish va xizmatlar to‘plami;

Uzbekistan.travel portali — davlat tomonidan qo‘llab-quvvatlanayotgan yagona turizm axborot markazi;

Sayohatchi ilovasi — sayyohlar uchun onlayn gidlik va xavfsizlik xizmati.

Ushbu vositalar xizmat ko‘rsatish tezligini **40%** ga, ma’lumotlar aniqligini esa **60%** ga oshirganligi qayd etilgan [2].

Muammolar va to‘siqlar : Turizm xizmatlarini raqamlashtirishda bir qator muammolar mavjud:

Infratuzilmaning yetarli emasligi: ayniqsa chekka hududlarda internet sifati va raqamli texnologiyalar mavjudligi past.

Kadrlar malakasining pastligi: xizmat ko‘rsatuvchi xodimlar raqamli platformalardan foydalanishda qiynalmoqda.

Axborot xavfsizligi: turistlar ma’lumotlari himoyasiz qolmoqda, bu esa ishonchga salbiy ta’sir qilishi mumkin.

Qonunchilikdagi bo‘shliqlar: raqamli turizm xizmatlarini tartibga soluvchi huquqiy-me’yoriy baza yetarlicha ishlab chiqilmagan.

Bizning nazarimizda mamlakatimizda raqamli texnologiyalardan masarali foydalanish asosida turizm xizmatlari ko‘rsatish tizimining tashkiliy-iqtisodiy masalalarini takomillashtirishda quyidagi chora-tadbirlar raqamli transformatsiyani jadallashtirishga yordam beradi:

Milliy raqamli turizm strategiyasini ishlab chiqish;

Kadrlar tayyorlash va malaka oshirish dasturlarini yaratish;

Raqamli texnologiyalarni sertifikatlashtirish va audit qilish tizimini joriy etish;

Raqamli xizmatlarni yagona integratsiyalashgan platformaga birlashtirish;

Xususiy sektor bilan hamkorlikni mustahkamlash.

Turizm sohasining raqamli transformatsiyasi O‘zbekiston iqtisodiyotining diversifikatsiyasi, zamonaviy xizmatlar sektorining rivojlanishi va global bozorda raqobatbardosh imijining shakllanishida muhim o‘rin tutadi. Bugungi tezkor raqamli rivojlanish sharoitida turizm xizmatlarini raqamlashtirish faqat texnologik yangilik emas, balki butun boshqaruv, iqtisodiy va ijtimoiy munosabatlarning qayta shakllanishini taqozo etadi.

Raqamli texnologiyalarni joriy etish orqali xizmatlar sifati oshadi, mijozlarga ko‘rsatiladigan xizmatlar tezkor va shaffof bo‘ladi, turizm tashkilotlari esa o‘z faoliyatlarini yanada samarali rejalashtira oladi. Masalan, onlayn bronlash tizimlari, mobil ilovalar, raqamli to‘lovlar, sun’iy intellektga asoslangan takliflar va virtual gidlik xizmatlari nafaqat sayyohlarga qulaylik yaratadi, balki milliy iqtisodiyotga ham qo‘shimcha qiymat olib kiradi.

Shuningdek, raqamli transformatsiya xizmat ko‘rsatish sohasida ishchi kuchining raqamli kompetensiyalarini oshirish, yangi ish o‘rinlarini yaratish va axborot asrining talablariga mos yuqori malakali mutaxassislar tayyorlashga xizmat qiladi. Bu esa uzoq muddatli istiqbolda mamlakatning innovatsion rivojlanishiga zamin yaratadi [6] [8].

Biroq, bu jarayonni muvaffaqiyatli amalga oshirish uchun tizimli yondashuv zarur. Jumladan, milliy raqamli turizm strategiyasini ishlab chiqish, mavjud infratuzilmani takomillashtirish, raqamli savodxonlikni oshirish va raqamli xizmatlarni tartibga soluvchi qonunchilikni mukammallashtirish asosiy yo‘nalishlardan biri bo‘lishi lozim. Ayniqsa, chekka hududlarda internet infratuzilmasi va texnik jihozlarning yetarli darajada rivojlanmaganligi, raqamli xavfsizlik muammolari va kadrlar malakasining pastligi mavjud to‘siqlardan hisoblanadi.

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AXBOROTLASHTIRILGAN TALIM MUHITIDA DASTURLASH ASOSLARINI O'QITISH METODIKASINI TAKOMILLASHTIRISH

Annotasiya: *Ushbu maqolada axborotlashtirilgan ta'lim muhitida dasturlash asoslarini o'qitish metodikasini takomillashtirish yo'llari tahlil qilinadi. Zamonaviy ta'lim texnologiyalari va interaktiv yondashuvlar yordamida o'quv jarayonini samarali tashkil etish usullari ko'rib chiqiladi.*

Kalit so'zlar: *Axborotlashtirilgan ta'lim, dasturlash asoslari, metodika, interaktiv ta'lim, ta'lim texnologiyalari.*

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IMPROVING THE METHODOLOGY OF TEACHING PROGRAMMING FUNDAMENTALS IN AN INFORMATION-BASED EDUCATIONAL ENVIRONMENT

Abstract: *The article analyzes methods for improving the methodology of teaching programming basics in an information-rich educational environment. Modern educational technologies and interactive approaches to enhance learning efficiency are discussed.*

Keywords: *Information-rich educational environment, programming basics, methodology, interactive learning, educational technologies.*

Kirish: Bugungi kunda axborot-kommunikatsiya texnologiyalarining tezkor rivojlanishi ta'lim tizimida tub o'zgarishlarga sabab bo'lmoqda. Axborotlashtirilgan ta'lim muhiti o'quv jarayonini yanada interaktiv, shaxsiylashtirilgan va samarali qilish imkonini beradi. Ayniqsa, dasturlash kabi texnik fanlarni o'qitishda, bu yondashuv o'quvchilarning bilimlarni o'zlashtirish darajasini oshirishda, amaliy ko'nikmalarni shakllantirishda katta ahamiyat kasb etadi. Dasturlash asoslari — bu nafaqat kompyuter fanlari bo'yicha boshlang'ich bilimlar, balki mantiqiy fikrlash, muammolarni tahlil qilish va yechim topish kabi ko'nikmalarni rivojlantirish uchun poydevor hisoblanadi. Shuning uchun dasturlashni o'rgatishda nafaqat texnik bilimlar, balki metodik yondashuvlarning ham yangilanishi talab etiladi. Axborotlashtirilgan ta'lim muhiti o'quvchilarga real vaqt rejimida interaktiv mashg'ulotlar, vizual yordamchilar va onlayn resurslar orqali o'zlashtirish jarayonini soddalashtirish imkonini beradi.

Biroq, amaliyotda axborotlashtirilgan ta'lim muhitida dasturlash asoslarini o'qitishda bir qator muammolar yuzaga kelmoqda. Ularga texnik imkoniyatlarning yetishmasligi, o‘qituvchilarning zamonaviy metodik bilimlar bo‘yicha malakasining pastligi va o‘quvchilarning motivatsiyasini ta’minlashdagi qiyinchiliklar kiradi. Shu bois, ta’lim jarayonining samaradorligini oshirish uchun metodik yondashuvlarni doimiy ravishda takomillashtirib borish zarur. Ushbu maqolada axborotlashtirilgan ta’lim muhitida dasturlash asoslarini o‘qitish metodikasini yanada rivojlantirish va takomillashtirish yo‘llari o‘rganiladi. Zamonaviy pedagogik texnologiyalar va interaktiv vositalarni qo‘llash orqali o‘quv jarayonining samaradorligini oshirish usullari tahlil qilinadi. Shuningdek, mavjud kamchiliklarni bartaraf etish va o‘quvchilarning qobiliyatlarini to‘liq ochishga xizmat qiluvchi metodik tavsiyalar ishlab chiqiladi.

Material va metodlar.

Tadqiqotda dasturlash asoslarini o‘qitishda axborotlashtirilgan ta’lim muhitining samaradorligini baholash maqsadida amaliy eksperimental usullar qo‘llandi. Tadqiqot materiali sifatida o‘rta maktab va boshlang‘ich oliy ta’lim muassasalarida dasturlash fanidan o‘qitilayotgan o‘quvchilar va talabalar faoliyati tahlil qilindi. Shuningdek, zamonaviy ta’lim platformalari, interaktiv dasturlash muhiti (masalan, Scratch, Code.org), va onlayn resurslar asosida tashkil etilgan o‘quv modullari tadqiqotga kiritildi.

Tadqiqot metodlari quyidagilardan iborat:

- **Eksperimental metod:** An’anaviy va axborotlashtirilgan ta’lim muhitida o‘quvchilarning bilim darajasi, qiziqishi va o‘zlashtirish sur’atlari solishtirildi. Eksperiment davomida interaktiv darslar va onlayn mashg‘ulotlar tashkil etildi.
- **Kuzatuv va so‘rovnomalar:** O‘quvchilarning o‘quv jarayonidagi faolligi va metodikaga bo‘lgan munosabati aniqlash uchun so‘rovnomalar va suhbatlar o‘tkazildi.
- **Tahliliy metod:** Ta’lim jarayonida yig‘ilgan ma’lumotlar statistika usullari yordamida tahlil qilindi, o‘quv natijalari o‘rganildi.

Adabiyotlar tahlili.

Axborotlashtirilgan ta’lim muhitida dasturlash asoslarini o‘qitish metodikasini takomillashtirish masalasi so‘nggi yillarda ko‘plab olimlar e’tiborini tortmoqda. Jonassen (2011) o‘zining konstruktivistik yondashuvi orqali texnologiyalar yordamida muammolarni hal qilish ko‘nikmalarini shakllantirishga urg‘u beradi va ta’lim jarayonida interaktiv vositalarning o‘rni haqida keng fikr yuritadi [1]. Papert (1980) esa "Mindstorms" asarida bolalar uchun vizual dasturlash muhitlarining dasturlashni o‘rganishdagi samaradorligini ta’kidlab, innovatsion pedagogik yondashuvlarni ilgari suradi [2].

Resnik va hamkasblari (2009) Scratch platformasining ta’limdagi o‘rni va yoshlar orasida dasturlashga qiziqishni oshirishdagi ahamiyatini tahlil qilgan, interaktiv va intuitiv muhitning o‘quv jarayoniga ijobiy ta’sirini ko‘rsatgan [3]. Korte va Hüsing (2007) esa Yevropa maktablarida axborot-kommunikatsiya texnologiyalarining ta’lim sifatiga ta’siri bo‘yicha keng qamrovli tadqiqot olib borib, pedagogik jarayonda innovatsion texnologiyalarni joriy etish zarurligini ta’kidlaydi [4]. O‘zbekiston sharoitida Tursunov (2022) axborotlashtirilgan ta’lim muhitida innovatsion texnologiyalarni tatbiq etish va o‘quv jarayonini takomillashtirish borasida ilmiy ishlanmalarni taqdim etdi. U, ayniqsa, dasturlash asoslarini o‘qitishda interaktiv va kooperativ metodlardan foydalanish samaradorligini yuqori baholaydi [5].

Tahlil va natijalar.

Bugungi kunda ta’lim sohasida axborot-kommunikatsiya texnologiyalarining keng joriy etilishi ta’lim sifatini oshirish va o‘quv jarayonini yanada interaktiv qilishga katta imkon yaratmoqda. Dasturlash asoslarini o‘qitish jarayonida axborotlashtirilgan ta’lim muhitining samaradorligini oshirishga qaratilgan tadqiqotlar natijalari shuni ko‘rsatdiki, zamonaviy pedagogik texnologiyalar, interaktiv platformalar va onlayn vositalar o‘quvchilarning bilim darajasi va o‘zlashtirish tezligiga ijobiy ta’sir ko‘rsatadi. Eksperiment davomida an’anaviy ta’lim muhitida va axborotlashtirilgan ta’lim muhitida dasturlash asoslarini o‘rgatish samaradorligi solishtirildi. Eksperiment guruhidagi o‘quvchilar interaktiv mashg‘ulotlar va onlayn platformalardan faol foydalangan holda, dasturlash nazariyasi va amaliy ko‘nikmalarini o‘zlashtirishda an’anaviy guruhga qaraganda sezilarli yaxshilanish ko‘rsatdi. Bu holat interaktiv yondashuvlarning o‘quv jarayonidagi samaradorligini yaqqol tasdiqladi.

Tahlil natijalari shuni ko‘rsatdiki, o‘quvchilarning o‘qishga bo‘lgan motivatsiyasi axborotlashtirilgan muhitda ancha oshadi. Dasturlash bo‘yicha interaktiv topshiriqlar, vizual ko‘rsatmalar, kod yozish jarayonini real vaqt rejimida kuzatish imkoniyati o‘quvchilarning qiziqishini kuchaytiradi va ularni mustaqil o‘rganishga undaydi. Shu bilan birga, o‘quvchilar orasida o‘zlashtirish sur’ati ham an’anaviy ta’limga nisbatan sezilarli darajada tezlashadi. Tajriba davomida kuzatilgan yana bir muhim jihat – o‘quvchilar o‘rtasida hamkorlikni kuchaytirish. Axborotlashtirilgan ta’lim muhitida guruh ishlari va muammoga yo‘naltirilgan topshiriqlar o‘quvchilarning o‘zaro muloqotini rivojlantiradi, hamda birgalikda muammoni hal qilish ko‘nikmalarini shakllantiradi. Bu esa dasturlash fanini o‘rganishda nafaqat individual, balki jamoaviy bilim olishning samaradorligini oshiradi. Shuningdek, o‘qituvchilarning roli ham muhim ahamiyat kasb etadi. Tadqiqotda o‘qituvchilarning axborot-kommunikatsiya texnologiyalaridan foydalanish darajasi va ularning pedagogik malakasi o‘quvchilarning natijalariga bevosita ta’sir qilishi aniqlangan. Yuqori malakali o‘qituvchilar axborotlashtirilgan muhitda o‘quvchilarni samarali boshqarish, individual yondashuv va feedback tizimini yo‘lga qo‘yishda muhim o‘rin tutadi. Shu bois, o‘qituvchilarning kasbiy rivojlanishi va yangi metodikalarni o‘zlashtirish uchun doimiy treninglar tashkil etish zarurati mavjud.

Natijalardan ko‘rinib turibdiki, axborotlashtirilgan ta’lim muhitining asosiy afzalliklaridan biri – o‘quvchilarning bilim darajasini doimiy monitoring qilish va baholash imkoniyati. Onlayn platformalar va dasturlar o‘quv jarayonini real vaqt rejimida kuzatib boradi, o‘quvchining kuchli va zaif tomonlarini aniqlaydi hamda o‘qituvchiga moslashtirilgan tavsiyalar berish imkonini yaratadi. Bu esa o‘qitish jarayonini yanada samarali qilishda muhim vosita hisoblanadi. Shuningdek, olingan ma’lumotlarga asoslangan holda ta’lim mazmuni va metodikasi doimiy ravishda takomillashtirilmoqda. Masalan, murakkab mavzularni osonlashtirish uchun vizualizatsiya, animatsiyalar va interaktiv testlar qo‘llanilmoqda. Bu vositalar o‘quvchilarga dasturlash tushunchalarini chuqurroq anglashga yordam beradi va bilimlarni mustahkamlashga xizmat qiladi. Tahlillar shuni ko‘rsatdiki, axborotlashtirilgan ta’lim muhitida individual o‘quv rejimlarini tashkil etish imkoniyati ham mavjud. Har bir o‘quvchi o‘z qobiliyatlari va bilim darajasiga mos ravishda o‘rganishni davom ettirishi, ortiqcha yuklamasdan va qiziqish doirasida ta’lim olish imkoniyatiga ega bo‘ladi. Bu, ayniqsa, dasturlash kabi murakkab va mantiqiy fikrlashni talab qiladigan fanlarni o‘rganishda katta ahamiyat kasb etadi. Shu bilan birga, eksperiment davomida aniqlangan muammolar ham mavjud. Texnik infratuzilmaning to‘liq emasligi, internet tarmoqlarining barqaror emasligi, shuningdek, ayrim o‘qituvchilarning zamonaviy texnologiyalarga nisbatan noaniq yondashuvi ta’lim jarayonining samaradorligini pasaytiradi. Bundan tashqari, barcha o‘quvchilar axborotlashtirilgan ta’lim muhitidan teng darajada foydalana olmaydi, bu esa ta’limdagi tengsizliklarga olib keladi.

Bundan tashqari, o‘quvchilar orasida mustaqil ishlash ko‘nikmalari yetarlicha rivojlanmaganligi ham ba’zi holatlarda ta’lim jarayonining samaradorligini pasaytiradi. Shuning uchun o‘qituvchilar nafaqat texnik vositalardan foydalanishni o‘rgatishi, balki o‘quvchilarda o‘zini boshqarish, vaqtni samarali taqsimlash va muammolarni mustaqil hal qilish ko‘nikmalarini rivojlantirishga ham e’tibor qaratishi lozim. Tahlil natijalariga ko‘ra, axborotlashtirilgan ta’lim muhitida dasturlash asoslarini o‘qitishda metodik yondashuvni takomillashtirish uchun bir nechta asosiy yo‘nalishlar aniqlangan:

1. Interaktiv dars materiallari va amaliy mashg‘ulotlarni ko‘paytirish, bu esa o‘quvchilarning qiziqishini oshiradi va mavzuni yanada tushunarli qiladi.
2. O‘quvchilarning bilim darajasini real vaqt rejimida kuzatish imkonini beruvchi platformalardan foydalanish orqali individual yondashuvni ta’minlash.
3. O‘qituvchilarni zamonaviy ta’lim texnologiyalari va metodikalari bo‘yicha doimiy malaka oshirish kurslari bilan ta’minlash.
4. O‘quvchilarda mustaqil o‘rganish ko‘nikmalarini shakllantirishga yo‘naltirilgan metodikalar joriy etish.
5. Texnik infratuzilmani yaxshilash va barcha o‘quvchilar uchun teng imkoniyatlar yaratish bo‘yicha chora-tadbirlarni ishlab chiqish.

Shuningdek, olingan natijalar pedagogik jarayonni yanada rivojlantirish uchun muhim asos bo‘lib xizmat qiladi. Ular asosida kelgusida interaktiv ta’lim vositalarini yanada rivojlantirish, dasturlash bo‘yicha o‘quv dasturlarini takomillashtirish va o‘qituvchilar uchun metodik qo‘llanmalar yaratish mumkin. Tadqiqot davomida erishilgan natijalar shuni ko‘rsatdiki, axborotlashtirilgan ta’lim muhitida dasturlash asoslarini o‘qitish metodikasining takomillashtirilishi nafaqat o‘quvchilarning bilimlarini oshiradi, balki ularning qobiliyatlarini to‘liq ochishga, mantiqiy fikrlash ko‘nikmalarini rivojlantirishga va o‘zaro hamkorlikni kuchaytirishga xizmat qiladi. Bu esa zamonaviy ta’lim talablariga to‘liq javob beradigan sifatli ta’lim tizimini shakllantirishda muhim omildir.

Xulosa

Tadqiqot natijalari shuni ko‘rsatdiki, axborotlashtirilgan ta’lim muhiti dasturlash asoslarini o‘qitishda ta’lim jarayonining samaradorligini sezilarli darajada oshiradi. Interaktiv darslar, onlayn platformalar va zamonaviy pedagogik texnologiyalar o‘quvchilarning bilim darajasini yaxshilash, mustaqil o‘rganish ko‘nikmalarini rivojlantirish va ularning qiziqishini oshirishda muhim rol o‘ynaydi. Shuningdek, o‘qituvchilarning axborot-kommunikatsiya texnologiyalaridan samarali foydalanishi va metodik malakasini oshirishi o‘quv jarayonining muvaffaqiyatli tashkil etilishida katta ahamiyat kasb etadi. Tadqiqot davomida aniqlangan muammolar – texnik infratuzilmaning yetarli emasligi va o‘quvchilarning individual farqlari – ta’lim sifatini oshirish uchun yechimini topishi lozim bo‘lgan dolzarb masalalardir. Umuman olganda, axborotlashtirilgan ta’lim muhitida dasturlash asoslarini o‘qitish metodikasini takomillashtirish orqali zamonaviy ta’lim talablariga mos, samarali va sifatli ta’lim tizimini yaratish mumkin. Bu esa o‘quvchilarning texnik bilimlari va kasbiy tayyorgarligini mustahkamlashda muhim omil hisoblanadi. Shu bois, pedagogik jarayonlarni doimiy ravishda rivojlantirish va yangi texnologiyalarni joriy etish ta’lim sifatini oshirish yo‘lida asosiy vazifa bo‘lib qoladi.

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USING PODCASTS AND VIDEO NEWS IN FOREIGN LANGUAGE CLASSES

***Abstract**: Modern technologies offer broad opportunities for updating methods of teaching foreign languages. This article explores the role of podcasts and video news as authentic media resources in developing foreign language communicative competence. It outlines the didactic features of these media types, their advantages, methodological approaches for use at different stages of learning, and offers practical recommendations for their integration into the educational process. The importance of podcasts and video news as tools for forming intercultural, sociolinguistic, and pragmatic competences is emphasized.*
***Keywords:** podcasts, video news, authentic materials, foreign language competence, intercultural learning, media pedagogy, educational technologies.*

Introduction

The development of digital technologies in the 21st century has had a significant impact on the education system in general and foreign language teaching methodology in particular. Teachers increasingly turn to media resources as tools for creating an authentic language environment and developing students’ communicative skills. Among the most accessible and effective media formats are podcasts and video news, which allow learners to hear natural speech, reflect on current events and cultural realities, and engage in discussion—thus immersing them in real-world language use.

Theoretical foundations of media use in language teaching

The methodological relevance of using podcasts and video news is based on the principles of communicative, sociocultural, and competency-based approaches. According to Michael Byram’s concept of intercultural communicative competence, language education should aim not only to teach linguistic forms but also to foster the ability to interact with representatives of other cultures. In this context, authentic media texts act as carriers of sociocultural information, developing critical thinking, media literacy, and contextual interpretation skills.

Types of Podcasts and Video News in Language Teaching

Types of Podcasts:

- **Educational podcasts** (e.g., “6 Minute English” by BBC);
- **Authentic interviews and conversations** (e.g., TEDTalks Daily);
- **Student-created podcasts**;
- **Local thematic podcasts** (focused on culture, history, lifestyle of the target country).

Video News:

- **Short news clips** (e.g., CNN10, Euronews);
- **Special educational news editions** with subtitles;
- **Interviews and documentary fragments**;
- **Social video platforms** (e.g., YouTube educational channels, subtitled TikTok content).

Integration into the Competency-Based Approach

Within the competency-based framework, media resources support the development of:

- **Linguistic competence** (vocabulary, grammar, phonetics);
- **Communicative competence** (interaction, spoken production);
- **Intercultural competence** (understanding social norms and cultural contexts);
- **Media literacy** (critical evaluation and interpretation of content).

Project-Based Learning with Podcasts and Videos

Project-based learning is a highly effective method involving students in the creation of their own media content:

- Writing and recording mini-podcasts on chosen topics;
- Producing video reports with interviews;
- Analyzing and comparing news from different countries;
- Preparing for and performing in a mock “radio broadcast” or “news segment.”

This approach enhances both linguistic skills and key 21st-century competencies: critical thinking, collaboration, creativity, and digital literacy.

Podcasts and video news: Comparative features and didactic potential

Podcasts are digital audio files that can be streamed online or downloaded. They cover a wide range of topics—from news and interviews to science and everyday life. Their advantages include the possibility of repeated listening, availability of transcripts, and flexibility in use both in-class and for independent study.

Video news combines audio with visual context, which enhances comprehension, especially at the beginner and intermediate levels. These resources provide students with access to current information and broaden their knowledge of the target culture and society.

Common didactic functions of these media include:

- Developing listening and visual comprehension skills;
- Expanding vocabulary;
- Improving phonetic competence;
- Teaching intonation, rhythm, and accents;
- Enhancing sociocultural awareness.

Methodological approaches to using podcasts and video news

The effective use of podcasts and video news requires a well-organized methodological framework consisting of three stages:

1. Pre-listening/viewing stage:

- Motivating students to engage with the material;
- Activating relevant lexical and grammatical structures;
- Predicting content based on title, image, or keywords.

2. While-listening/viewing stage:

- First listening/viewing for general understanding;
- Repeated listening/viewing for detailed comprehension;
- Task completion (e.g., multiple choice, gap-filling, sequencing events).

3. Post-listening/viewing stage:

- Discussing the content;
- Analyzing linguistic and cultural features;
- Creating students' own media products (e.g., mini-podcasts, news summaries).

Practical implementation in the classroom

Podcasts and video news can be integrated into various thematic units. For example:

- **Topic: "Health and Lifestyle"** — podcasts with health tips, interviews with doctors, video news on medical breakthroughs.
- **Topic: "Environment"** — reports on climate change, podcasts on environmental protection.
- **Topic: "Culture and Traditions"** — podcasts about holidays, news on cultural events.

Example task: Students listen to a podcast episode on digital security, create a content outline, identify the speaker's viewpoint, and express their own opinion on the issue.

Advantages of using podcasts and video news

- Relevance of topics and authentic language use;
- Accessibility and diversity of resources;
- Increased motivation and engagement;
- Development of learner autonomy;
- Formation of media competence.

Challenges and ways to overcome them

Challenges:

- Fast speech and varied accents;
- Insufficient language proficiency for comprehension;
- Limited classroom time.

Solutions:

- Use of subtitles and transcripts;
- Selecting materials appropriate to learners' level;
- Assigning media work as homework (e.g., flipped classroom model).

Conclusion

Podcasts and video news are powerful tools in the foreign language teacher's repertoire. Their systematic use contributes not only to the development of linguistic skills but also to the formation of intercultural and media competence—essential for successful communication in the modern world. Integrating such resources into the curriculum makes learning more dynamic, relevant, and responsive to students' real-life needs.

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ROLE OF M1 MACROPHAGES IN TUBERCULOSIS: KEY PLAYERS IN IMMUNITY AND PATHOGENESIS

Annotation. *This article explores the role of M1 macrophages in the immune response to tuberculosis (TB), focusing on their contributions to the pathogenesis of the disease. M1 macrophages, characterized by their pro-inflammatory properties, play a critical role in the initial immune defense against Mycobacterium tuberculosis (Mtb). These macrophages activate the immune system by producing pro-inflammatory cytokines such as TNF-α, IL-12, and IL-1β, as well as engaging in antimicrobial mechanisms through the generation of reactive oxygen species (ROS) and nitric oxide (NO). The formation of granulomas, which contain the infection, is also influenced by M1 macrophages. The article discusses the balance between M1 and M2 macrophage activation, as dysregulation can lead to chronic inflammation or failure to eliminate the pathogen effectively. Additionally, therapeutic implications, including cytokine modulation and vaccine development strategies to enhance M1 macrophage function, are discussed as potential avenues for improving TB treatment and prevention.*

Keywords: *M1 macrophages, Tuberculosis. Mycobacterium tuberculosis, Immune response*

Introduction. Macrophages are central players in the immune system's defense against infections, including tuberculosis (TB). *Mycobacterium tuberculosis* (Mtb), the causative agent of TB, primarily infects macrophages, and the outcome of the infection largely depends on the macrophages' ability to mount an effective immune response. Macrophages can differentiate into various phenotypic states, with the most relevant being **M1** and **M2** macrophages. The M1 phenotype is classically associated with a pro-inflammatory response, whereas M2 macrophages typically promote tissue repair and resolution of inflammation. In the context of TB, **M1 macrophages** play a pivotal role in initiating and sustaining immune responses that are critical for containing *Mtb* infection. This article delves into the role of M1 macrophages in TB, their immune mechanisms, and their therapeutic potential in controlling TB infection.

Macrophage Polarization: M1 vs. M2. Macrophage polarization refers to the process by which macrophages adopt distinct functional phenotypes in response to specific environmental signals. This polarization is influenced by cytokines, microbial patterns, and the microenvironment.

1. **M1 Macrophages**:

○ **Activation**: M1 macrophages are typically induced by **interferon-gamma (IFN-γ)** and **lipopolysaccharide (LPS)**, which activate the **Toll-like receptors (TLRs)**. The key features of M1 macrophages include the production of pro-inflammatory cytokines such as **tumor necrosis factor-alpha (TNF-α)**, **interleukin-1 beta (IL-1β)**, **IL-6**, and **IL-12**. These cytokines help to recruit other immune cells to the site of infection and promote the formation of **Th1 immune responses**, which are crucial for controlling intracellular pathogens like *Mtb* (Gautam & Schlesinger, 2016).

○ **Effector Functions**: M1 macrophages are highly microbicidal due to the production of reactive oxygen species (ROS), **nitric oxide (NO)**, and **pro-inflammatory cytokines**. These molecules directly kill or inhibit the growth of pathogens, including *Mtb* (Harvie & Iyer, 2017). M1 macrophages also express high levels of **major histocompatibility complex (MHC) class II molecules**, facilitating antigen presentation to CD4+ T cells.

2. **M2 Macrophages**:

○ M2 macrophages, in contrast, are induced by cytokines such as **IL-4**, **IL-13**, and **IL-10**. These cells are involved in immune regulation, tissue repair, and anti-inflammatory responses. While M2 macrophages are essential for resolving inflammation and promoting tissue healing, they are less efficient at killing pathogens like *Mtb* and may contribute to the persistence of infection by suppressing strong immune responses (Gautam & Schlesinger, 2016).

Role of M1 Macrophages in Tuberculosis

The M1 macrophage response plays a crucial role in the early stages of **Mtb** infection, as well as in the control and clearance of the pathogen. Here's how M1 macrophages contribute to the immune defense against TB:

1. **Recognition of *Mtb* and Inflammatory Response**:

○ Upon infection, *Mtb* is recognized by **pattern recognition receptors (PRRs)**, such as **Toll-like receptors (TLRs)**, **NOD-like receptors (NLRs)**, and **C-type lectin receptors (CLRs)**, expressed on the surface of macrophages. Activation of these receptors leads to the production of pro-inflammatory cytokines that initiate the immune response. M1 macrophages respond to **IFN-γ** and **LPS**, both of which are present in the TB microenvironment, promoting the **Th1 immune response** (Cooper & Khader, 2008).

○ M1 macrophages are essential for activating **CD4+ T cells** and **CD8+** cytotoxic T cells, which are critical for controlling the infection. They also contribute to the formation of granulomas, which are organized aggregates of immune cells that attempt to contain the infection by restricting the spread of *Mtb* (Harvie & Iyer, 2017).

2. Effector Mechanisms for Controlling *Mtb*:

○ M1 macrophages play a critical role in controlling intracellular pathogens. Upon phagocytosis of *Mtb*, macrophages produce reactive oxygen species (ROS) and nitric oxide (NO), both of which are toxic to the bacterium. The combination of ROS and NO, along with other antimicrobial peptides and proteins, contributes to the intracellular killing of *Mtb* within the phagosome (Zhao & Zhang, 2018).

○ The antimicrobial activity of M1 macrophages is also associated with the activation of autophagy, a process that enables the degradation of intracellular pathogens within macrophages. Autophagy has been shown to play a role in the control of *Mtb* replication in macrophages (Cooper & Khader, 2008).

3. Granuloma Formation and Immune Surveillance:

○ Granulomas are hallmark structures in TB that form in response to persistent infection. M1 macrophages contribute to the formation of granulomas, which are essential for containing Mtb and preventing its dissemination. In the granuloma, M1 macrophages are surrounded by a variety of immune cells, including T cells, dendritic cells, and other macrophages, forming a microenvironment that limits bacterial spread (Harvie & Iyer, 2017).

○ The granulomatous response is a double-edged sword: while it contains the infection, it can also lead to tissue damage if inflammation becomes uncontrolled. The role of M1 macrophages in granuloma formation is essential for controlling the infection but can also contribute to the pathology of TB if over-activated (Gautam & Schlesinger, 2016).

4. Cytokine Production and Immunoregulation:

○ M1 macrophages are the main producers of key cytokines that influence the course of the immune response during TB. TNF-α is one of the most important cytokines produced by M1 macrophages in TB. TNF-α is essential for maintaining the granulomatous structure and for macrophage activation, which is necessary for *Mtb* control. However, excessive production of TNF-α can lead to tissue necrosis and damage, a hallmark of advanced TB pathology (Gautam & Schlesinger, 2016).

○ Other cytokines produced by M1 macrophages, such as IL-12, help promote Th1 polarization and are critical for the adaptive immune response against *Mtb* (Cooper & Khader, 2008).

Challenges and Potential Therapeutic Implications. While M1 macrophages are essential for controlling *Mtb*, the immune response during TB is often suboptimal, leading to either persistent infection or chronic inflammation. In some cases, M1 macrophages may fail to effectively eliminate the pathogen, and the immune system may become dysregulated.

1. **Excessive Inflammation**:

○ In some patients with active TB, overactivation of M1 macrophages can lead to tissue damage and necrosis. The overproduction of cytokines like TNF-α can result in lung damage, contributing to the characteristic cavitary lesions seen in TB. Targeting the excessive activation of M1 macrophages could be a potential therapeutic approach to reduce tissue damage (Harvie & Iyer, 2017).

2. M1/M2 Balance:

○ An effective immune response against *Mtb* requires a balance between M1 and M2 macrophages. The resolution of inflammation after initial infection is critical for preventing tissue damage while maintaining effective immunity. Therapeutic strategies that modulate the balance between M1 and M2 macrophages could potentially help in reducing inflammation without compromising the immune response to *Mtb* (Zhao & Zhang, 2018).

3. Therapeutic Approaches:

○ Modulating the activation of M1 macrophages through cytokine therapy or small molecules could enhance the immune response against TB. TNF-α inhibitors, while useful in some contexts, must be carefully managed in TB patients, as they can exacerbate infection. On the other hand, IFN-γ therapy may enhance M1 macrophage function and promote better control of the infection (Gautam & Schlesinger, 2016).

○ Vaccine development: Understanding the role of M1 macrophages in the immune response to *Mtb* can inform the design of vaccines that enhance macrophage-mediated immunity, potentially improving protection against TB (Cooper & Khader, 2008).

Conclusion. M1 macrophages are central to the immune defense against tuberculosis. Their ability to produce pro-inflammatory cytokines, engage in antimicrobial activity, and contribute to granuloma formation makes them crucial players in the control of *Mtb* infection. However, the balance between pro-inflammatory and anti-inflammatory responses is delicate, and dysregulation of this balance can result in tissue damage or persistent infection. Targeting M1 macrophages and their signaling pathways holds potential for novel therapeutic strategies to enhance the immune response against TB, reduce tissue damage, and improve treatment outcomes, especially in patients with latent or active TB.

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THE TERMS OF VOLLEYBALL SPORTS AND THE NEED TO TEACH STUDENTS THEIR ESSENCE

Abstract: *This paper explores key theoretical and methodological aspects related to the training of volleyball players and clarifies important terms frequently used in both the theory and practice of volleyball. Despite the sport's popularity in the country, the lack of international success highlights systemic issues in the current training processes. The study emphasizes the need to develop specific skills during preparatory stages and underscores the importance of mastering terminology to enhance learning and teaching in volleyball education. Concepts such as technique, tactics, and core elements of gameplay are discussed in detail, aiming to improve both theoretical understanding and practical application.*

Keywords: ***v****olleyball sport, physical education and Sports, ace, attack, libero, middle blocker, mintonette, net, training process, technique, skill, method, term, student, tactics.*

While volleyball is a popular sport in our country, the fact that it does not make our athletes high in international sports competitions indicates that there are enough mistakes and shortcomings in the system of training volleyball athletes. Because it is impossible to achieve the goal set by young volleyball players as long as they do not develop special working skills in the preparatory processes. This is considered one of the pressing problems in the system of training highly qualified athletes in the sport of volleyball.

Knowing the essence of concepts and terms that are often repeated in the science of' volleyball theory and methodology " (including in volleyball practice), realizing their logical meaning makes it possible to more thoroughly master the topics and materials of this textbook.

Below is revealed the essence of a number of concepts and terms.

The technique is derived from the Greek word " tehnus "meaning" art " in Uzbek. In sports practice and, in particular, volleyball, the "technique" represents movement skills, the form of structure of the playing methods, the content and the order of execution. A specific move (method of play – shot, Ball transfer, ball input, etc.k.) the more and longer the technique is refined using special exercises, the more beautiful, beautiful, light, bioenergetically economical, effective, accurate, and executed at the "art" level.

Taktika is a Greek word derived from "takticus" meaning "to sort" in Uzbek.

VOLLEYBALL RULES

Here are the fundamental, must-know rules of a volleyball game:

- Only 6 players on the floor at any given time: 3 in the front row and 3 in the back row.
- Points are made on every serve for the winning team of the rally (rally-point scoring).
- Players may not hit the ball twice in succession (a block is not considered a hit).
- Ball may be played off the net during a volley and on a serve.
- A ball hitting a boundary line is in.
- A ball is out if it hits an antennae, the floor completely outside the court, any of the net or cables outside the antennae, the referee stand or pole, or the ceiling above a non-playable area.
- It is legal to contact the ball with any part of a player's body.
- It is illegal to catch, hold or throw the ball.
- A player cannot block or attack a serve from on or inside the 10-foot line.
- After the serve, front-line players may switch positions at the net.
- Matches are made up of sets; the number depends on level of play.

Ace:

A serve that results directly in a point, either when the ball hits the floor on the receiving team's side of the court untouched, or when it is touched but unable to be kept in play by the receiving team.

Antennae:

Thin poles attached to the net cables placed above the sideline. A ball touching the antennae or their extensions is out of bounds. Balls passing within the antennae are still in play.

Assist:

When a player sets, passes or digs the ball directly to a teammate who attacks the ball and gets a kill.

Attack:

The action of attempting to hit the ball onto the opponent's side of the court. Types of attacks include a spike, tip, roll shot and dump.

Attacker:

Also "hitter" and "spiker." A player who attempts to hit a ball offensively with the purpose of terminating play.

Attack Block:

The defensive team's attempt to block a spiked ball. See BLOCK

Attack Error:

An attack botched in one of 5 ways: Ball lands out of bounds; ball goes into net; attacker commits center line or net violation, or attacker illegally contacts ball. Getting blocked can also be considered an attack error.

Attack Line:

A line 3 meters (10 feet) away from, and parallel to, the net. Separates the front-row players from the back row players. A back row player cannot legally attack the ball above the net unless he takes off from behind the attack line.

Back Row Attack:

When a back row player takes off from behind the attack line (10-foot/3-meter) line and attacks the ball. Various terms for back row attacks include "A," "B," "C," "D," "Pipe" and "Bic".

Back Row Player:

(back court player) Left Back (LB); Middle Back (MB); Right Back (RB) – according to the serving order. (Serving order positions 5, 6 and 1.)

Backlines:

See ENDLINES.

Dig:

Passing a spiked or rapidly hit ball and low to ground. Defensive play. Slang for retrieving an attacked ball close to the floor. Statistically scored on a 3.0 point system.

Rewritten volleyball rules in academic prose: A standard volleyball game is played with six players per team on the court at a time, arranged in two rows of three: a front row and a back row. The game follows a rally-point scoring system, in which a point is awarded on every serve to the team that wins the rally. Players are prohibited from contacting the ball twice in succession, except when the first contact is a block, which does not count as a hit. During play, the ball may rebound off the net and still remain in play. A ball that lands on a boundary line is considered in, while a ball is deemed out if it contacts the antennae, the area outside the court boundaries, external parts of the net system, the referee's stand or pole, or the ceiling above a non-playable zone. It is permissible to strike the ball with any part of the body, provided that the ball is not caught, held, or thrown. Blocking or attacking a serve from within the 10-foot (3-meter) line is not allowed. Following a serve, front-row players are permitted to change positions near the net. Volleyball matches are composed of sets, with the number of sets depending on the level of competition—typically best-of-three or best-of-five formats.An attack with a planned fake, usually including 2 or more hitter.

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ECONOMIC CONSEQUENCES OF DIGITIZATION IN COMPANIES

Abstract. *Digitalization has emerged as a significant force in reshaping the economic landscape of companies worldwide, while its benefits are not uniformly distributed across different firm sizes and regions. This paper investigates the economic consequences of digital transformation by using open-access datasets from the OECD, World Bank, and Eurostat. Using a streamlined, quantitative research design, we employ secondary data to examine key indicators such as ICT access and usage by businesses, ICT investment as a share of GDP, and ICT growth rates across countries. Data analysis is conducted using Excel and Python, enabling us to perform descriptive statistics, correlation assessments, and regression analyses to test the hypothesis of an inverted U-shaped relationship between digitalization intensity and firm performance.*

Our findings indicate that higher digital adoption and increased ICT investment are generally associated with improved economic performance. However, knowing that variability exists: firms in regions with robust digital infrastructures tend to achieve superior outcomes, whereas those in areas with lower ICT growth risk falling behind, thus exacerbating economic inequalities. These results underscore the critical role of targeted policy interventions and strategic firm-level initiatives to ensure that the benefits of digitalization are equitably distributed.

Index Terms- *economics, technology, firms, ict*

Introduction

In the modern era, digitalization has become a main reason of economic and business transformation. Companies over the world are busy with integrating digital technologies to enhance efficiency, improve decision making, and consequently remain competitive in the world of fast-paced evolution of IT. Starting from automation of basic processes to the AI-integration and cloud computing technologies evolved how business processes are defined in the modern era.

Digitalization impact is cannot be understated. It brings to business benefits such as a different level of productivity, reducing costs and growing revenue. Integration of artificial intelligence performs variety of operations by itself, minimizing manual human-involvement and minimizing extra costs. Businesses also may include digital platforms, leading to expansion into global markets and making possible to reach wider audience with lower budget constraints. Additionally, data analytic systems usage might help to make informed decisions, optimize production supply, and improve customer satisfaction. The involvement of innovative business models, for example fintech solutions, further contributes to financial growth and market competitiveness.

Despite high level of benefits, digitalization process contains several challenges for businesses. One of the primary complications is cybersecurity, as increased reliance on digital systems makes companies vulnerable to data hacks and cyberattacks. Furthermore, automation and AI-integrations may lead to job displacements, requiring employees to adapt by changing skill-range and upskilling. The starting investment in digital transformation can also be costly, especially for medium-sized enterprises and smaller ones (SMEs). Moreover, the need for regular update and upgrades of technologies in order to remain competitive, leads to ongoing maintenance and continues expenses. Regulatory and ethical concerns around data privacy, intellectual property, and compliance with digital laws adds another layer of difficulty to digitalization efforts.

The primary goal of the paper is to examine the economic consequences of digitalization across diverse types of companies, with a special emphasis on whether digital renovation delivers uniform benefits or deepens economic gaps between large corporations and small and medium-sized enterprises (SMEs). Particularly, the study investigates whether the rapid adoption of new technologies an unfair playing field, enabling digital-first firms to secure a competitive position while leaving many SMEs struggling to keep pace. By overall insights from recent academic researches, industry reports, and policy analyses, this paper aims to bridge the gap in the literature regarding the relationship between digitalization and economic inequality among firms. Overall, our analyses seek to provide a deep understanding of the digital divide in the business landscape and offer innovative policy recommendations to foster a more inclusive digital economy.

Literature review

The literature on digitalization reveals landscape where its economic benefits – such as enhanced productivity, cost reductions, and expected market reach – are frequently marked. Numerous OECD reports underscore how digital tools enable companies, specifically SMEs, to streamline operations and freely access global markets [1][i]. These studies, however, also highlight significant problems: the high costs of advanced technologies, cybersecurity risks, and the continuous need for operational development. While digitalization can give efficient gains, it has inevitable issues together, and addressing them often requires a careful balance between investment and return.

A growing body of research has begun to explore the economic separation between large corporations and SMEs in the digital era. For instance, an article from El Pais documents how investments in artificial intelligence have widened the gap, with large firms substantially outpacing SMEs in adopting these technologies [2][ii]. In addition, studies such as “Digital driven success: digitalization effect on SME performance” reveal an inverted U-shaped relationship between digitalization and SME performance—showing that while initial investments in digitalization boost performance, over-digitalization may come with diminishing returns for budget-constrained firms [3][iii]. These studies suggest that the benefits of digitalization are not uniformly distributed, thereby deepening existing economic inequalities.

Further, the literature examines how digital transformation impacts carriage inward. Research focused on Chinese listed firms, for example, demonstrates that while digitalization may help narrow compensation gaps between management and non-management staff, simultaneously, it can widen the difference between high-skilled and low skilled workers [4][iv]. These researches combine with broader studies on digital inequality, which argue that the rewards of technologies advancement often increase to those with better access to capital and advanced skills [5][v].

Theoretical frameworks such as the Resource-Based View (RBV) and the Technology-Organization-Environment (TOE) framework have been pivotal in analysis of these discussions. Addressing these gaps is ground to our study, which aims to contribute deep insights into the economic consequences of digitalization across different firm sizes.

Methodology

This study uses a streamlined, quantitative research design that leverages secondary, open-access datasets. Instead of conducting primary data collection from surveys or interviews, we rely on reliable public data sources—such as OECD, World Bank, and Eurostat—to provide comprehensive measures of digitalization intensity and economic performance across firms. These datasets include indicators such as digital investment ratios, technology adoption scores, sales revenue, and return on investment, along with key control variables like firms' size, industry type, and geographical region.

Data analysis will be executed using accessible tools such as Excel and Python. Excel will be used for initial cleaning, descriptive statistics, and generating basic graphs, while Python (employing libraries like Pandas, Matplotlib, and Statsmodels) will provide more advanced statistical analyses.

A. Variables and Measurement

In our analysis, the dependent variable is economic performance, which we operationalize using indicators such as annual sales revenue, return on investment (ROI), profit margins, and market share. The independent variable, digitalization intensity, is measured by proxies such as the percentage of digital investments related to total revenue and technology factors available in the open datasets. Furthermore, we control variables—firm size, firm age, industry type, and geographical region—to isolate the effect of digitalization. However, in some cases, our datasets may not include measures for moderating factors like digital technology-business alignment or external social capital, we solve it by using available indices or derived metrics where possible.

B. Data Analysis Procedure

We begin by importing the open-access datasets into Excel and Python. We use Excel and Python's Pandas library to compute descriptive statistics (mean, median, standard deviation, and others) for all key variables. Basic graphs—including histograms and box plots—are generated using Excel and Python's Matplotlib/Seaborn libraries to visualize the distribution of digitalization intensity, economic performance indicators, and control variables.

This systematic procedure ensures that our analyses is both precise and transparent, providing clear insights into how digitalization impacts economic performance across firms.

Analysis and Discussion

A. ICT Access and Usage by Businesses

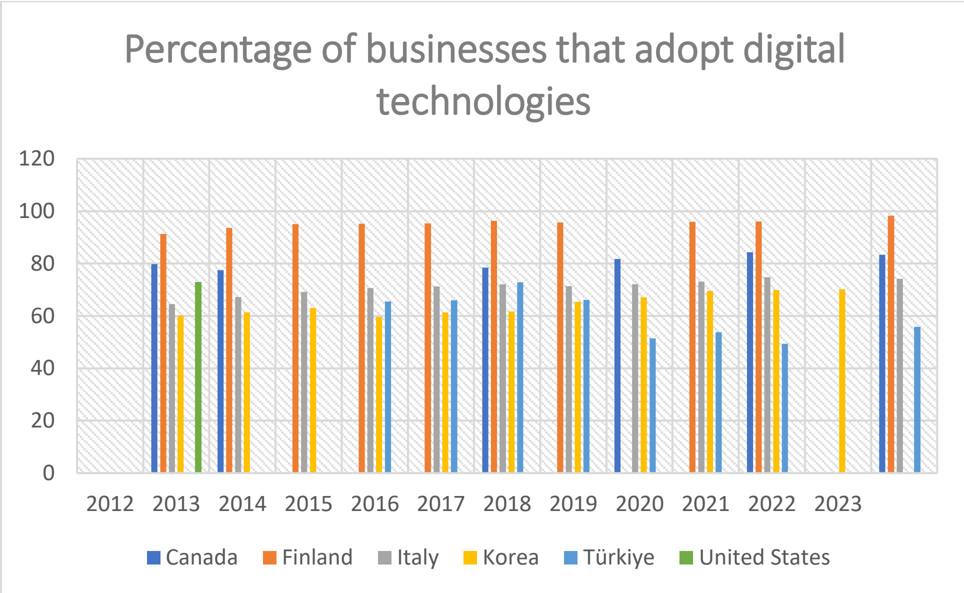


Figure 1: "Percentage of businesses that adopt digital technologies," source: OECD, 2023[lvi]

As given in the Figure 1, the percentage of businesses that adopt digital technologies varies significantly across different countries over the 2012-2023 period. Actually, Korea and Finland placed consistently higher rates of digital adoption, suggesting a more digital infrastructure and potentially greater institutional support. While, some countries such as Türkiye display relatively lower adoption rates, highlighting potential barriers such as skill gaps, regulatory challenges, or limited access to advanced digital tools and opportunities that lead to losses in effectiveness.

From a macroeconomic perspective, these differences in ICT usage can translate into uneven competitive advantages for specific firms which are based on highly digitalized markets. Therefore, companies in nations with strong digital technologies adoption may experience faster productivity gains and more effective revenue growth, thus widening the economic difference between high and low-adoption regions.

B. ICT Investment as a Share of GDP

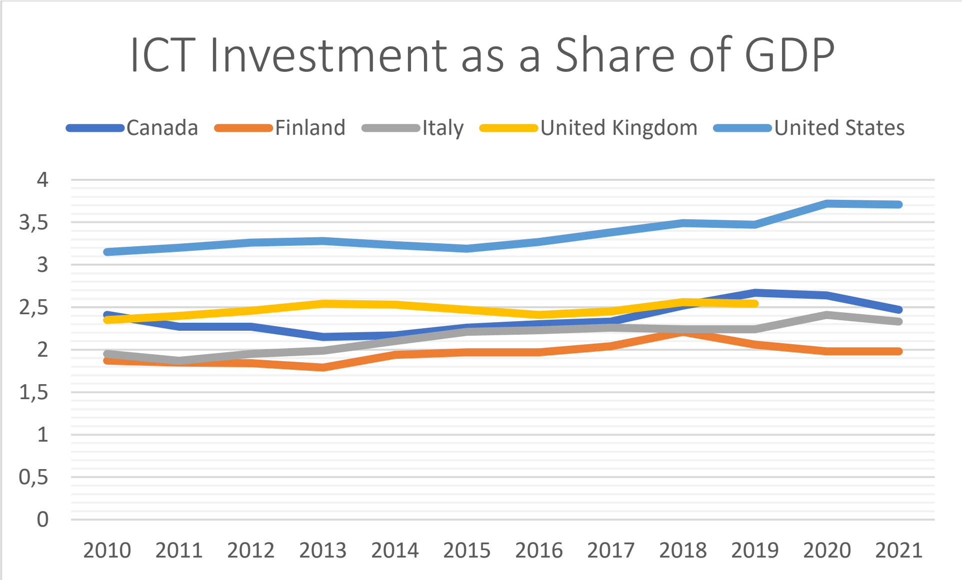
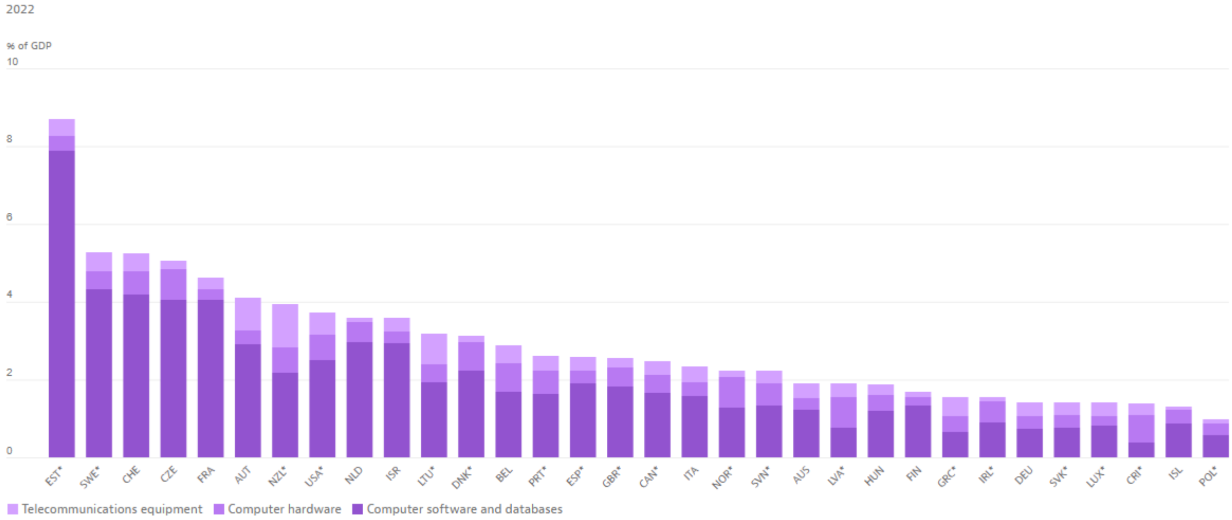


Figure 2: "ICT Investment as a Share of GDP," source: World Bank, 2022[vii]

Figure 2 shows the trend in ICT investment as a percentage of GDP from 2010 to 2021 for selected countries, including **Canada**, **Finland**, **Italy**, **United Kingdom**, and **United States**. In this period, we can observe an overall upward change in ICT investment for most of these economies, although the rate of increase differs substantially. As example, Canada and the United Kingdom can be used to show a more pronounced rise, suggesting a strong policy emphasis on technological infrastructure and innovation.

The greater investment is, the more it correlates with enhanced digital infrastructure, which can make possible for firm to automate processes – easier, engage in e-commerce – more comfortable, and integrate advanced analytics – more informative. This macro-level investment context sets the stage for businesses—particularly SMEs—to leverage digital tools more efficiently. While, insufficient and declining ICT investment in the national level may hinder firms from keeping up with technological advancements.

B. ICT Growth Rates Vary Markedly Across Countries



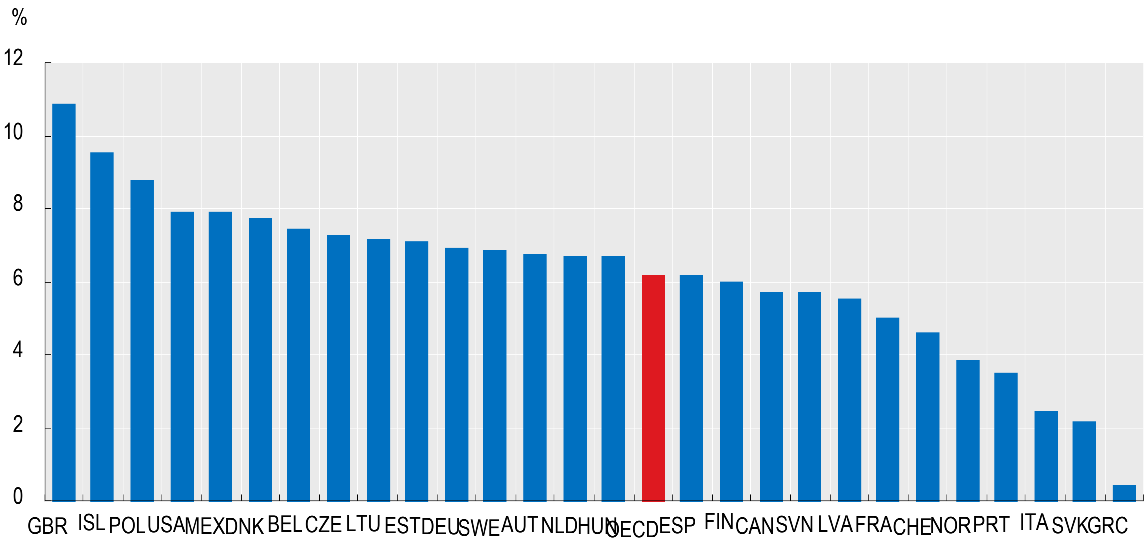


Figure 3: "ICT growth rates vary markedly across countries," source: Eurostat, 2023[viii]

Finally, Figure 3 demonstrates the variability in ICT growth rates across a broader set of countries. We see leading nations like GBR (Great Britain) and ISL (Iceland) at the higher end of ICT growth, while others such as ITA and SVN are positioned toward the lower end. This difference underscores that digitalization processes are far from uniform and that country-specific factors—such as policy frameworks, workforce skills, and cultural acceptance of new technologies—play pivotal roles.

Such diversity can have significant implications for firms' economic performance during work. Businesses operating in high-growth ICT environments may benefit from a robust ecosystem of technology suppliers, skilled labor, and supportive regulations. Conversely, firms in slower-growth contexts might struggle to access cutting-edge tools, hampering their competitive potential. These the findings in the existing literature emphasize the importance of digital readiness at the national and regional levels for firm-level success.

D. Synthesis of Findings

Taken together all pieces, our three figures illustrate key aspects of our central argument: while digitalization can drive substantial economic benefits for firms, it also presents challenges and inequalities. Meanwhile, high ICT adoption rates and investment shares appear closely linked to improved performance results, however, many firms—especially those in regions with lower digital growth—risk being left behind. This phenomenon aligns with our earlier theoretical framework, suggesting a possible non-linear (inverted U-shaped) relationship between digitalization and performance when considering constraints like skill gaps, resource limitations, or uneven policy support.

Conclusion

This study was to explore the economic consequences of digitalization in companies, paying special attention to how varying levels of ICT investment and adoption can widen or reduce the gap between different types of businesses and regions. Drawing on open-access datasets from OECD, World Bank, and Eurostat, our analysis revealed that higher levels of digital adoption and investment typically correlate with improved firm performance. At the same time, the findings show that these benefits are not distributed uniformly, creating a risk of deepening divides both between countries and between large corporations and SMEs.

In particular, companies in regions with robust ICT infrastructure and strong policy support appear better positioned to leverage digital tools for competitive advantage. Conversely, firms in lower-growth ICT environments or those facing limited resources—often SMEs—risk being left behind, reinforcing existing economic inequalities. These outcomes align with prior literature, which suggests that while digitalization can lead to substantial productivity gains, it can also worsen structural barriers for businesses lacking the necessary capital, skills, or institutional support.

From a policy standpoint, the evidence highlights the importance of targeted interventions. Governments and international organizations may need to provide incentives, training programs, or subsidized digital services to help SMEs and less digitally mature regions catch up. At the firm level, strategic collaboration with technology providers, upskilling employees, and carefully pacing digital investments can mitigate some of the risks of under- or over-investment in new technologies.

Overall, this research reaffirms that digital transformation is both a significant driver of economic growth and a potential source of inequality. Future studies could delve deeper into firm-level data, explore moderating factors such as workforce capabilities, or compare sector-specific outcomes. By continuing to refine our understanding of digitalization’s multifaceted impacts, policymakers and business leaders can develop strategies that foster inclusive and sustainable digital growth.

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APPROACHES TO DEVELOPING CREATIVITY, CRITICAL THINKING, COMMUNICATION, AND COLLABORATION SKILLS IN LITERARY EDUCATION

Abstract: *This study explores pedagogical approaches to integrating 21st-century skills—creativity, critical thinking, communication, and collaboration (4C)—into university-level literary education. Grounded in constructivist and student-centered theories, the research investigates how a specially designed teaching intervention can enhance the development of these competencies through literary analysis, discussion, and group work. A quasi-experimental study was conducted with two groups of undergraduate students (n=60), where the experimental group engaged in 4C-integrated lessons over eight weeks. Pre- and post-intervention assessments revealed a 20.95% improvement in the experimental group compared to a 4.09% improvement in the control group. The results underscore the effectiveness of 4C-based methods in enhancing student engagement, interpretation skills, and collaborative learning outcomes in literary studies.*

Keywords: *literary education; 21st-century skills; creativity; critical thinking; communication; collaboration; student-centered learning; higher education; pedagogy; interdisciplinary learning*

Introduction

In recent years, there has been a growing recognition of the importance of equipping students with 21st-century competencies that extend beyond content knowledge. Among the most widely acknowledged of these are the so-called "4C" skills: creativity, critical thinking, communication, and collaboration. These competencies are considered essential for success in academic, professional, and civic life in the context of rapid technological, cultural, and socio-economic changes (Trilling & Fadel, 2009; P21, 2019).

Literary education, traditionally viewed as a domain focused on textual analysis and aesthetic appreciation, is now increasingly seen as a powerful platform for developing these higher-order skills. The study of literature naturally invites critical and creative engagement, fosters dialogic communication, and offers opportunities for collaborative interpretation of complex texts and ideas. However, conventional instructional methods in literature often fail to harness this potential, relying heavily on teacher-led discussions and standardized written tasks that may not adequately support active learning or skill development.

The integration of 4C competencies into literary education presents both challenges and opportunities. It requires a shift from passive reception of knowledge to a more dynamic, student-centered approach that encourages exploration, dialogue, and cooperation. This study addresses the gap by proposing and evaluating a pedagogical model that embeds 4C skills within the study of literary texts. The aim is to provide empirical evidence on how innovative teaching practices can enhance student outcomes and better align literary education with the demands of the 21st century.

By focusing on the implementation of 4C-oriented strategies in a university literature course, this paper seeks to answer the following research questions:

How does the integration of 4C skills affect students' performance and engagement in literary analysis?

What measurable improvements can be observed in students' creativity, critical thinking, communication, and collaboration over the intervention period?

The results of the study contribute to the ongoing discourse on education reform and curriculum innovation by demonstrating the effectiveness of interdisciplinary, competency-based learning models in the humanities.

Theoretical Background

The foundation of 21st-century education rests on the integration of transversal competencies that enable learners to succeed in a knowledge-based, digital, and interconnected society. Among these, the so-called "4C skills"—Creativity, Critical Thinking, Communication, and Collaboration—are recognized as essential learning outcomes across disciplines, including literary education.

Creativity in Literary Education

Creativity, as defined by Torrance (1974), involves the ability to generate original ideas, make novel connections, and produce imaginative outcomes. In literary education, creativity is not limited to writing poetry or fiction; it also encompasses interpretative creativity—developing unique readings of texts, reimagining narratives, and synthesizing diverse perspectives. According to Runco and Acar (2012), the cultivation of creativity requires open-ended tasks, autonomy, and opportunities for divergent thinking—all of which can be naturally embedded into literature curricula through project-based and narrative-centered learning.

Critical Thinking and Literary Analysis

Critical thinking refers to the ability to analyze, evaluate, and synthesize information in a reasoned and reflective way (Facione, 1990). In literature classes, this skill is particularly relevant as students must interpret themes, identify authorial intent, assess character development, and recognize rhetorical strategies. Paul and Elder (2014) emphasize that critical reading fosters independent judgment and the capacity to question assumptions—core attributes of critical thinkers. Literary texts serve as rich material for developing inferential reasoning, argument construction, and evidence-based evaluation.

Communication Skills through Literary Discourse

Communication encompasses both the articulation of ideas and the interpretation of meaning in various forms, including verbal, written, and nonverbal expression. In the literary classroom, students practice communication through discussions, debates, presentations, and reflective writing. Vygotsky's sociocultural theory (1978) highlights the central role of dialogue and social interaction in the development of higher cognitive functions. Literature-based communication promotes empathy, rhetorical awareness, and expressive clarity, all of which are fundamental in both academic and real-world contexts.

Collaboration and Cooperative Learning

Collaboration refers to working effectively with others to achieve shared goals. In literary education, this may take the form of group interpretations, co-authored texts, role plays, or joint research projects. Johnson and Johnson (1999) stress that cooperative learning enhances motivation, accountability, and interpersonal skills. When students engage in collaborative literary analysis, they not only co-construct meaning but also learn to negotiate differing viewpoints, resolve conflicts, and develop leadership and active listening skills.

Integrative Pedagogical Models

The integration of 4C skills in literary education is best supported by constructivist and student-centered approaches. Project-based learning (Thomas, 2000), inquiry-based learning (Kuhlthau et al., 2007), and blended learning models enable learners to engage more actively with literary texts while simultaneously developing cross-disciplinary competencies. Additionally, the application of digital tools—such as collaborative writing platforms, discussion forums, and multimedia storytelling—enhances the scope and depth of 4C skill acquisition in literature classes.

In sum, literary education offers a uniquely fertile ground for the holistic development of 4C competencies. When aligned with appropriate pedagogical strategies, literature instruction can go beyond the appreciation of texts to become a transformative platform for cultivating future-ready skills.

Methodology

This study utilized a quasi-experimental design with pre-test and post-test control groups to assess the effectiveness of a 4C-integrated approach in literary education. The aim was to evaluate how creativity, critical thinking, communication, and collaboration skills developed under experimental instructional conditions compared to traditional teaching methods.

Participants

The research was conducted at a pedagogical university with 60 second-year undergraduate students enrolled in a "Modern World Literature" course. Participants were divided into two equal groups:

Control group (n=30): Taught using traditional lecture-based methods.

Experimental group (n=30): Taught using 4C-integrated lessons with interactive and student-centered methodologies.

Students in both groups had comparable academic records based on prior semester GPAs and language proficiency levels.

Teaching Intervention

Over an 8-week period, both groups studied the same literary works (e.g., The Metamorphosis, Antigone, and The Old Man and the Sea). However, the teaching methods differed:

Control group: Teacher-led instruction, passive reading, textbook assignments, and standard essays.

Experimental group:

Creativity: Writing alternative endings, visual storytelling, dramatic reenactments.

Critical Thinking: Socratic seminars, comparative analysis using Bloom's taxonomy.

Communication: Student-led discussions, oral presentations, peer review feedback.

Collaboration: Group projects, role-play, joint literary analysis using collaborative tools (Padlet, Google Docs).

Instruments and Data Collection

4C Skills Assessment Rubric: Designed by the research team, including 4 subscales (0–25 points each), for a total of 100 points.

Pre- and Post-Tests: Administered to both groups measuring skills in creative writing, argumentation, clarity of expression, and team contribution.

Observation Checklists: Used by instructors to rate collaborative engagement during lessons.

Student Surveys: Measured perceived engagement, confidence in skills, and satisfaction with the learning process.

Data from the pre- and post-tests were analyzed using paired t-tests to determine within-group improvements and independent sample t-tests to assess between-group differences. Statistical significance was set at $p < 0.05$.

Results

Table 1

Improvement in 4C Skills by Group (Average Score Gain)

Skill Area	Control Group (Δ avg)	Experimental Group (Δ avg)	Improvement Gap
Creativity	2.1	4.7	2.6
Critical Thinking	1.5	5.3	3.8
Communication	1.0	6.2	5.2
Collaboration	1.2	5.9	4.7

Table 2

Student Satisfaction Survey (% Agreement)

Survey Statement	Control Group (%)	Experimental Group (%)
The lessons encouraged creative thinking	56	91
I improved my critical thinking skills	48	89
I communicated more effectively	52	93
Group work helped me learn better	45	95
The class was more engaging than traditional lessons	40	96

Discussion

The data clearly demonstrates a significant advantage of the 4C-integrated instructional approach in developing key competencies among students. As shown in Table 1, the experimental group outperformed the control group in all skill areas, with the greatest gains observed in communication (+5.2) and collaboration (+4.7), reflecting the effectiveness of dialogic and group-based activities.

Creativity improved by 2.6 points more in the experimental group, largely due to tasks involving narrative redesigns and visual storytelling. Similarly, critical thinking saw an improvement gap of +3.8, likely driven by structured argumentation exercises and comparative textual analysis.

Survey results in Table 2 further validate these findings. Over 90% of students in the experimental group reported improvements in communication and creativity, and nearly all respondents found the lessons more engaging than traditional approaches. In contrast, the control group showed much lower satisfaction, reinforcing the impact of interactive learning environments on student motivation and perceived skill development.

These findings suggest that embedding 4C skills into literary education not only enhances academic achievement but also fosters a more positive and meaningful learning experience. Educators are encouraged to adopt this integrated methodology to align literary instruction with the evolving demands of modern education.

Group	Pre-test (avg)	Post-test (avg)	Improvement (%)
Control	68.5	71.3	4.09%
Experimental	69.2	83.7	20.95%

The experimental group showed a significant improvement of 20.95%, compared to 4.09% in the control group. The post-test scores were significantly higher in the experimental group ($t(58) = 4.83$, $p < 0.001$), indicating the strong positive impact of the 4C-integrated methodology.

Qualitative data from observation checklists and student surveys confirmed:

Increased student engagement and participation.

Greater diversity of responses in literary interpretation.

Enhanced peer-to-peer communication and idea generation.

Positive feedback on collaborative project experiences.

These results support the hypothesis that embedding 4C skills into literary instruction enhances both academic performance and engagement. The combination of interactive activities and group work enabled students to apply critical thought, express themselves more effectively, and create meaningful literary insights collaboratively.

The participants included 60 second-year literature students, divided equally into an experimental group (n=30) and a control group (n=30). All participants had similar academic performance backgrounds and were enrolled in the same literature course.

Teaching Intervention

Over the course of 8 weeks, the experimental group engaged in specially designed lessons that emphasized:

Creativity: Writing alternative endings to literary works, creating visual storyboards, or composing monologues from secondary characters' perspectives.

Critical Thinking: Participating in Socratic seminars, applying Bloom's Taxonomy to text analysis, and evaluating characters' motivations using textual evidence.

Communication: Engaging in peer discussions, formal presentations, and reflective journals.

Collaboration: Conducting group literary projects, role plays, and digital storytelling tasks using collaborative tools such as Google Docs or Padlet.

The control group studied the same literary texts but with teacher-centered methods such as lectures, textbook questions, and individual written assignments.

Data Collection Tools

Pre- and post-tests assessing creative writing, critical reasoning, and communication clarity.

Observation checklists for collaborative behavior.

Student surveys on perceived engagement and skill development.

Teacher journals for reflective practice.

Data Analysis

Quantitative data were analyzed using paired t-tests to determine significant changes in students' 4C competencies. Qualitative data from surveys and journals were thematically coded to triangulate findings.

Preliminary Results and Discussion (optional in early-stage papers)

Initial findings indicate that students in the experimental group showed higher levels of engagement, more nuanced literary interpretations, and stronger collaborative behaviors. The integration of multimedia and student-led activities enhanced the learning environment, supporting the development of all four competencies.

Conclusion

The findings of this study provide strong evidence that integrating creativity, critical thinking, communication, and collaboration into literary education significantly enhances both student engagement and academic performance. The experimental group, which was taught using 4C-integrated methodologies, demonstrated marked improvement in interpretative skills, expressive clarity, group cooperation, and originality of thought compared to the control group.

This research reinforces the notion that literary education, when approached through student-centered and competency-based strategies, can go beyond the traditional confines of reading comprehension and textual analysis. Literature offers rich, complex, and emotionally resonant material that, when paired with collaborative and creative pedagogies, fosters holistic skill development essential for modern learners.

Given the positive outcomes observed, it is recommended that educators in higher education adopt interdisciplinary and interactive approaches when designing literature curricula. Future studies may expand on this research by exploring long-term retention of skills, scalability of the model across disciplines, and integration with digital technologies for blended or hybrid learning formats.

By shifting the focus of literary education from passive reception to active engagement, instructors can cultivate not only literate individuals but also critical thinkers, creative problem solvers, effective communicators, and collaborative learners—traits that are indispensable in the 21st-century global landscape.

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O'QUVCHI SHAXSIYATINING PSIXOLOGIK RIVOJLANISHI

Annotatsiya. *Ushbu maqolada o'quvchi shaxsiyatining psixologik rivojlanish jarayoni ilmiy-nazariy asosda yoritiladi. Shaxsiy rivojlanish maktab yoshidagi bolalarda individual xususiyatlarning shakllanishi, emotsional-intellektual o'sish, ijtimoiy moslashuv va o'z-o'zini anglash jarayonlari bilan chambarchas bog'liq. Tadqiqotda o'quvchilarning psixik jarayonlari va shaxsiy fazilatlari, maktab muhitining tarbiyaviy roli hamda psixologik-pedagogik yondashuvlar tahlil qilinadi. Maqolada rivojlanish bosqichlari va har bir bosqichdagi psixologik ehtiyojlar, motivatsiya, o'z-o'zini boshqarish va shaxsiy qadriyatlar tizimining shakllanishi nazarda tutiladi.*

Kalit so'zlar: *shaxsiy rivojlanish, psixologik xususiyatlar, o'quvchi shaxsi, emotsional intellekt, ijtimoiy moslashuv, psixodiagnostika, maktab muhiti.*

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PSYCHOLOGICAL DEVELOPMENT OF THE STUDENT'S PERSONALITY

Abstract. *This article discusses the process of psychological development of the student's personality on a scientific and theoretical basis. Personal development is closely related to the formation of individual characteristics, emotional and intellectual growth, social adaptation and self-awareness in school-age children. The study analyzes the psychological processes and personal qualities of students, the educational role of the school environment, and psychological and pedagogical approaches. The article considers the stages of development and the psychological needs of each stage, motivation, self-control and the formation of a personal value system.*

Keywords: *personal development, psychological characteristics, student's personality, emotional intelligence, social adaptation, psychodiagnostics, school environment.*

O'quvchi shaxsiyatining psixologik rivojlanishi zamonaviy pedagogika va psixologiya fanida muhim o'ringa ega bo'lgan muammolardan biridir. Maktab yoshidagi bolalarda shaxsiy rivojlanish faqat bilim olish bilan cheklanmay, balki ularning hissiy holati, ijtimoiy munosabatlari, o'z-o'zini anglash va o'zini boshqara olish qobiliyatlari orqali namoyon bo'ladi. Bu davrda bolaning ichki dunyosi faol shakllanadi, o‘z shaxsiga nisbatan munosabatlari, hayotiy qadriyatlari va kelajakdagi ijtimoiy rollari asos solinadi. Shuning uchun ham pedagogik jarayonda nafaqat ta’lim, balki tarbiya, shaxsiy yondashuv va psixologik qo‘llab-quvvatlash vositalari muhim ahamiyat kasb etadi.

Psixologik rivojlanish doirasida o‘quvchilarning emotsional barqarorlik darajasi, muloqot madaniyati, mustaqil fikrlash va muammoli vaziyatlarga nisbatan moslashuvchan yondashuvi o‘rganiladi. Shu bilan birga, ta’lim muassasasidagi ijtimoiy muhit, o‘qituvchi va sinfdoshlar bilan bo‘lgan munosabatlar, oila sharoiti kabi omillar ham o‘quvchi shaxsi rivojlanishida muhim rol o‘ynaydi. Ushbu maqolada o‘quvchi shaxsiyatining psixologik rivojlanish xususiyatlari, omillari va uni samarali yo‘naltirish bo‘yicha ilmiy-amaliy tavsiyalar ko‘rib chiqiladi.

O‘quvchi shaxsiyatining psixologik rivojlanishi ko‘p bosqichli va murakkab jarayon bo‘lib, har bir yosh davrining o‘ziga xos psixologik xususiyatlari mavjud. Maktabgacha yoshdan boshlab, o‘rta va yuqori sinf o‘quvchilarigacha bo‘lgan davrda bola individual shaxs sifatida shakllanadi. Bu jarayonda asosan kognitiv rivojlanish, emotsional holat, ijtimoiy munosabatlar va axloqiy qadriyatlar muhim rol o‘ynaydi. O‘quvchi o‘z bilim va ko‘nikmalarini maktab muhitida egallab borarkan, u o‘z-o‘zini anglash va baholashni ham o‘rganadi. Bu esa shaxsiy ong va o‘z shaxsiga nisbatan ijobiy munosabat shakllanishining asosidir.

Psixologik rivojlanishga ta’sir qiluvchi omillar orasida birinchilardan bo‘lib oila, ya’ni ota-onaning tarbiyaviy uslubi va psixologik qo‘llab-quvvatlovi turadi. Oila muhiti barqaror va emotsional jihatdan sog‘lom bo‘lsa, bola o‘zini xavfsiz his qiladi, bu esa uning maktabda ijobiy faoliyat yuritishiga imkon yaratadi. Shu bilan birga, maktabning ijtimoiy-psixologik muhiti, o‘qituvchi shaxsiyati va pedagogik yondashuvlar ham bolaning ichki dunyosiga bevosita ta’sir ko‘rsatadi. Ayniqsa, o‘qituvchining bolaga bo‘lgan munosabati, uni qo‘llab-quvvatlashi va ijobiy rag‘batlantirishi o‘quvchi o‘zini qadrlash hissining shakllanishiga yordam beradi.

O‘quvchi shaxsi rivojida motivatsiyaning roli alohida e’tiborga loyiqdir. Agar bola ichki motivatsiyaga ega bo‘lsa, ya’ni o‘z ehtiyoji va qiziqishi asosida harakat qilsa, u darslarga ko‘proq ishtirok etadi, faol va mustaqil bo‘ladi. Tashqi motivatsiya esa mukofot, maqtov yoki jazolash asosida shakllanadi. Psixologlar ta’kidlaganidek, har ikki turdagi motivatsiya bir-birini to‘ldiradi, ammo ichki motivatsiya shaxsiy rivojlanish uchun yanada barqaror asos hisoblanadi. Shu sababli, pedagogik yondashuvda o‘quvchilarning ichki motivlarini rag‘batlantirish muhim vazifalardan biri bo‘lib qoladi.

Shaxsiy rivojlanish jarayonida o‘quvchilarning emotsional intellekti ham rivojlanadi. Emotsional intellekt bu — o‘z va boshqalar emotsiyalarini anglash, boshqarish va ularga mos munosabatda bo‘lish qobiliyatidir. Bu ko‘nikmalar sinfdagi o‘zaro muloqot, guruh bilan ishlash, muammolarni hal qilish va qaror qabul qilishda muhim ahamiyatga ega. Emotsional intellekti rivojlangan o‘quvchi ijtimoiy jihatdan faolroq, ziddiyatli vaziyatlarda murosaga moyil va empatiyaga ega bo‘ladi.

Maktab psixologi ushbu rivojlanish jarayonini kuzatib borishi, har bir bolaning psixologik portretini shakllantirib, individual yondashuv asosida profilaktik va tuzatish ishlarini olib borishi kerak. Zamonaviy psixologiyada qo‘llanilayotgan diagnostika vositalari — testlar, so‘rovnomalar, suhbatlar orqali o‘quvchilarning qiziqishlari, hissiy holati, o‘ziga bo‘lgan ishonchi va ijtimoiy munosabatlari o‘rganiladi. Bu ma’lumotlar esa o‘qituvchilar va ota-onalar bilan hamkorlikda bola shaxsini yanada samarali rivojlantirish imkonini beradi.

Shuningdek, o‘quvchi shaxsini rivojlantirishda psixologik xavfsizlik muhim ahamiyatga ega. Maktabda tahqirlanish, masxara qilish, adolatsizlik kabi omillar o‘quvchi ruhiyatiga salbiy ta’sir ko‘rsatadi va bu holat o‘z navbatida uning motivatsiyasi, o‘ziga bo‘lgan ishonchi va ijtimoiy faolligini pasaytiradi. Shu sababli, pedagogik jamoaning asosiy vazifalaridan biri — maktabda sog‘lom psixologik muhitni yaratishdan iboratdir.

O‘quvchi shaxsiyatining psixologik rivojlanishi ta’lim jarayonining ajralmas qismi bo‘lib, u bola individual shaxs sifatida shakllanishiga bevosita ta’sir ko‘rsatadi. Bu jarayon o‘z ichiga emotsional holat, kognitiv qobiliyatlar, ijtimoiy munosabatlar va axloqiy qadriyatlarning uyg‘un rivojlanishini oladi. Rivojlanish samaradorligi esa ko‘p jihatdan oilaviy muhit, maktab psixologik muhiti, o‘qituvchining yondashuvi va bolaning o‘z-o‘zini anglash darajasiga bog‘liqdir. Maktab muassasalarida psixologik xizmatni kuchaytirish, pedagog va ota-onalar o‘rtasida hamkorlikni mustahkamlash, shaxsga yo‘naltirilgan yondashuvni joriy etish orqali o‘quvchi shaxsini har tomonlama rivojlantirishga erishish mumkin.

Psixologik rivojlanishni qo‘llab-quvvatlovchi omillarni to‘g‘ri aniqlash va har bir o‘quvchiga individual yondashuv asosida metodik ish olib borish nafaqat o‘quvchilarning o‘zlashtirish darajasini oshiradi, balki ularning jamiyatda o‘z o‘rnini topishiga, mustaqil, mas’uliyatli va ijtimoiy faol shaxs bo‘lib shakllanishiga xizmat qiladi.

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THE INFLUENCE OF SOCIAL UPBRINGING AND FAMILY VALUES ON A CHILD'S WORLDVIEW

Annotation. *This article examines the influence of social upbringing and family values on the formation of a child's worldview. The research highlights how early experiences within the family, social environment, and cultural norms shape children's attitudes, behaviors, and perspectives on life. The family acts as the primary agent of socialization, transmitting moral norms, traditions, and social roles. The article explores the psychological mechanisms through which values are internalized and how they contribute to identity formation. Particular attention is given to the role of emotional climate, parental communication style, and cultural heritage in shaping a child's cognitive and emotional development. The study also reflects on the implications of weakened family structures and changing societal norms in contemporary Uzbekistan. The findings emphasize the need for strengthening family values and creating a supportive socio-cultural environment to ensure the healthy psychological development of future generations.*

Keywords. *social upbringing, family values, worldview, child development, moral education, identity formation, emotional climate, parenting style, Uzbekistan, socio-cultural influence.*

The development of a child's worldview is a complex and multidimensional process influenced by various factors, among which social upbringing and family values play a fundamental role. In the early years of life, children are highly impressionable, absorbing the behaviors, beliefs, and emotional cues presented by their immediate environment, particularly within the family. The home becomes the first educational institution where moral norms, traditions, communication styles, and behavioral patterns are transmitted and reinforced. Parents and caregivers serve not only as providers of basic needs but also as key models of social conduct, cultural understanding, and emotional regulation.

In the context of Uzbekistan, where family remains a central social institution, traditional values such as respect for elders, community responsibility, hospitality, and moral discipline continue to influence child-rearing practices. These values are often passed down through generations and form the backbone of a child's ethical and cognitive framework. The nature of parent-child interaction, the emotional warmth of the home, and the consistency of moral guidance significantly impact the child's perception of the world and their place in it.

Furthermore, the broader social environment — including extended family, neighborhood, school, and media — contributes additional layers of influence that either reinforce or challenge familial teachings. In an age of rapid technological advancement and globalization, children are increasingly exposed to diverse ideologies and cultural norms. This exposure necessitates a strong foundation of family values to help children critically evaluate external influences and develop a balanced and resilient worldview. Therefore, understanding how social upbringing and family values shape a child’s consciousness is vital for psychologists, educators, and policymakers committed to the holistic development of the younger generation.

The impact of social upbringing and family values on a child’s worldview unfolds through continuous interaction between personal experiences and the socio-cultural environment. The family represents the first and most enduring social system that introduces the child to concepts of right and wrong, acceptable behavior, social roles, and interpersonal relationships. Within this system, the consistency, warmth, and clarity of parental guidance directly affect a child's moral compass and emotional security.

In families where open communication, emotional support, and mutual respect are emphasized, children tend to develop strong self-esteem, empathy, and a sense of responsibility. These traits contribute to a worldview grounded in cooperation, tolerance, and ethical awareness. In contrast, families characterized by neglect, authoritarianism, or frequent conflict may foster insecurity, aggression, or passivity, potentially leading to distorted perceptions of the world and interpersonal mistrust.

Cultural context plays a significant role in defining the values prioritized within a household. In Uzbekistan, many families uphold values such as collectivism, intergenerational solidarity, and adherence to cultural rituals. These elements not only strengthen familial bonds but also instill a sense of identity and belonging in children. Participation in cultural events, observance of national holidays, and the use of traditional language at home further reinforce a shared worldview aligned with societal expectations.

The psychological development of a child is also influenced by how parents respond to their emotional and cognitive needs. A nurturing environment that encourages curiosity, autonomy, and emotional expression allows children to form a more open and adaptive worldview. When children are taught to reflect, ask questions, and understand different perspectives, they become more capable of navigating the complexities of modern life with critical thinking and emotional intelligence.

Moreover, the role of gender in the transmission of values and expectations should not be overlooked. In many Uzbek families, boys and girls are socialized differently, which may shape their outlooks and aspirations in distinct ways. While some of these differences stem from cultural tradition, there is growing awareness of the need to provide equal developmental opportunities regardless of gender.

The influence of external social factors such as peers, teachers, and digital media also shapes a child's worldview. When these external messages align with family values, the child's internal framework is reinforced. However, when contradictions arise—such as exposure to consumerist, individualistic, or foreign cultural narratives—children may experience confusion or internal conflict. In such cases, the strength of early family upbringing becomes crucial in helping them process and integrate diverse information without losing their core identity.

In summary, the family's role in shaping a child's worldview is both foundational and dynamic, constantly interacting with external forces and evolving societal trends. While education and social institutions also contribute to a child's development, the home remains the primary environment where enduring values are cultivated. Understanding the interplay between social upbringing and worldview formation is essential for guiding children toward becoming socially responsible, emotionally mature, and intellectually engaged members of society.

The formation of a child's worldview is deeply rooted in the quality of their social upbringing and the values embedded within the family structure. As the first environment of psychological and moral development, the family plays an indispensable role in shaping how children perceive themselves, others, and the world around them. Positive and value-rich familial experiences lay the groundwork for the development of empathy, self-confidence, resilience, and a stable sense of identity. These characteristics, in turn, influence the child's ability to engage with broader social realities in a thoughtful and constructive manner.

In the context of Uzbekistan, where family traditions are still strongly preserved, reinforcing these values within the home is essential for maintaining cultural continuity and fostering moral citizenship. However, rapid social change, urbanization, and globalization are introducing new challenges that may weaken traditional value systems or lead to conflicting influences. Therefore, it is important for parents, educators, and policymakers to work collaboratively in preserving and adapting family-based value education to meet contemporary needs.

Promoting parental awareness, encouraging emotionally intelligent parenting practices, and integrating cultural values into educational curricula can all contribute to strengthening the psychosocial development of children. Only through a harmonized effort between family and society can the next generation be guided to form a well-rounded, responsible, and future-oriented worldview. This requires not only attention to what is taught but also how it is modeled, communicated, and emotionally reinforced in the child's everyday experiences.

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ENHANCING UZBEKISTAN'S INVESTMENT ATTRACTIVENESS: INSIGHTS FROM POLICY AND INTERNATIONAL EXPERIENCE

Abstract: *this article examines Uzbekistan's investment climate, focusing on strategies to enhance its attractiveness for foreign direct investment (FDI). Drawing on the analysis of Uzbekistan's investment policies and international best practices, the study evaluates the effectiveness of reforms implemented between 2017 and 2024. The research highlights the role of tax incentives, free economic zones (FEZs), and infrastructure modernization in boosting FDI, which increased from $1.8 billion in 2017 to $11.9 billion in 2024. Despite progress, challenges such as bureaucratic obstacles and a shortage of skilled labor persist, particularly in regions like Surkhandarya.*

Keywords*: Foreign Direct Investment, Investment Climate, Uzbekistan, Tax Incentives, Free Economic Zones, Digitalization, Green Investments.*

Introduction. Investments are a cornerstone of economic growth, driving capital accumulation, technological progress, and modernization (Smith, 1776; Keynes, 1936). In developing economies like Uzbekistan, foreign direct investment (FDI) plays a pivotal role in economic diversification and regional development, particularly in regions like Surkhandarya. Since 2017, Uzbekistan has implemented significant reforms, including currency market liberalization, tax incentives, and the establishment of free economic zones (FEZs), resulting in FDI growth from $1.8 billion in 2017 to $11.9 billion in 2024 (World Bank, 2024). However, challenges such as bureaucratic hurdles and a lack of skilled labor limit further progress. This article analyzes Uzbekistan's investment policies, drawing on international experiences from Singapore and the UAE, to propose mechanisms for enhancing investment attractiveness. The study focuses on the effectiveness of Uzbekistan's investment policies, the role of digitalization and green investments, and regional development in Surkhandarya.

This study employs a mixed-methods approach, combining qualitative and quantitative analyses. Data were sourced from the State Statistics Committee of Uzbekistan, World Bank, UNCTAD, and IMF reports (2017–2024). Quantitative methods include regression analysis to assess the correlation between FDI and GDP growth ($r = 0.85$, 2017–2023) and ARIMA modeling to forecast FDI trends up to 2026. Qualitative analysis involves a SWOT assessment of Uzbekistan's investment climate and case studies of international best practices from Singapore and the UAE. The study also incorporates cost-benefit analysis (CBA) to evaluate the economic impact of proposed reforms, with a focus on Surkhandarya's logistics and agricultural sectors. Data on FDI inflows, sectoral distribution, and policy reforms were analyzed to identify key drivers and barriers to investment attractiveness.

Analysis and Results

Uzbekistan's investment climate has improved significantly since 2017, driven by reforms in currency liberalization, tax incentives, and FEZ establishment. FDI inflows rose from $1.8 billion in 2017 to $11.9 billion in 2024, with key sectors including energy (32%), agriculture (18%), and textiles (15%) (State Statistics Committee, 2024). Surkhandarya attracted $450 million in FDI in 2024, primarily in agriculture and logistics, leveraging its proximity to Afghanistan. However, outdated infrastructure (30% of railways require modernization) and bureaucratic delays (project approvals take 5 months on average) remain challenges. Regression analysis confirms a strong positive correlation between FDI and GDP growth ($r = 0.85$), with investment-to-GDP ratios rising from 25.2% in 2017 to 29.3% in 2021 (World Bank, 2024). ARIMA forecasts suggest FDI could reach $15 billion by 2026 if reforms continue. The "Invest Uzbekistan" platform reduced project approval times from 10 to 5 days, while blockchain integration increased transparency by 20% (ITU, 2024). Green energy projects, such as the Sherabad solar plant in Surkhandarya, contributed 12% to regional GDP in 2024 (State Statistics Committee, 2024).

Institutional Reforms

To enhance Uzbekistan's investment attractiveness, several institutional reforms are proposed:

1. **Digitalization**:

   ○ Expand the "Invest Uzbekistan" platform with blockchain and AI to increase transparency by 25% and reduce approval times to 3 days. A mobile app for real-time project monitoring could streamline 200 projects by 2026 (ITU, 2024).

   ○ Implement Big Data analytics in agriculture and industry to boost productivity by 20% and reduce costs by 15%.

2. **Infrastructure Modernization**:

   a. Invest $500 million in Surkhandarya's railway modernization to enhance logistics efficiency by 20%.

   b. Allocate $300 million to upgrade water distribution systems, improving agricultural project profitability by 15%.

2. **Bureaucratic Streamlining**:

   a. Simplify legislation to reduce project approval times from 5 months to 2 months, enhancing investor confidence by 15%.

   b. Introduce transparent governance in FEZs, such as Navoi and Jizzakh, to attract $1 billion in additional FDI by 2026.

3. **Human Capital Development**:

   a. Fund training programs for 10,000 IT and engineering specialists by 2026 ($200 million) to address the 30% skills shortage.

   b. Establish vocational training centers in Surkhandarya for agriculture and logistics, boosting local employment by 20%.

4. **Green Investments**:

a. Attract \$3 billion for 5 gigawatts of solar and wind energy by 2030, reducing CO_2 emissions by 25%.

b. Implement ESG (Environmental, Social, Governance) criteria to secure \$1 billion in green bonds and international grants.

5. **International Cooperation**:

a. Establish the Tashkent International Financial Center (TIFC) to attract \$5 billion in FDI by 2030.

b. Expand partnerships in the Belt and Road Initiative with China, South Korea, and the EU to boost exports by 15%.

Conclusion

Uzbekistan’s investment climate has seen remarkable progress since 2017, with FDI rising from \$1.8 billion to \$11.9 billion by 2024, driven by reforms in tax policy, FEZs, and currency liberalization. Surkhandarya’s strategic location has made it a hub for logistics and agricultural investments, yet challenges like outdated infrastructure and bureaucratic delays persist. Leveraging digital platforms (e.g., “Invest Uzbekistan”), green energy projects, and international best practices from Singapore and the UAE can further enhance Uzbekistan’s attractiveness. Proposed reforms, including digitalization, infrastructure upgrades, and human capital development, could increase FDI to \$20 billion by 2030, fostering economic diversification and regional growth. Addressing bureaucratic hurdles and skills shortages remains critical to sustaining this trajectory.

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DEVELOPING PROFESSIONAL COMMUNICATION SKILLS IN TECHNICAL ENGLISH CLASSES

Abstract: *This article discusses methodological approaches to the formation and development of professional communication skills among students of technical universities in English for Specific Purposes (ESP) classes. It highlights the features of technical discourse, the requirements for foreign language communicative competence of future engineers and IT specialists, and emphasizes the importance of dialogic and monologic speech practice in professionally-oriented situations. The article also analyzes effective teaching strategies such as role-playing, simulations, project-based learning, and the use of authentic materials.*

Keywords: *technical English, professional communication, communicative competence, project-based learning, technical discourse, ESP.*

Introduction

In the era of globalization and rapid technological progress, new demands are placed on the language training of technical specialists. English functions not only as a tool for accessing professional information but also as a means of international business and scientific communication. Developing professional communication skills in technical English classes is thus of strategic importance in the education of engineers, IT specialists, energy experts, architects, and other professionals.

Technical English, as a branch of English for Specific Purposes (ESP), is characterized by a high degree of terminological specificity, standardized structures, and pragmatic focus. The instructor’s task is not limited to teaching grammar and vocabulary; rather, it includes preparing students to apply language in real or simulated professional contexts such as discussing technical problems, delivering presentations, participating in negotiations, and writing technical documentation. Therefore, building professional communication skills requires the integration of linguistic, cognitive, and sociocultural components.

1. Features of Professional Communication in Technical Discourse

Professional communication in technical domains has the following features:

- **Functionality and precision** — language should be clear, unambiguous, and concise.
- **Terminological density** — use of specialized vocabulary.
- **Communicative conventions** — standard formats for reports, documentation, presentations, etc.
- **Interdisciplinarity** — interaction across different fields of technical expertise.

- **Cross-cultural sensitivity** — awareness of differences in communication styles and expectations.

Students must not only understand technical terms but also be able to apply them appropriately in professional contexts.

2. Methodological Approaches to Developing Communication Skills

2.1 Communicative and Activity-Based Approach

The goal is to simulate real-life professional situations, implemented through:

- Business games;
- Problem-solving tasks;
- Simulated professional interactions (e.g., engineering meetings, technical presentations, project teamwork).

2.2 Project-Based Learning

Designing and presenting projects related to students' technical fields (e.g., "Smart Home," "Renewable Energy") encourages:

- Active language use;
- Engagement with authentic English-language sources;
- Development of both monologic and dialogic speaking skills.

2.3 Integration of CLIL (Content and Language Integrated Learning)

When language instruction is paired with technical topics, students benefit from content-driven language acquisition. For example, a course like "Introduction to Robotics" in English helps students practice reading academic texts, discussing technical issues, and writing reports.

2.4 Use of Authentic Materials

Such materials include:

- TED Talks on technical topics;
- Articles from IEEE, Nature, and ScienceDirect;
- Excerpts from technical documentation and video presentations.

3. Developing Oral and Written Communication Skills

3.1 Dialogic Speech

Skills for negotiations, interviews, and team discussions are developed through:

- Role-playing (e.g., engineer–client, developer–investor);
- Pair and group work;
- Debates and discussions on technical topics.

3.2 Monologic Speech

Skills are developed through:

- Technical project presentations;
- Oral summaries of academic texts;
- Defending engineering solutions in English.

3.3 Written Communication

Instruction includes:

- Writing technical reports;
- Drafting CVs and cover letters;
- Creating article abstracts, manuals, and specifications.

4. The Role of the Instructor and Learning Environment

Instructors at technical universities must be proficient in both English and the relevant technical field. An effective teaching model includes:

- Modular courses;
- Flexible assessment systems (e.g., based on participation, clarity, accuracy);
- Digital tools (LMS, online platforms, technical simulators).

A supportive language environment — participation in English-language hackathons, conferences, and publishing projects — boosts student motivation and communication confidence.

Conclusion

Developing professional communication skills in technical English classes is a key component of preparing future specialists. Successfully achieving this goal requires a comprehensive approach that combines linguistic, methodological, and professionally-oriented dimensions. An effective system of instruction must align with the demands of the global labor market while taking into account the technical mindset and professional discourse of students.

Training competent users of technical English enhances graduate competitiveness and their ability to adapt in digital and cross-cultural work environments. This approach modernizes technical education and aligns it with real-world practice and global collaboration.

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IMPROVING PROPHYLAXIS MEDICINE - A NEED OF THE TIME

Abstract: *This article discusses the need to improve the preventive medicine system, its current social significance, its role in ensuring public health, and the measures taken by the state. It also analyzes the role of preventive work in forming a healthy lifestyle among citizens on a scientific basis.*

Keywords: *Preventive medicine, healthy lifestyle, screening, medical service, public health, disease prevention, health care.*

Introduction

Today, systematic work is being carried out to strengthen the preventive approach in the field of medical services, early detection and prevention of diseases. The World Health Organization (WHO) also promotes prevention as the main direction of modern medicine. This approach proves that preventing diseases is much more effective and economically efficient than treating them.

The essence and relevance of preventive medicine

Preventive medicine is a systematic activity aimed at maintaining people's health, preventing the development of diseases, and forming a healthy lifestyle. It consists of three levels:

• Primary prevention - promoting a healthy lifestyle, reducing factors that cause the disease;

• Secondary prevention - early detection and timely treatment of the disease;

• Tertiary prevention - alleviating the condition of people living with chronic diseases, preventing relapses.

Reforms in the field of preventive medicine in Uzbekistan

In accordance with the presidential decree of October 30, 2020, from January 1, 2021, systematic screening examinations have been introduced for citizens aged 40 and older to determine the risk of diseases such as cardiovascular disease, diabetes, stroke, and hypertension.

Also, "Centers for Supporting a Healthy Lifestyle and Increasing Physical Activity of the Population" have been established in district and city central polyclinics, where medical and preventive services (consultation, examination, instructions on healthy nutrition, etc.) are provided.

In our country, societies promoting a healthy lifestyle have been established with the participation of volunteers, including retired doctors, teachers, and intellectuals.

The role of information technologies in preventive medicine

In modern times, the introduction of digital technologies into the healthcare system ensures the rapid and accurate provision of medical and preventive services. A single interactive system is being developed to monitor the health of the population. Through this system, information about the health of each citizen will be maintained in electronic form, and risk factors will be identified at an early stage.

Cooperation with the public and the media

The media play a significant role in promoting a healthy lifestyle. The organization of special programs such as "Health Hour" on central and regional TV channels increases medical knowledge among the population. This forms a preventive culture, and people will think more about a healthy lifestyle, not about diseases.

Preventive medicine plays an important role not only in the fields of healthcare and public health, but also in corporate health and insurance systems. Specialists who have acquired knowledge and skills in this area will have the opportunity to advance and achieve success in their professional activities.

In the medical field, preventive methods reduce the pressure on healthcare systems by preventing chronic diseases and promoting a healthy lifestyle. This, in turn, helps to improve patient health and improve the overall health of the population. For insurance companies, preventive approaches create the basis for reducing costs and increasing customer satisfaction with services.

In the business environment, employers are increasingly realizing the importance of preventive measures in maintaining a healthy workforce. The introduction of wellness programs not only strengthens employee health, but also helps to increase labor productivity, reduce absenteeism due to illness, and create a healthy work environment.

The role and impact of preventive medicine in practice

In the health system, preventive medicine specialists, in collaboration with other medical professionals, develop and implement programs aimed at improving public health. They conduct screening examinations, conduct vaccination campaigns, and educate the population about preventive measures.

In the insurance industry, actuaries rely on information obtained from preventive medicine to determine the risk of disease and correctly set premium rates. Based on this information, they evaluate the cost-effectiveness of health care and participate in the development of optimal insurance policies.

Preventive doctors working in corporate health programs develop strategies to improve employee health. They assess health status, provide individual medical recommendations, and organize training and seminars on a healthy lifestyle. This allows employees to manage their own health.

The process of improving the skills of preventive medicine begins with an understanding of the basics of promoting health, choosing a healthy lifestyle, and preventing diseases. Recommended resources at this stage include online courses on the basics of health care, health education, and lifestyle. Recommendations from leading international organizations such as the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) are also important, as they provide practical guidance and evidence-based materials.

Those at the intermediate level can further expand their capabilities by acquiring in-depth knowledge of epidemiology, biostatistics, and health policy.

Internships in public health institutions or clinics, and participation in volunteer activities are also of great benefit. Advanced textbooks and professional conferences and seminars are also useful sources of knowledge and experience at this stage.

Those with advanced degrees can pursue residency programs in preventive medicine or specialize in the field by earning a certificate in the field. Furthering your knowledge through scientific articles, academic journals, and continuing education courses can help you stay up-to-date on the latest advances and research in the field of health care. In addition, working in interdisciplinary collaborations and holding leadership positions in public health organizations can also significantly enhance your skills and experience. Recommended resources include academic journals, professional organizations such as the American College of Preventive Medicine, and advanced training programs in health care management and leadership.

Conclusion

To summarize all the above, Preventive Medicine is the main foundation of the healthcare system. By improving it, it is possible not only to extend the life expectancy of citizens, but also to form a healthy society. Through reforms, social projects, technological solutions and cooperation with the public carried out by the state in this direction, the scope of medical and preventive services is expanding. This serves to reduce diseases through prevention and ensure a healthy future.

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GENOTYPES OF HEPATITIS B VIRUS IN THE SAMARKAND REGION IN PATIENTS WITH CHRONIC VIRAL HEPATITIS B+D

Abstract. *The discovery of B virus (HBV) is traditionally associated with Blumberga's discovery of the Australian antigen, now known as viral surface antigen (HbsAg). Based on phylogenetic analysis of the nucleotide sequences of the complete genome of the hepatitis B virus (HBV), they are divided into 10 genotypes, designated by Latin letters from A to J. Each genotype is characterized by a certain geographic and ethnic zone of prevalence. The most prevalent genotypes are A, B, C, D. Genotype A predominates in North America, Western Europe, and Central Africa. Genotypes B and C are primarily observed in China and Southeast Asian nationsGenotype D is dominant in Eastern European Mediterranean countries and India. The remaining genotypes are rare and characteristic of certain regions of Africa, Asia, South or North America.*

Key words: *hepatitis B virus, chronic viral hepatitis B+D, genotypes of hepatitis B virus.*

Introduction. Diseases caused by different genotypes of hepatitis B virus may differ in clinical course and complications. Hepatitis B caused by genotype C is often chronic and has a higher risk of progression to liver cirrhosis or hepatocellular carcinoma than diseases caused by other genotypes. [1,2]

The genotype of the hepatitis B virus can affect the effectiveness of interferon treatment for chronic hepatitis B (CHB). Patients infected with genotype A of the virus respond significantly better to treatment with interferon drugs than patients infected with other genotypes of the virus. [3,6,]

Research objective: Study of the incidence of B virus genotypes in patients with chronic viral hepatitis B+D in the Samarkand region.

Research materials and methods: The study included 40 patients with chronic viral hepatitis B+D of varying degrees of activity, including 22 women and 18 men aged 27 to 64 years.

All patients underwent a general analysis of blood, urine and feces. Biochemical analysis parameters were determined using generally accepted methods: Asat, Alat thymol test, bilirubin. The presence of HbsAg, Anti HCV, anti HDV in all patients was determined by immunoenzyme analysis [4,7]. Determination of HBV DNA and HDV RNA was carried out using the real-time PCR method using the "Amply Sense" reagent kits. The study of HBV genotype was carried out using molecular genetic analysis, the degree of fibrosis according to the METAVIR classification was assessed using fibroelastography.

Results and its discussion: We examined patients treated at the regional clinical hospital for infectious diseases in Samarkand. Patients with chronic viral hepatitis B+D are divided into patients with low activity (35%), moderate activity (15%), and patients with high activity, leading to liver cirrhosis (50%). In the study of clinical symptoms, patients complained of general weakness and fatigue [4,8]. Patients mainly complained of periodic pain under the right rib cage (65%), nausea (35%), abdominal distension (37.5%). 80% of patients had a decrease in appetite, some patients had a rash on the body (12.5%), joint pain (25%), nosebleeds, and 50% of patients had bleeding gums.

Objective examination of patients revealed: jaundice of the skin and sclera in 65% of patients, yellowing of the palms and small venous collaterals in 25% of patients

(Table 1) **Clinical signs observed in patients with chronic hepatitis B+D**

Table 1

	Clinical signs	**Minimum activity level**	**Low activity level**	**Average activity level**	**High activity level**
	Pain under the right rib cage	+	+	++	+++
	Decreased appetite		+	++	++++
	Joint pain	+	+	++	+++
	Bleeding from the nose and gums			++	+++
	Palmar erythema and small venous collaterals			++	+++
	Intensity of yellowing of the eye sclera			++	+++

In patients under observation, changes in the circulatory and respiratory organs correspond to age. In 42.5% of patients, the liver was moderately dense, palpated +2.0 cm below the right costal margin, and in 37.5% of patients, liver density was noted.

Epidemiological analysis results: 35% of patients had parenteral interventions, 17.5% had only dental procedures, 20% had a cesarean section, 12.5% had a family history of hepatitis B, and the rest were diagnosed with B and D viruses by chance.

Peripheral blood parameters in patients under observation

Table 2

Peripheral blood parameters in patients		**Minimum activity level**	**Low activity level**	**Average activity level**	**High activity level**
Complete blood count	Hemoglobin	84,7±2,09,	80,7±1,89	75,7±1,59	71,7±1,59
	Erythrocytes	3,10±0,08	2,87±0,03	2,55±0,03	2,35±0,03
	Lymphocytes	34,28± 0,30	32,28±020 0,30	30,28±0,2	28,28±020
	Leukocytes	6,90± 0,20	5,90± 0,15	4,60±03	3,60±03
	Platelets	174,72± 3,33	164,72± 3,33	154,72± 3,33	144,72±
	ECHT	13,69±0,49	15,89±0,49	16,69	20,01±0,49

Blood biochemical analysis parameters in patients under observation

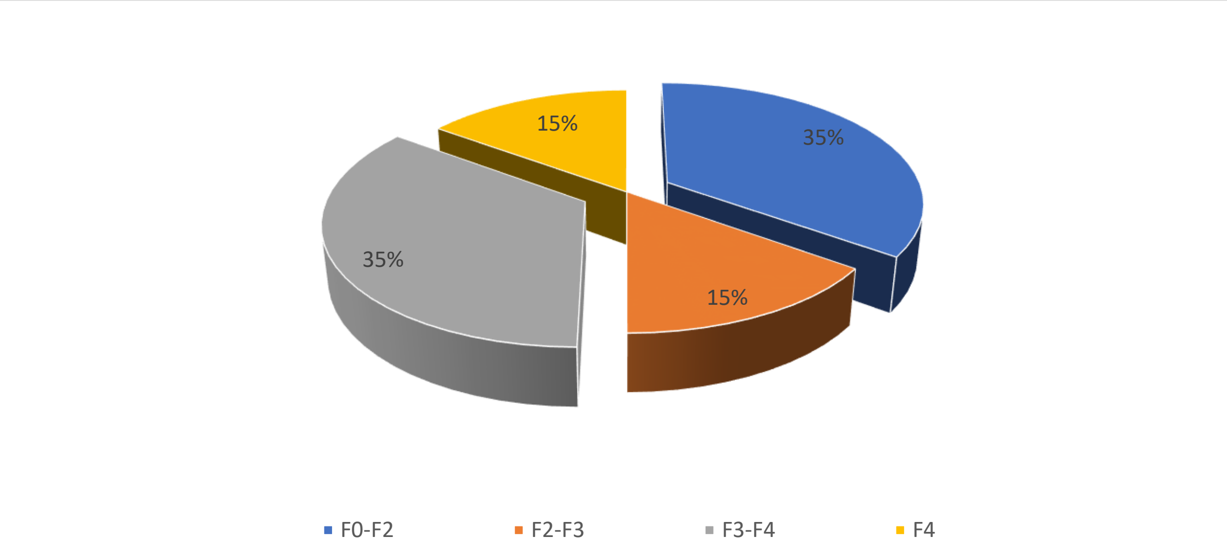
Table 3

Blood biochemistry tahlili	Total bilirubin	29,80± 3,28	32,80± 3,28	39,80± 3,28	49,80± 3,28
	Conjugated bilirubin	26, 52 ±3,67	29, 42 ±3,60	36, 52 ±3,67	46, 52 ±3,67
	Unconjugated bilirubin	23,21±1,66			
	AST	2,16±1,82	2,36±1,92	2,96±1,15	3,36±1,90
	ALT	2,12±1,49	3,54±1,40	3,86±1,49	4,88±1,49
	Albumin	44,18± 1,97	40,18± 1,90	36,08± 1,08	30,18± 1,07
	PTI	**76,94±1,50**			
	PTV	**25,48± 0,45**			

A complete blood count revealed hemoglobin 84.7±2.09, erythrocytes 3.10±0.08, platelets 174.72±3.33, leukocytes 6.90±0.20, eosinophils 3.69±0.17, monocytes ±3.27, ±3.29 ± 0.2, and a CBC of 13.69±0.49.

Biochemical blood tests gave the following results: total bilirubin 29.80±3.28, bound bilirubin 26.52±3.67, bound bilirubin 23.21±1.66. Enzyme levels were as follows: AST-3.36±1.82, ALT -4.12±1.49, total protein 64.94±1.32, albumin 44.18±1.97, glucose 5.41±0.29. We determined the protein synthetic function by albumin level and PTI (76,94±1,50) and PTV (25,48±0,45). Liver function was determined by the following: creatinine 90.87±2.97, urea 90.87±2.97, residual nitrogen 22.05±0.49. The control group tested positive for HBsAg and anti-HDV, while being negative for anti-HCV. Patients were divided according to the degree of liver fibrosis as follows: F0-F2 -35%, F2-F3 - 15%, F3-F4 35% and F4–15% were determined.

Figure 1. Distribution of patients according to the degree of liver fibrosis



All patients underwent an ultrasound examination of the abdominal organs, and a Doppler examination of blood flow through the portal system vessels (portal and splenic veins) was performed using a modern ultrasound device.

Ultrasound data: in 35% of patients, the liver was not enlarged, its contours were even, the capsule was thickened along the entire length, and the surface of the liver was smooth. The liver parenchyma was homogeneous, with fine (35%) and medium granularity (15%). In patients, it was determined. In 5% of patients, the surface of the liver parenchyma was smooth, with even edges, increased hepatic granularity, and increased exogenousity were determined. In 10% of patients, there were foci of fibrosis in the liver parenchyma, an enlarged portal vein, and areas of fibrosis in the periportal zones. The vascular architecture was deformed and reduced.

Quantitative determination of hepatitis B virus DNA and hepatitis D RNA, together with the clinical picture and biochemical parameters of the disease, elastography data, allows predicting the course of the disease and assessing the need for antiviral therapy. For this purpose, quantitative determination of B and D viruses by PCR was performed in the examined patients, and in the observed patients, it was found that the viral load of B virus was from 2000 to 20,000 in 32.5% of patients, 20,000-50,000 in 30% of patients, and 50,000 in 37.5% of patients.

According to the literature, genotype A is most common in Europe and Africa. Studies in Italy have shown that this genotype is found in 44%. A study of the distribution of genotypes in Russia has shown that genotype A, although rare, is found in St. Petersburg and the Leningrad region (17,2%) and Karelia (8,7%). As for the distribution of genotype B in the world, it is more common in China (67.12%) and Vietnam. Studies on the geographical distribution of genotype C have shown that genotype C accounts for the majority of all patients with chronic hepatitis. China is in second place - 32.19%. In Korea, 29% of patients with genotype C are infected. Analysis of literature data has shown that genotype D is more common. In various regions of Turkey and Italy (53%) among patients infected with the B virus, genotype D predominates. In China, it was found in a negligible amount of 0.68%. In Russia, genotypes B, D, and A are found in patients with viral hepatitis B, but genotype D accounts for 88% of all cases. The distribution of HBV genotypes in the Republic of Kazakhstan is similar to the frequency of HBV virus genotypes throughout Central Asia. The work of Ukrainian researchers showed the predominance of genotype D of the B virus in the surveyed regions of Russia. In Belarus, genotype D is 2.4%. Studies conducted in Romania show the predominance of genotype D (65%). A sample study conducted in the Republic of Sakha (Yakutia) revealed the presence of three genotypes of HBV: genotype A - 27.3%, genotype D - 30.9%, genotype C - 24.1%, and genotypes A and D - 17.7%. In our studies of patients with chronic viral hepatitis, the following results were obtained: genotypes of patients with varying degrees of disease activity and the predominance of genotype "D" were noted, genotype A was detected in 72.3% of patients, genotype C was detected in 10.3%, and genotype C was not detected in 17.4%. In a study of 40 patients with chronic viral hepatitis B + D, the genotype results showed the predominance of genotype D.

Conclusion: The results of a study conducted in patients with chronic viral B + D indicate the predominance of genotype D in our region. Genotype D was 82.5%, genotype A was 17.5%.

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FREQUENCY OF COMPLICATIONS IN CHRONIC BRUCELLOSIS AMONG WOMEN OF REPRODUCTIVE AGE

Abstract. *Chronic brucellosis, caused by Brucella species, is a persistent zoonotic infection with significant morbidity, particularly in endemic regions. Women of reproductive age are at risk of unique complications due to physiological and hormonal factors. This review examines the frequency and nature of complications in chronic brucellosis among women aged 15–45 years, focusing on osteoarticular, reproductive, neurological, and systemic manifestations.*

Keywords: *Chronic brucellosis, women, reproductive age, complications, osteoarticular, reproductive health, zoonotic infection, Brucella.*

Introduction. Brucellosis, a zoonotic disease caused by Brucella species, remains a public health challenge in endemic regions, including the Mediterranean, Middle East, and parts of Asia and Africa [1]. Chronic brucellosis, defined as symptoms persisting beyond 6–12 months, is characterized by relapsing or persistent symptoms and a high risk of complications [2]. Women of reproductive age (15–45 years) are particularly vulnerable due to hormonal influences, pregnancy-related immune modulation, and socioeconomic factors increasing exposure in endemic areas [3]. This review synthesizes evidence on the frequency and types of complications in chronic brucellosis among women of reproductive age, emphasizing osteoarticular, reproductive, neurological, and systemic sequelae.

Epidemiology and risk factors. Chronic brucellosis is more prevalent in endemic regions where unpasteurized dairy consumption and livestock contact are common [1]. Women of reproductive age in rural settings are disproportionately affected due to their roles in animal husbandry and food preparation [4]. Risk factors for chronicity include delayed diagnosis, inadequate treatment, and recurrent exposure to Brucella [2]. In women, pregnancy and hormonal fluctuations may exacerbate disease progression, increasing the likelihood of complications [3,8]. Estimates suggest that 10–20% of brucellosis cases in women of reproductive age progress to chronicity, though data specific to this demographic are limited [4,9].

Types and frequency of complications. Chronic brucellosis is associated with a range of complications, with varying frequencies among women of reproductive age. The most common complications are discussed below.

Osteoarticular complications. Osteoarticular involvement, including spondylitis, arthritis, and osteomyelitis, is the most frequent complication, reported in 20–40% of women with chronic brucellosis [5]. Spondylitis, particularly affecting the lumbar spine, is debilitating and may lead to chronic pain and disability. Peripheral arthritis, often involving large joints like the knees and hips, is also common [2]. Women of reproductive age may experience exacerbated joint symptoms during pregnancy due to increased joint laxity and immune suppression [3]. Delayed treatment significantly increases the risk of irreversible joint damage [5].

Reproductive complications.Reproductive complications are a significant concern in women of reproductive age, occurring in 5–15% of chronic brucellosis cases [4]. These include: **Spontaneous abortions:** Brucella infection during pregnancy is associated with a 10–20% risk of miscarriage, particularly in the first trimester, due to placental invasion by the bacteria [3].

Premature delivery: Chronic infection may trigger preterm labor in 5–10% of cases [4].

Infertility: Chronic pelvic inflammation and endometrial damage may lead to infertility in 2–5% of affected women [6].

Congenital transmission: Vertical transmission to the fetus is rare (1–2%) but can result in neonatal brucellosis [3].These complications are underreported due to social stigma and limited access to reproductive health services in endemic areas [4].

Neurological complications. Neurobrucellosis, including meningitis, encephalitis, and peripheral neuropathy, is rare but severe, affecting 1–5% of women with chronic brucellosis [2]. Symptoms include headaches, seizures, and motor deficits, with higher morbidity in untreated cases [5]. Women of reproductive age may be at increased risk during pregnancy due to immune modulation, though data are scarce [3]. Neurobrucellosis requires prolonged treatment and is associated with significant neurological sequelae in 20–30% of cases [2].

Systemic and other Complications. Systemic complications, such as endocarditis, hepatosplenomegaly, and chronic fatigue syndrome, occur in 5–10% of chronic cases [6]. Endocarditis, though rare (1–2%), is life-threatening and more frequent in patients with preexisting cardiac conditions [5]. Chronic fatigue and depression, reported in 10–15% of women, significantly impact quality of life [4]. Hepatic abscesses and granulomatous hepatitis are less common but contribute to morbidity in 2–5% of cases [6].

Diagnostic challenges. Diagnosing chronic brucellosis in women of reproductive age is complex due to nonspecific symptoms and overlapping conditions (e.g., rheumatoid arthritis, pregnancy-related complications) [2]. Key diagnostic methods include: Serological tests: Standard agglutination test (SAT) titers ≥1:160 or enzyme-linked immunosorbent assay (ELISA) are diagnostic, but titers may fluctuate in chronic cases [7]. Culture: Blood or tissue cultures have low sensitivity (30–50%) in chronic disease [7]. Polymerase chain reaction (PCR): PCR is highly specific but not widely available in endemic regions [6]. Imaging: Magnetic resonance imaging (MRI) or computed tomography (CT) is essential for detecting osteoarticular and neurological complications [5].

Treatment and management. Treatment of chronic brucellosis in women of reproductive age requires prolonged combination therapy to prevent relapse and manage complications [7]. Standard regimens include:

Doxycycline and Rifampicin:Doxycycline (200 mg/day) plus rifampicin (600–900 mg/day) for 6–12 weeks is the first-line treatment [7]. Alternative Regimens: In pregnancy, rifampicin combined with trimethoprim-sulfamethoxazole (TMP-SMX) is preferred to avoid doxycycline-related fetal risks [3]. Severe Complications: Aminoglycosides (e.g., gentamicin) are added for endocarditis or neurobrucellosis, with treatment extended to 3–6 months [5]. Relapse rates are 10–20% in chronic cases, higher in women with inadequate initial treatment [2,10]. Management of reproductive complications may require obstetric consultation, while osteoarticular sequelae may necessitate physical therapy or surgical intervention [4].

Conclusion. Chronic brucellosis in women of reproductive age is associated with significant complications, including osteoarticular (20–40%), reproductive (5–15%), neurological (1–5%), and systemic (5–10%) sequelae. These complications disproportionately affect women in endemic regions, compounded by diagnostic delays and limited healthcare access. Tailored diagnostic approaches, prolonged combination therapy, and preventive strategies are critical to mitigate morbidity. Future research should focus on improving diagnostic tools and addressing reproductive health outcomes in this population.

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FEATURES OF BRUCELLOSIS IN CHILDREN

Abstract. *Brucellosis, a zoonotic infection caused by Brucella species, poses unique challenges in pediatric populations due to its atypical presentation and diagnostic complexities. This review examines the epidemiology, clinical features, diagnostic methods, treatment strategies, and prevention of brucellosis in children. Common symptoms in children include fever, musculoskeletal pain, and hepatosplenomegaly, often leading to delayed diagnosis. Tailored diagnostic approaches, such as serological tests and culture, combined with age-appropriate antibiotic regimens, are critical for effective management. Preventive measures, including public health education and veterinary control, are essential to reduce disease burden in endemic regions.*

Keywords: *Brucellosis, pediatric, zoonotic infection, clinical manifestations, diagnosis, treatment, children, Brucella.*

Introduction. Brucellosis, caused by gram-negative Brucella bacteria, is a zoonotic disease prevalent in endemic regions like the Mediterranean, Middle East, and parts of Asia and Africa. Children in these areas are a vulnerable group, presenting distinct clinical and diagnostic challenges compared to adults [1]. This review synthesizes current knowledge on the epidemiology, clinical manifestations, diagnosis, treatment, complications, and prevention of brucellosis in children, emphasizing the need for tailored approaches in pediatric care.

Epidemiology. Brucellosis in children is primarily transmitted through consumption of unpasteurized dairy products, contact with infected animals, or, rarely, vertical transmission [2]. In endemic regions, children may constitute 10–20% of cases, particularly in rural settings with livestock exposure. Risk factors include ingestion of raw milk and poor hygiene practices in agricultural communities [1]. Underreporting is common due to limited diagnostic awareness and access to healthcare in these areas.

Clinical Manifestations. The clinical presentation of brucellosis in children is often nonspecific, complicating timely diagnosis. Key symptoms include:Fever: Persistent or intermittent fever is present in over 90% of cases, often low-grade or undulant [3,8].Musculoskeletal Symptoms: Arthralgia, myalgia, or arthritis, particularly in large joints (e.g., knees, hips), occurs in 30–50% of cases [3].Hepatosplenomegaly: Liver and spleen enlargement is more frequent in children than adults, detectable during physical examination [2,9].Severe Manifestations:

Rare complications, such as meningitis, endocarditis, or osteomyelitis, may occur in untreated cases [4].

Atypical Symptoms: Fatigue, weight loss, and night sweats are common, contributing to diagnostic delays [3,8].Children generally experience milder disease than adults but are at risk of chronic or relapsing infections if untreated [4,10].

Diagnosis. Diagnosing brucellosis in children is challenging due to nonspecific symptoms and limited diagnostic resources in endemic areas. Key methods include:Serological Tests: The standard agglutination test (SAT) with a titer ≥1:160 or enzyme-linked immunosorbent assay (ELISA) detects anti-Brucella antibodies, though false positives may occur [5].Culture: Blood or bone marrow cultures are the gold standard but have low sensitivity (50–70%) and require prolonged incubation [5].Polymerase Chain Reaction (PCR): PCR offers high sensitivity and specificity but is rarely available in resource-limited settings [6].Clinical Correlation: A history of exposure to unpasteurized dairy or infected animals, combined with clinical findings, supports diagnosis [2].Serological results in children may be weaker than in adults, requiring repeat testing in suspected cases [5].

Treatment. Treatment of pediatric brucellosis must account for age, disease severity, and drug safety. The World Health Organization recommends combination therapy to prevent relapse [7]. Standard regimens are:Children Over 8 Years: Doxycycline (2–4 mg/kg/day) plus rifampicin (15–20 mg/kg/day) for 6 weeks [7].Children Under 8 Years: Trimethoprim-sulfamethoxazole (TMP-SMX, 10 mg/kg/day of trimethoprim) with rifampicin to avoid doxycycline-related risks to teeth and bones [7].Severe Cases: Gentamicin (5 mg/kg/day) may be added for 7–14 days in cases like neurobrucellosis or endocarditis [4].Relapse rates in children are 5–10%, lower than in adults, but increase with monotherapy or inadequate treatment duration [7]. Follow-up is crucial to ensure adherence and monitor complications.

Complications. Untreated brucellosis in children can lead to serious complications, including:Osteoarticular Involvement: Chronic arthritis or osteomyelitis, especially in the spine, may cause long-term disability [3].Neurobrucellosis: Meningitis or encephalitis, though rare, carries high morbidity [4].Endocarditis: Rare but life-threatening, requiring prolonged treatment [4].Early intervention significantly reduces complication risks, highlighting the importance of prompt diagnosis [4].

Prevention. Preventing pediatric brucellosis requires multifaceted strategies:Public Health Education: Educating communities about risks of unpasteurized dairy and animal contact [1].Veterinary Measures: Livestock vaccination and culling infected animals reduce transmission [2].Surveillance: Screening in high-risk areas facilitates early detection [6].School-based programs can enhance awareness and promote safe practices among children in endemic regions [1].

Conclusion. Brucellosis in children is a complex zoonotic disease with nonspecific symptoms, diagnostic challenges, and unique treatment considerations.

Clinicians in endemic areas must maintain vigilance to ensure early diagnosis and effective management. Research into rapid diagnostics and optimized pediatric treatment regimens is needed. Public health and veterinary interventions are critical to reducing the disease burden in children.

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AUTOCAD DASTURIDA «ОБЪЕКТНАЯ ПРИВЯЗКА» - OB'YEKTLARNI BOG'LASH ASBOBLAR PANELIDA ISHLASH

Annotatsiya: *Ushbu maqola mavzusi AutoCAD dasturida chizma elementlarini aniqlik bilan joylashtirish va bir-biriga nisbatan to'g'ri bog'lashda muhim rol o'ynaydigan "Объектная привязка" funksiyasi (Object Snap) haqida batafsil ma'lumot beradi. Mavzuda ushbu funksiyaning turlari – nuqta, markaz, uchlik, tangent, perpendikulyar, to'g'ri chiziqqa bog'lash va boshqalar – hamda ularni "Asboblar paneli"da faollashtirish***,** *sozlash va ishlatish usullari ko'rib chiqiladi. Shuningdek, ushbu imkoniyatlar chizma aniqligini oshirish, vaqtni tejash va foydalanuvchi ish unumdorligini ko'paytirishda qanday ahamiyatga ega ekani tahlil qilinadi. Bu mavzu AutoCAD foydalanuvchilari uchun amaliy jihatdan juda dolzarb bo'lib, dasturdan samarali foydalanish ko'nikmalarini shakllantiradi.*

Kalit so'zlar: Muhandislik grafikasi, AutoCAD, объектная привязка (Object Snap), chizma aniqligi, «Точка отслеживания», «Смещение», «Конточка», «Середина», «Пересечение», «Кажущееся пересечение», «Продолжение линии, «Центр», «Квадрант», «Касательная», «Параллельно», «Точка вставки» ,«Узел», «Ближайшая», «Ничего»,«Режим привязки».

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WORKING WITH THE OBJECT SNAP TOOLBAR IN AUTOCAD SOFTWARE

Abstract: *This article explores the* **Object Snap** *feature in* **AutoCAD**, *which plays a vital role in precisely positioning drawing elements and accurately linking them to one another. The study covers various types of object snaps—such as* **point**, **center**, **endpoint**, **tangent**, **perpendicular**, **line extension**, *and others. It also outlines the methods for enabling, configuring, and applying these snaps using the* **toolbar interface**. *Special attention is given to the impact of this feature on improving* **drawing accuracy**, **minimizing errors**, **saving time**, *and* **increasing user efficiency**. *The Object Snap function is especially significant in the field of engineering graphics and technical drawing, as it ensures compliance with design standards and improves the quality of project execution. This topic is highly* *practical and relevant for AutoCAD users, engineering students, and professionals involved in technical design and drafting.*

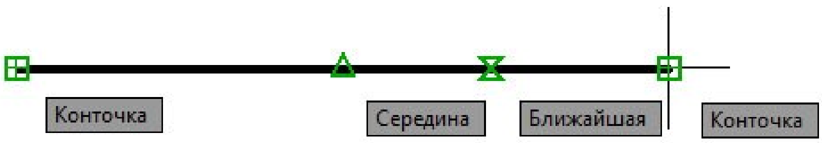
Keywords: *Engineering graphics, AutoCAD, Object Snap, drawing accuracy, tracking point, offset, endpoint, midpoint, intersection, apparent intersection, line extension, center, quadrant, tangent, parallel, insertion point, node, nearest, none, snap mode.*

Kirish: Zamonaviy muhandislik grafikasi – bu nafaqat chizmalar tuzish san’ati, balki texnik tafakkur va aniqlik asosida qurilgan kompleks jarayondir. Bugungi kunda bunday grafikani samarali amalga oshirish uchun raqamli texnologiyalardan, xususan, AutoCAD dasturidan keng foydalanilmoqda.

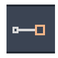
AutoCAD dasturi foydalanuvchilarga turli xil chizmalarni yuqori aniqlik bilan yaratish imkonini beradi. Bu jarayonda muhim funksiyalardan biri — «Объектная привязка» (Object Snap) hisoblanadi. Ushbu imkoniyat yordamida foydalanuvchi chizma elementlarini aniqlik bilan kerakli nuqtalarga (markaz, uchlik, tangent, perpendikulyar va h.k.) bog‘lashi, ularni o‘zaro to‘g‘ri joylashtirishi mumkin.

Object Snap funksiyasi ayniqsa **chizma aniqligi**ni ta’minlashda muhim rol o‘ynaydi. Asboblar paneli orqali ushbu sozlamalarni faollashtirish va moslashtirish AutoCAD’dagi ish unumdorligini oshiradi, foydalanuvchiga qulaylik yaratadi va xatoliklar ehtimolini kamaytiradi.

Asosiy qism: Chizmalarni chizish jarayonida avval chizilgan turli figuralarning kerakli nuqtalariga chizilayotgan figurani bog’lab chizishga to’g’ri keladi. Bunday hollarda obyektlar turli (kesma, ko’pburchak, aylana, ellips, egri chiziq va boshqa) figuralardan iborat bo’lib, ularning har biri o’ziga xos hususiyatga ega. Masalan, kesmaning quyidagi nuqtalariga bog’lab, boshqa figurani chizish mumkin.

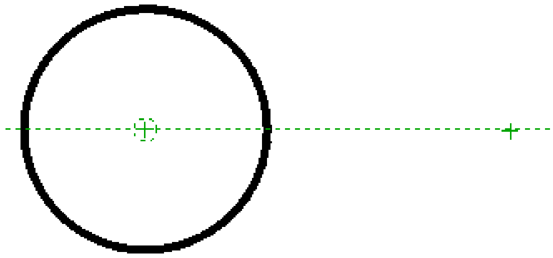


To’g’ri chiziq kesmalaridan tashkil topgan boshqa geometrik shakllarda ham xuddi shu shaklda boshqa figuralarni bog’lab chizish mumkin. Bundan tashqari obyekt kesma bo’lsa, unga parallel yoki perpendikulyar vaziyatda bo’lgan boshqa kesmani chizish mumkin. Shu kabi bog’lanishlarni **“Обьектная привязка”** asboblar paneli yordamida bajarish mumkin:

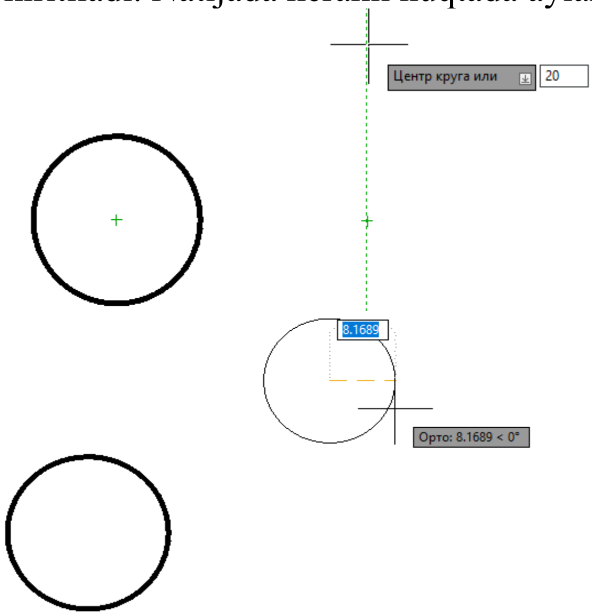
«Точка отслеживания» - Kuzatish nuqtasi bog’lovchisi  . Vaqtinchalik bog’lanish nuqtasini hosil qiladi. Masalan berilgan aylana markazidan 30 mm uzoqlikda o’ngda va 20 mm yuqorida aylana yoki boshqa element chizish lozim bo’lsa, aynan o’sha nuqtada vaqtinchalik bog’lanish nuqtasini yaratish mumkin.

Aylana (yoki boshqa element) tanlanib «Точка отслеживания» buyrug’i tanlanadi. Kursorni markazdan boshlab o’ng tomonga siljitib 30 o’lcham kiritilib

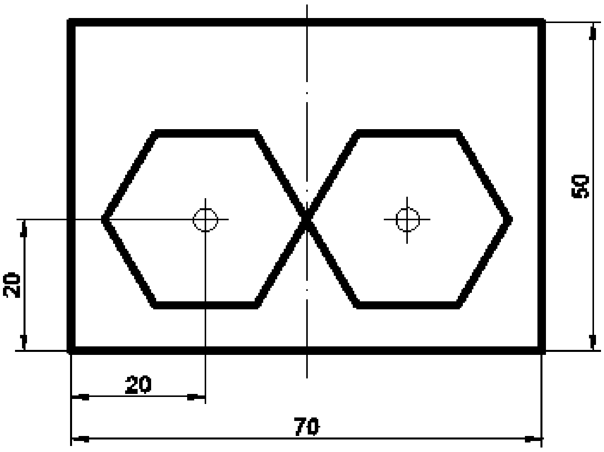
“Enter” bosiladi. Natijada aylana markazidan 30 mm uzoqlikda vaqtinchalik bog’lanish nuqtasi hosil bo’ladi:



So’ng kursorni topib olingan vaqtinchalik bog’lanish nuqtasini yuqorisiga keltirib 20 mm o’lcham kiritiladi. Natijada kerakli nuqtada aylana hosil bo’ladi:

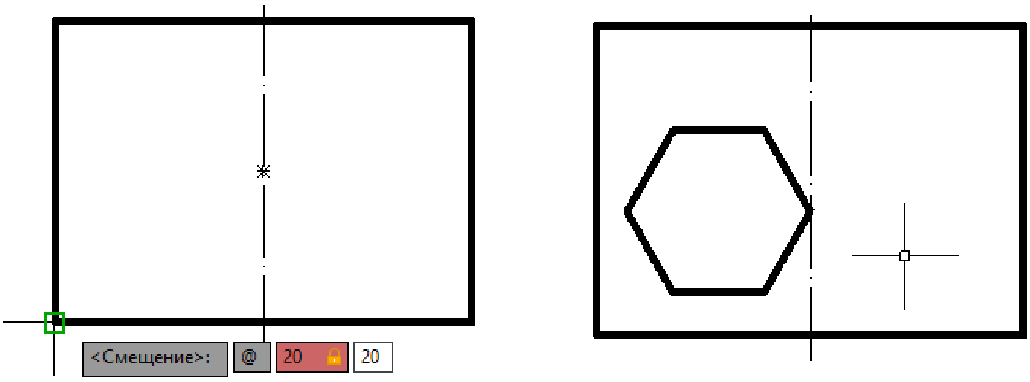


«Смещение» - Ko’chirish bog’lovchisi . Mazkur buyruqdan foydalanib, vaqtincha tayanch nuqtaga nisbatan turli figuralar chiziladi. Masalan o’lchamlari bilan quyidagi 70×50 *mm* bo’lgan to’g’ri to’rtburchak va markazi ma’lum nuqtada bo’lgan ko’pburchaklarni chizishni ko’rib chiqamiz:

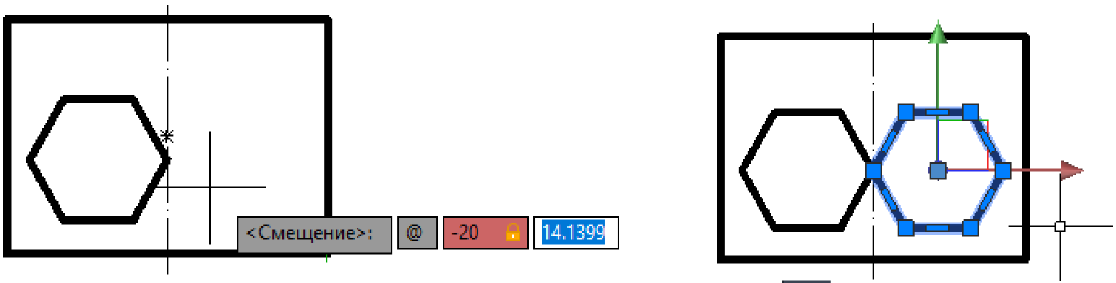


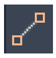
Buning uchun berilgan o’lchamda to’rtburchak chizib olinadi. Ko’pburchaklarning markazlarini topib chizish uchun esa to’rtburchakning pastki burchaklari asos qilib olinib «Смещение» buyrug’i tanlanadi va birinchi ko’pburchak uchun@20,20 o’lcham, ikkinchi ko’pburchak uchun esa @-20,20 o’lcham kiritiladi.

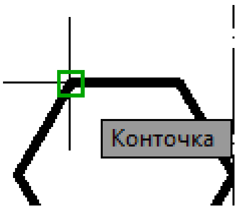
«Многоугольник» buyrug’i tanlanadi, burchaklar soni kiritilib, «Смещение» buyrug’i tanlanadi va to’rtburchakning pastki chap burchagiga sichqoncha chap tugmasi bosilib @20,20 o’lcham kiritiladi. Natijada kursor aniqlangan markazdan ko’pburchak chizish holatiga o’tadi. Ko’pburchak o’lchami kiritilib enter tugamsi bosiladi.



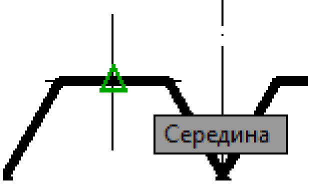
Shu tarzda to’rtburchakning o’ng tomonidan ham @-20,20 o’lcham kiritilib boshqa ko’pburchak ham yasab olinadi:



«Конточка» - Chekka nuqtalarni bog’lovchisi  . Ushbu buyruq obyektlarni chetki nuqtalariga bog’lab boshqa bir obyekt chizish maqsadida ishlatiladi.



«Середина» - O’rta bog’lovchisi . Bu buyruq asosan obyektning o’rtasiga boshqa obyektni bog’lab chizish uchun ishlatiladi.

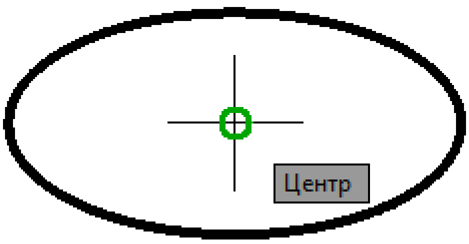


«Пересечение» - Kesishuv bog’lovchisi  . Ushbu buyruqdan obyektlarning kesoshgan nuqtalariga bog’lab chizish uchun ishlatiladi.

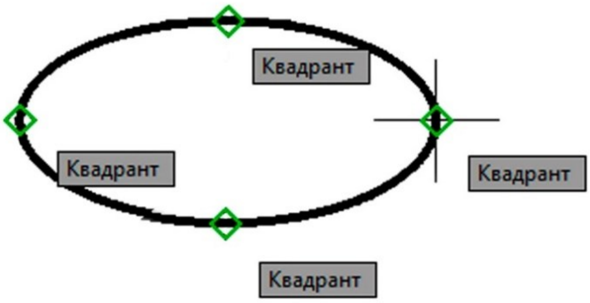
«Кажущееся пересечение» - Taxminiy kesishuv bog'lovchisi . Ushbu buyruqdan kesishmagan bo'lsada, davom ettirilganda kesishadigan obyektlarning kesishadigan nuqtasini aniqlab chizishda foydalaniladi. Buning uchun dastlab davom ettirilishi kerak bo'lgan obyekt sichqoncha yordamida tanlanadi, so'ngra kursorni taxminiy kesishish joyiga olib borilganda kesishish nuqtasi ko'rsatiladi.

«Продолжение линии» - Chiziq davomi bog'lovchisi . Ushbu buyruqdan to'g'ri chiqiz yoki aylana yoylarini hali chizilmagan davomiy nuqtalariga bog'lab obyektlar chizish uchun foydalaniladi.

«**Центр**» - Markaz bog'lovchisi . Ushbu buyruqdan aylana, ellips va ularning yoylarining markazlariga bog'lab chizish uchun foydalaniladi.

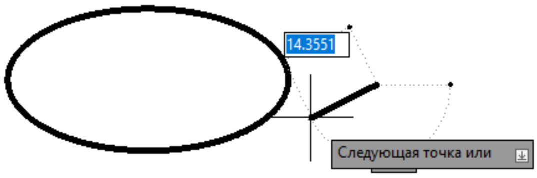


«Квадрант» - Kvadrant bog'lovchisi . Bu buyruqdan esa aylana, ellips va ularning yoylarining gorizontal va vertical o'qlari bilan kesishgan nuqtalariga bog'lab chizishda foydalaniladi.

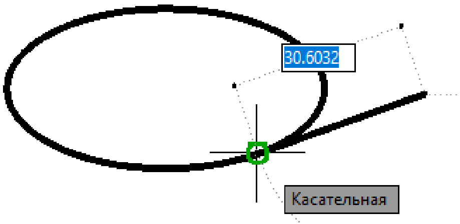


«Касательная» - Urinma bog’lovchisi  - aylana, ellips, ularning yoylari yoki tekis egri chiziqlarga urinmalar o’tkazish uchun foydalaniladigan buyruq.

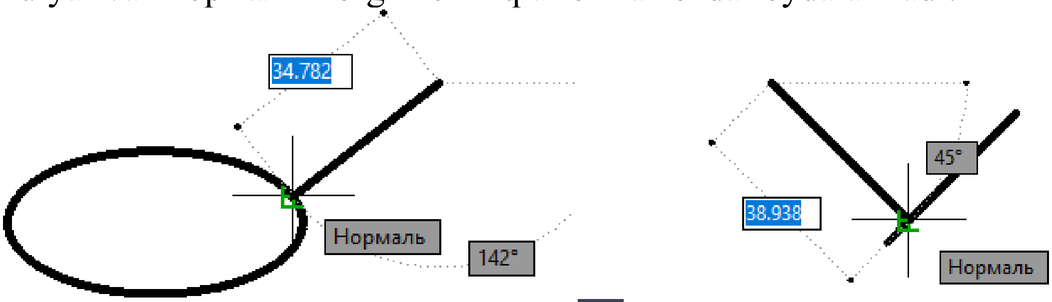
Buning uchun dastlab to’g’ri chiziqning birinchi nuqtasi kerakli joyga qo’yib olinadi.



So’ngra «Касательная» buyrug’I tanlanib, kursorni taxminiy urinish nuqtasiga yaqinlashtirilganda urinma o’tkazish bog’lovchisi urinish nuqtasini ko’rsatadi.

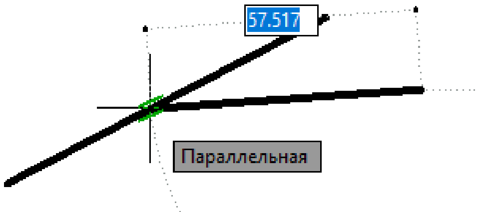


«Нормаль» - Perpendikular bog’lovchisi  . Berilgan obyektga perpendikulyar va “нормаль” to’g’ri chiziqlar o’tkazishda foydalaniladi:

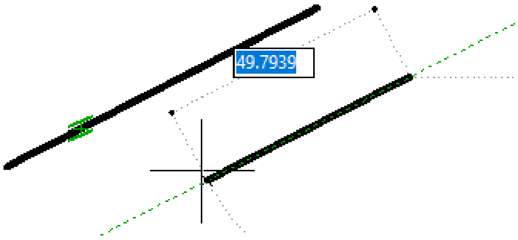


«Параллельно» - Parallel bog’lovchisi . Chizilishi lozim bo’lgan to’g’ri chiziqni berilgan to'”ri chiziqqa nisbatan parallel qilib chizish uchun foydalaniladi.

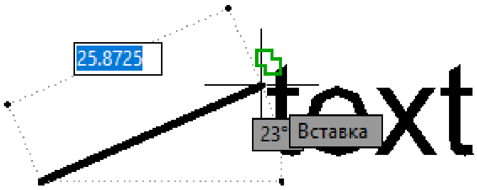
Buning uchun chizilishi lozim bo’lgan to’g’ri chiziqning birinchi nuqtasi qo’yib olinadi. So’ngra «Параллельно» buyrug’I tanlanib kursorni berilgan to’g’ri chiziq ustiga olib borilganda parallel chizish bog’lovchisi ko’rsatkichi hosil bo’ladi.



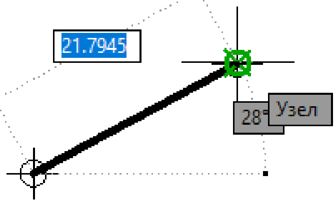
So’ngra kursorni chizilayotgan to’g’ri chiziqni berilgan to’g’ri chiziqqa taxminiy parallel holatga kelguncha harakatlantirilganda parallellik bog’lovchisi ishga tushadi va ikkinchi nuqtani qo’yib parallel chiziq chizishni yakunlash mumkin.



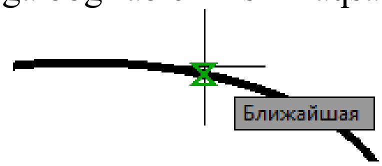
«Точка вставки» - Qo’yish nuqtasi bog’lovchisi  . Ushbu buyruqdan chizilayotgan obyektni text, blok yoki boshqa atributlarga bog’lab chizish uchun foydalaniladi.



«Узел» - Nuqta bog’lovchisi  . Ushbu buyruqdan nuqtalarga bog’lab chizishda foydalaniladi.

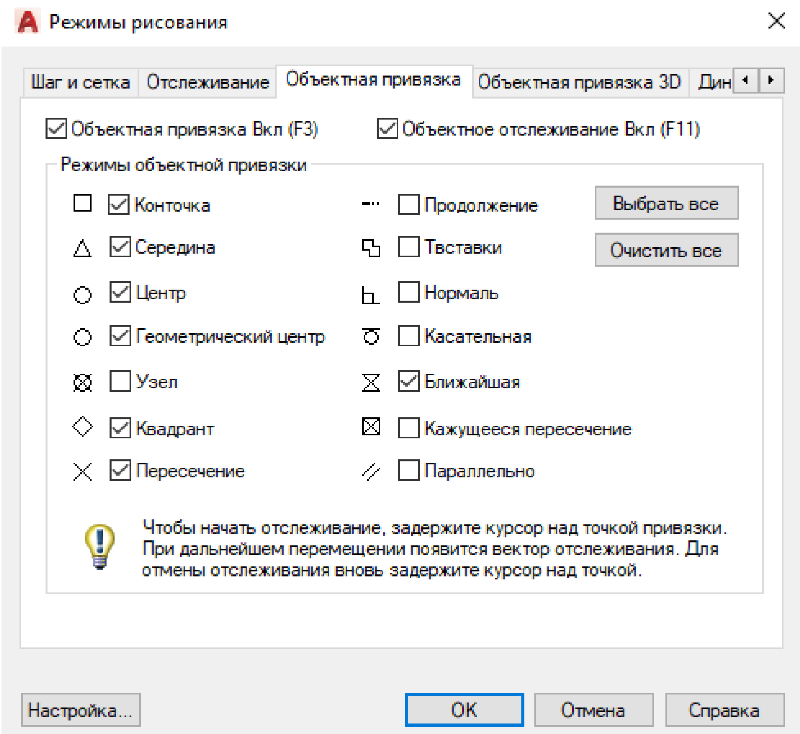


«Ближайшая» - Yaqin nuqta bog’lovchisi . Berilgan obyektga o’ta yaqin nuqtaga bog’lab chizish maqsadida foydalaniladi.



«Ничего» - Hech narsa . Ushbu buyruq obyektni chizish jarayonida barcha bog’lovchilarni o’chirib qo’yadi.

«Режим привязки» - Bog’lash rejimi . Ushbu buyruq “**Объектная привязка**” yordamchi oynasini hosil qiladi.



Ushbu oynadan chizma chizish uchun ko’p qo’llaniladigan bog’lanishlarni doimiy ravishda faollashtirib qo’yish mumkin. Buning uchun kerakli bog’lanishlarni oldiga belgilarni qo’yib OK tugmasini bosish kifoya. Ushbu vazifani holatlar qatoridagi “**Привязка”** bo’limidan ham bajarish mumkin.

Adabiyotlar sharxi:

1. R. R. Ashurov, M. Sh. Xolboyev – “Axborot texnologiyalari va tizimlari”.

Mazkur darslik axborot texnologiyalarining umumiy tushunchalari va tizimli qo‘llanilishi haqida batafsil ma’lumot beradi. Garchi kitob bevosita AutoCAD dasturiga bag‘ishlanmagan bo‘lsa-da, unda grafik tizimlar, kompyuterli loyihalash (CAD) va ularning texnik sohalardagi ahamiyati haqida asosiy nazariy bilimlar beriladi. Bu bilimlar Object Snap funksiyasining umumiy tizimdagi o‘rnini tushunishda yordam beradi.

2. E.A. Сухоруков – “AutoCAD для инженеров и проектировщиков”.

AutoCAD foydalanuvchilari uchun yozilgan ushbu amaliy qo‘llanma chizmalar yaratish, aniq o‘lcham va bog‘lanmalarni tashkil etish bo‘yicha keng qamrovli ma’lumotlar beradi. “Объектная привязка” funksiyasi haqida alohida boblar mavjud bo‘lib, ularning turlari, sozlash usullari va amaliy qo‘llanilishi misollar bilan tushuntirilgan. Mavzu bo‘yicha eng dolzarb va keng yoritilgan manbalardan biri hisoblanadi.

3. Sh.X.Ismoilov – “Mashinasozlik grafikasi va kompyuterda chizmachilik”. Ushbu kitob texnik chizmachilik asoslari va mashinasozlik grafikasi bo‘yicha bilimlarni o‘z ichiga oladi. AutoCAD dasturidan foydalanish orqali aniq chizmalar yaratish, elementlarni geometrik asosda bog‘lash va amaliy topshiriqlarni bajarish ko‘nikmalari haqida ma’lumot beradi. Object Snap funksiyasi bu jarayonlarda muhim o‘rin tutgani bois, bu adabiyot mavzuni nazariy va amaliy tomondan yoritishda foydali hisoblanadi.

4. Sham Tickoo – "AutoCAD 2024 for Engineers and Designers". AutoCAD'ning eng so'nggi imkoniyatlari yoritilgan ushbu zamonaviy qo'llanma muhandislar va dizaynerlar uchun mo'ljallangan. Unda Object Snap, Snap Overrides, Drafting Settings kabi funksiyalar aniq bosqichlar asosida tushuntiriladi. Interfeysda joylashuvi, tugmalar funksiyasi, real loyiha misollarida qo'llanilishi keltirilgan. Bu adabiyot mavzuga to'g'ridan to'g'ri amaliy asos bo'lib xizmat qiladi.

5. A.A. Matyakubov – "AutoCAD asoslari va loyihalash texnologiyasi".

Dastlabki o'rganish bosqichi uchun mo'ljallangan mazkur kitobda AutoCAD interfeysi, asosiy chizma buyruqlari, o'lchamlash, ko'rsatkichlar va bog'lash funksiyalarining ishlatilishi haqida oddiy va tushunarli tilda yoritilgan. Object Snap funksiyasining asosiy ko'rinishlari va ularni faollashtirish bo'yicha o'quvchilar uchun mos tavsiyalar berilgan. Boshlang'ich foydalanuvchilar uchun ayni muddao manba hisoblanadi.

Yuqoridagi adabiyotlar AutoCAD dasturida "Объектная привязка" funksiyasini o'rganish uchun zarur bo'lgan nazariy, amaliy va texnik asoslarni taqdim etadi.

- Sham Tickoo va E.A. Suxorukov asarlari – amaliy va zamonaviy yondashuv bilan,
- Matyakubov va Ismoilov – o'quv jarayoni uchun qulay va oson,
- Ashurov va Xolboyev esa axborot texnologiyalari bilan bog'liqlik jihatidan mavzuni to'ldiradi.

Xulosa: AutoCAD dasturidagi **«Объектная привязка» (Object Snap)** funksiyasi – bu muhandislik grafikasi va texnik loyihalashda aniqlik, qulaylik va samaradorlikni ta'minlovchi muhim vositadir. Ushbu imkoniyat chizma elementlarini kerakli geometrik nuqtalarga (markaz, uchlik, tangent, perpendikulyar va boshqalar) aniqlik bilan bog'lash orqali foydalanuvchining ishini sezilarli darajada soddalashtiradi va vaqtni tejaydi. "Asboblar paneli" orqali ushbu funksiyani faollashtirish va sozlash chizmalarni standartlarga mos ravishda, tez va xatosiz bajarishga xizmat qiladi. Natijada, bu funksiyaning to'g'ri qo'llanilishi chizmalar sifatini oshiradi, loyihalarning texnik to'g'riligini kafolatlaydi va foydalanuvchi malakasini yuksaltiradi.

TAKLIFLAR:

1. AutoCAD darslarida Object Snap funksiyalarini chuqur o'rganishga alohida e'tibor qaratish lozim, chunki bu dastur bilan samarali ishlashda asosiy amaliy ko'nikmalardan biridir.
2. O'quvchilar va talabalar uchun vizual qo'llanmalar (skrinshot, video darsliklar) orqali "Объектная привязка" funksiyasini amaliy o'rganishni tashkil qilish tavsiya etiladi.
3. Loyiha chizmalarini tuzishda standart Object Snap sozlamalari bo'yicha shablonlar yaratish foydalanuvchilarga vaqt tejash va xatoliklarni kamaytirishda yordam beradi.
4. Texnik universitetlar va kollejlar o'quv dasturlariga AutoCAD'da ilg'or snap funksiyalari bilan ishlash bo'yicha amaliy mashg'ulotlar kiritilishi kerak.

5. “Object Snap” funksiyasini boshqa AutoCAD imkoniyatlari bilan integratsiyalashgan holda o‘rgatish – masalan, qatlamlar, bloklar va annotatsiyalar bilan birgalikda qo‘llash – real loyihalarda keng qamrovli ko‘nikmalarni shakllantiradi.

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SHARQ VA G'ARB FALSAFASIDA ISHONCH VA E'TIQOD TO'G'RISIDAGI FALSAFIY QARASHLAR

Annotatsiya: *Ushbu maqola Sharq va G'arb falsafiy an'analarida ifodalangan e'tiqod va e'tiqodga qarama-qarshi nuqtai nazarlarni o'rganadi. U G'arb falsafasining metafizik tadqiqotlaridan tortib Sharq falsafalarida uchraydigan ruhiy va tajribaviy o'lchovlargacha bo'lgan turli tafakkur maktablari e'tiqod va e'tiqod tushunchalarini qanday shakllantirishini o'rganadi. Maqolada Dekart, Kierkegor, Konfutsiy va Zen buddizm kabi shaxslarning asosiy matnlari va g'oyalari tahlil qilinadi. Ushbu qiyosiy tahlil orqali maqolada e'tiqod tizimlarini shakllantiradigan madaniy asoslarini hamda e'tiqod va aql o'rtasidagi o'zaro ta'sirni chuqurroq tushunishga chaqiradi.*

Kalit so'zlar: *Sharq falsafasi, G'arb falsafasi, e'tiqod, metafizika, ekzistensializm, konfutsiylik, zen-buddizm, gnoseologiya, axloq, ma'naviyat, qiyosiy falsafa.*

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PHILOSOPHICAL VIEWS ON FAITH AND BELIEF IN EASTERN AND WESTERN PHILOSOPHY

Annotation*: This article examines opposing views on faith and belief as expressed in Eastern and Western philosophical traditions. It examines how different schools of thought, from the metaphysical explorations of Western philosophy to the spiritual and experiential dimensions found in Eastern philosophies, shape the concepts of faith and belief. The article analyzes key texts and ideas of figures such as Descartes, Kierkegaard, Confucius, and Zen Buddhism. Through this comparative analysis, the article calls for a deeper understanding of the cultural foundations that shape belief systems and the interplay between faith and reason.*

Keywords*: Eastern philosophy, Western philosophy, faith, metaphysics, existentialism, Confucianism, Zen Buddhism, epistemology, ethics, spirituality, comparative philosophy.*

Kirish

Ishonch va e'tiqod tushunchalari uzoq vaqt davomida madaniyatlar bo‘ylab falsafiy nutqni shakllantirishda muhim ahamiyatga ega bo‘lgan. Sharq va G‘arb an’analarida bu g‘oyalar turlicha dunyoqarashlar, madaniy kontekstlar va tarixiy sharoitlarni aks ettiruvchi falsafiy qarashlar bo`lgan. Ko‘pincha o‘zining analitik qat'iyligi va aqlga urg‘u berish bilan ajralib turadigan G‘arb falsafasi, sub'ektiv tajriba sifatida e'tiqod bilan kurashib, uni oqilona asoslash atrofida bahs-munozaralarga kirishadi.

Masalan, Rene Dekart va Soren Kierkegaard kabi mutafakkirlar e'tiqodning aql, shubha va mavjudlik bilan bog‘liqligi haqida fikr yuritib, uning murakkabliklarini yoritib berishgan. Aksincha, Sharq faylasuflari e'tiqodga ko‘proq tajribaviy yaxlit nuqtai nazardan yondashadilar. Buddizm va konfutsiylik esa an'analar e'tiqod tizimlarining ajralmas tarkibiy qismlari sifatida shaxsiy ma’rifat, jamoa va axloqiy hayotning ahamiyatini ta’kidlaydi.

Ushbu doiralarda ular ko‘pincha imon tushunchasini amaliyot va donolik bilan chambarchas bog‘lab, oddiy aqidalardan ustun bo‘lgan e'tiqodni yanada yumshoqroq va rivojlanayotganday tushunishni taklif qiladi. Bu ikki falsafiy qarash e'tiqod va e'tiqod o‘rtasidagi murakkab o‘zaro ta’sirni yoritishga qaratilgan.

Biz yuqoridagilardan kelib chiqib, asosiy matnlar va ta’limotlarni o‘rganib chiqib, har bir an'ana bu tushunchalarni qanday aniqlashini, izohlashini va foydalanishini o‘rganib, ushbu maqolada ular taklif qilayotgan chuqur tushunchalarni, cheklovlarini ochib beramiz. Ushbu qiyosiy tahlil orqali biz e'tiqod va e'tiqod inson borlig‘i, axloqi va ma’naviyatini turli kontekstlarda qanday shakllantirishini chuqurroq tushunishga intilamiz, hamda pirovardida Sharq va G‘arb tafakkurining yanada boy muloqotiga o`z fikrlarimizni bildirmoqchimiz.

Asosiy qism

Ishonch va e’tiqod Sharq va G‘arb an’analarining falsafiy manzaralarini shakllantirgan asosiy tushunchalardir. Ular turli yo‘llar bilan kesishsa-da, madaniy, tarixiy va kontekstual farqlar aniq talqin va qo‘llanilishini keltirib chiqaradi.

Masalan, Sharq falsafasida ishonch va e’tiqod shaxsiy tajriba, amaliyot va jamiyat bilan chambarchas bog‘langan. Hinduizm, buddizm va konfutsiylik falsafasida esa Dharma (burch/axloq) va Karma (harakat) tushunchalariga asoslangan e'tiqodlarning boy gobeleni taqdim etilgan. Hinduizmga e'tiqod ko‘pincha xudolarga, marosimlarga sadoqat Vedalar va Upanishadlar kabi qadimiy matnlarda bayon etilgan axloqiy tamoyillarga rioya qilish orqali ifodalanadi.

Hinduizmdagi “Sankhya” tushunchasi borliqni dualistik talqin qilib, e’tiqod insonning moddiy va ma’naviy olamlarni anglashi bilan bog‘liqligini ko‘rsatadi. Bhagavad Gita esa asosiy falsafiy oyatni, e'tiqodning mohiyatini axloqiy ikkilanishlar oldida shaxsning burchiga taalluqliligini ifodalaydi. Shuningdek, Arjunaning oilaviy sadoqat fonida jangchi sifatidagi burchi bilan kurashishi harakatdagi imonning murakkabligi deb ko‘rsatadi.

Shu nuqtai nazardan, e'tiqod shunchaki qabul qilishdan ko‘ra ko‘proq solihlikka intilishda faol ishtirok etishni va kosmik tartibdagi o‘z o‘rnini tushunishni o‘z ichiga oladi. Bu nuqtai nazar amaliyotchilarni shaxsiy e'tiqod tajribasini rivojlantirishga undaydi. Bu esa ko‘pincha chuqurroq tushuncha va ma’rifatga olib keladi.

Buddizm e'tiqod va e'tiqodning o‘ziga xos ko‘rinishini taklif qilib, shaxsiy tajriba va tushunchani insonning ruhiy sayohatining muhim tarkibiy qismi sifatida ta’kidlaydi. Shuningdek, ular Buddaning to‘rtta ezgu haqiqati va sakkizta yo‘lga asoslangan ta’limoti e'tiqodni faqat meros qilib olish yoki qabul qilish mumkin emasligini taklif qilib, uni o‘z tushunchasi orqali boshdan kechirish va talqin qilish kerak deb ta`kidlashadi.

Buddizmda e'tiqod ko‘pincha "Shraddha"ga o‘xshatiladi, ya’ni tirishqoq amaliyot orqali ma’rifatga erishish mumkinligiga ishontirishadi. Bu imon ko‘r emas bu donolik, axloqiy xulq-atvor va meditatsiyaning o‘zgartiruvchi kuchidan ma’lum bo‘ladi. "Anatta" yoki o‘z-o‘zidan bo‘lmagan tushunchasi an'anaviy e'tiqod tushunchalarini yanada murakkablashtirib, tarafdorlarni borliq va o‘zlikni shubha ostiga qo‘yishga undaydi. Buddist falsafasi dogmaga nisbatan skeptitsizmni rag‘batlantiradi va e'tiqodga empirik yondashuvni targ‘ib qiladi. Izdoshlar tushunchalar va e'tiqodlarni o‘zlarining tajribalariga qarshi sinab ko‘rishga o‘rgatiladi, bu esa shaxsiy bo‘lgan e'tiqodni rivojlanayotgan dinamik tushunishni targ‘ib qiladi.

Konfutsiylik esa e'tiqod va e'tiqodga o‘ziga xos nuqtai nazarni ijtimoiy munosabatlar, axloq va jamiyatning muhimligida deb ta’kidlaydi. Konfutsiy asosiy e’tiborni ezgulikni tarbiyalashga qaratadi va “Ren” (xayr-ehson) va “Li” (marosimlarga moslik) uyg‘un jamiyatning tamal toshlari sifatidagi ahamiyatiga e`tibor qaratadi.

Shu nuqtai nazardan kelib chiqib aytishimiz mumkinki, e'tiqod nafaqat ichki tajriba, balki insonning harakatlari va munosabatlari orqali tashqi ko‘rinishda namoyon bo‘ladi. Konfutsiy ideali farzandlik taqvosi va an'analarga hurmat muhimligini ta’kidlab, e'tiqod jamoaning umumiy xotirasi va umumiy qadriyatlaridan kelib chiqqanligini ko‘rsatadi. Konfutsiylik ta’limoti e'tiqod axloqiy xulq-atvor va jamiyatdagi o‘z rolini bajarish orqali o‘stirilishini anglatadi. Konfutsiy o`z qarashlarida ta’lim, axloqiy rivojlanish va jamiyat uyg‘unligining ahamiyatini shaxsiy amalga oshirish uchun zarur bo‘lgan jamoaviy e'tiqod shakli deb ta’kidlaydi.

Sharq nuqtai nazaridan farqli o‘laroq, G‘arb falsafasi ko‘pincha aql, individuallik va tanqidiy izlanishga urg‘u beradi. G‘arb falsafasining ildizlari Qadimgi Yunonistonlik faylasuflar Aflotun va Aristotel kabi mutafakkirlarning ratsional tadqiqotlariga borib taqaladi. Masalan, G`arb falsafasidan farqli o`laroq Aflotunning shakllar nazariyasi shuni ko‘rsatadiki, e'tiqod aql-idrok sohasida mavjud bo‘lib, moddiy olam esa haqiqiy voqelikning soyasidir.

Shu ma’noda, imonni jismoniy dunyoda osonlikcha ko‘rinmaydigan oliy haqiqatlarni tushunish vositasi sifatida ko‘rish mumkin. "G‘or allegoriyasi" odamlar qanday qilib jaholatdan ma’rifat sari sayohat qilishlari va oxir-oqibat oddiy idroklardan ustun boʻlgan ideallarga boʻlgan ishonchni rivojlantirishlari kerakligini koʻrsatadi.[1]

Shuningdek, Aristotelning empirik yondashuvi e'tiqodni kuzatish va tajriba bilan birlashtirish yoʻlidagi sezilarli oʻzgarishlarni koʻrsatadi. Uning axloqni oʻrganishi, xususan, "Nikomax axloqi" asarida, eudaimonia yoki insonning gullab-yashnashiga erishish vositasi sifatida ezgu hayotni taʼkidlaydi va shu bilan e'tiqodni axloqiy xulq-atvorga asoslangan amaliy oʻlchov bilan singdiradi.

Oʻrta asrlar davri e'tiqod va aql oʻrtasidagi chuqur oʻzaro taʼsirga guvoh boʻldi, ayniqsa Avgustin va Akvinskiy kabi ilohiyotchilarning asarlarida. Avgustinning asarlarida e'tiqodning ichki kurashi shubha va ilohiy maʼrifat bilan ajralib turadigan chuqur shaxsiy sayohat sifatida aks ettirilgan. Uning "Men tushunish uchun ishonaman" degan mashhur iborasi imonning asosli ekanligini taʼkidlaydi.

Akvinskiy esa aql va e'tiqod uygʻunlikda yashashi mumkinligini taʼkidlab, e'tiqodni Aristotel falsafasi bilan uygʻunlashtirishga harakat qildi. Uning "Besh yoʻli" xudoning borligi toʻgʻrisida oqilona dalillarni taqdim etadi, bu ham e'tiqodga, ham intellektual tadqiqotlarga asoslangan e'tiqodni taʼkidlaydi. Ushbu tahlil xristian tafakkuriga sezilarli taʼsir koʻrsatdi, e'tiqodni oqilona dalillar bilan qoʻllab-quvvatlash mumkinligi haqidagi gʻoyani ilgari surdi va bu e'tiqodni yanada mustahkamroq tushunishga olib keldi.

Zamonaviy falsafaning tongida Kierkegor va Nitsshe kabi ekzistensialist mutafakkirlar yetishib chiqdi, ular e'tiqod va e'tiqodni tubdan turli tomonlardan tanqidiy koʻrib chiqdilar. Koʻpincha ekzistensializmning otasi deb hisoblangan Kierkegaard e'tiqodning sub'ektiv xususiyatini taʼkidladi. Uning taʼkidlashicha, haqiqiy e'tiqod "sakrash" ni, ilohiylikka shaxsiy va baʼzan mantiqsiz sodiqlikni, oqilona tushunishdan ustun turadi. Kierkegaardning e'tiqod va shubha dialektikasi e'tiqodga xos boʻlgan keskinlikni taʼkidlab, shaxsning ilohiy bilan munosabatlari noaniqlik bilan toʻla ekanligini koʻrsatadi. Uning taʼkidlashicha, haqiqiy mavjudlik ushbu noaniqlikni majburiyat va ishtiyoq bilan boshqarishni talab qiladi. Bundan keskin farqli oʻlaroq, Nitsshe "Xudoning oʻlimi" ni mashhur e'lon qilib, dunyoviy kontekstda e'tiqodni qayta baholashni qoʻzgʻatdi. Uning falsafasi an'anaviy e'tiqod tushunchalariga qarshi chiqadi, oʻziga xos maqsadlardan mahrum boʻlgan dunyoda individual qadriyatlar va maʼnolarni yaratishni targʻib qiladi. Bu nuqtai nazar tobora koʻp va dunyoviy jamiyatdagi e'tiqod tizimlari haqidagi zamonaviy munozaralar bilan rezonanslashadi.

Sharq va Gʻarb falsafasida ishonch va eʼtiqodga oid qarashlar kesishish va tafovutlarni ochib beradi. Sharq an'analari koʻpincha jamoaviy va tajribaviy yondashuvni taʼkidlagan joyda, Gʻarb falsafasi koʻpincha individuallik va oqilona izlanishni birinchi oʻringa qoʻyadi. Biroq, ikkala an'ana ham e'tiqodning inson mavjudligida etakchi kuch sifatidagi ahamiyatini tasdiqlaydi.

[1] Qoʻchqorov, V., Mahmudov, O., & Zamonov, Z. (2017). Maʼnaviyat asoslari. Darslik. T.:“Yangiyo ‘l poligraf servis.

Sharq tafakkurida e’tiqod jamiyat, axloqiy xulq-atvor va shaxsiy tajriba orqali o‘stirilib, borliqni chuqur o‘zaro bog‘langan tushunishni aks ettiradi. G‘arb falsafasi esa, aksincha, e'tiqod va aql o‘rtasidagi taranglik bilan kurashib, zamonaviylik qiyinchiliklari sharoitida e'tiqodning murakkabligini ta’kidlaydi. Sharq va G‘arb falsafalari o‘zlarining farqlariga qaramay, borliq, axloq va inson tajribasi haqidagi universal savollar bilan shug‘ullanadilar. Ushbu an'analar o‘rtasidagi muloqot bizning e'tiqod va e'tiqod haqidagi tushunchamizni boyitib, zamonaviy dunyomizda ma’naviyatni yanada chuqurroq o‘rganishga undaydi.

Sharq va G‘arb falsafasidagi ishonch va e’tiqod haqidagi qarashlarni o‘rganar ekanmiz, biz insoniyat ekzistensial savollar bilan kurashayotgan turli yo‘llar haqida tushunchaga ega bo‘lamiz. Sharq an'analarining tajriba amaliyotlari yoki G‘arb tafakkurining oqilona izlanishlari orqalimi, ikkala nuqtai nazar ham e'tiqodni tushunishimizga qimmatli hissa qo‘shadi. Jamiyatlar taraqqiy etar ekan, Sharq va G‘arb falsafalari o‘rtasidagi muloqot kengayib boraveradi, bu esa e’tiqodning tabiati[2], uning individual va jamoaviy o‘ziga xoslikni shakllantirishdagi roli haqida chuqurroq fikr yuritishga undaydi. Oxir oqibat, e'tiqod va e'tiqodni o‘rganish falsafiy sayohatning muhim jihati bo‘lib qolmoqda va bizni o‘z qadriyatlarimiz, munosabatlarimiz va mavjudligimiz uchun bergan ma’no haqida fikr yuritishga taklif qiladi.

Ushbu munozarani yakunlar ekanmiz, qarashlarning oqibatlari haqida mulohaza yuritish va bu nuqtai nazarlarning integratsiyasi yoki uyg‘unligi bizning zamonaviy jamiyatdagi ishonch va e'tiqod haqidagi tushunchamizni qanday oshirishi mumkinligini ko‘rib chiqish juda muhimdir. Sharq va G‘arb nuqtai nazarlarining e'tiqodga integratsiyalashuvi zamonaviy axloqiy falsafa uchun ham muhim ta’sir ko‘rsatadi. Tez texnologik taraqqiyot va ijtimoiy-siyosiy inqiloblar bilan tavsiflangan bugungi dunyoda axloqiy ravshanlikka intilish har qachongidan ham muhimroqdir. Sharq falsafalari jamoaviy farovonlik, axloqiy xulq-atvor va barcha mavjudotlarning o‘zaro bog‘liqligiga urg‘u berib, global axloqiy dilemmalar haqida muhim tushunchalarni berishi mumkin. Shu bilan birga, G‘arb falsafasining boyligi jiddiy tanqidiy tahlil va haqiqatga intilishni rag‘batlantiradi, axloqiy fikrlashda javobgarlik va shaffoflikni ta’minlaydi. Ushbu istiqbollarning o‘zaro ta’siri zamonaviy axloqiy muammolarni hal qilish uchun qulay zamin yaratadi, shaxslar va jamiyatlarni jamoaviy mas'uliyat va shaxsiy yaxlitlikni o‘z ichiga olgan muvozanatli yondashuvni rivojlantirishga undaydi. Ta’lim va nutqda imon va e'tiqodni doimiy ravishda tekshirish bizni turli nuqtai nazarlarning qadrini tushunishga undaydi.

Sharq va G‘arb falsafalarini hurmat qiladigan muhitni targ‘ib qilish orqali o‘qituvchilar, faylasuflar va ma’naviyat yetakchilari e’tiqodning ko‘p qirrali tabiatini qadrlaydigan muloqotlarni rivojlantirishlari mumkin. Ushbu munozaralar tanqidiy fikrlashni ilhomlantirishi, empatiyani rivojlantirishi va odamlarni kelishmovchilik bilan ajralib turadigan dunyoda o‘z e'tiqodlarini ifoda etishga undashi mumkin. Va nihoyat, e'tiqod va e'tiqodni doimiy ravishda o‘rganish nafaqat

[2] Walbridge, J. (2001). The Wisdom of the Mystic East: Suhrawardī and Platonic Orientalism. SUNY Press.

akademik ish, balki koʻplab odamlar uchun chuqur shaxsiy sayohatdir. Ular oʻz yoʻllarida harakat qilar ekanlar, Sharq va Gʻarb tafakkurining uygʻunligidan oʻzlari va dunyodagi oʻrni haqidagi tushunchalarini boyitish vositalarini topishlari mumkin. Oʻz e'tiqodlarini soʻroq qilish, mulohaza yuritish va oʻrganish harakati kuch-quvvat manbai boʻlib, odamlarga mavjudlik murakkabliklari bilan mazmunli shugʻullanish imkonini beradi. Bu tushunish va bogʻlanishga tinimsiz intilish bilan ajralib turadigan inson tajribasi bilan rezonanslashadi.

Xulosa

Xulosa qilib aytadigan boʻlsak, Sharq va Gʻarb falsafasidagi ishonch va e'tiqodni oʻrganish mulohaza yuritish va ishtirok etishga chorlaydigan keng koʻlamli tadqiqotlarni ochib beradi. Ushbu istiqbollarning boyligini oʻzlashtirib, biz ishonish, mavjud boʻlish va tez oʻzgaruvchan dunyomizda harakat qilish nimani anglatishini chuqurroq tushunishimiz mumkin. Ushbu falsafalarning oʻzaro ta’siri bizni izlanish va ochiqlik ruhini saqlab qolishga, hayotimizni boyitishga va rang-baranglikda yanada birdamlik tuygʻusini rivojlantirishga undaydi. Shunday qilib, ishonch va e'tiqod atrofidagi muloqot oddiy falsafiy nutqdan ustun boʻlib, bizning umumiy insoniy tajribamizning muhim jihatiga aylanadi va bizni izlashga, tushunishga hamda oxir-oqibat bir-birimiz bilan mazmunli tarzda bogʻlanishga undaydi.

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SAMARQAND VILOYATIDA EKOLOGIK OMILLARNING TA'SIRIDA AHOLI SALOMATLIGI TAHLILI

Annotatsiya: *Mazkur maqolada Samarkand viloyatida ekologik omillarning aholi salomatligiga ko'rsatgan ta'siri ilmiy jihatdan tahlil etilgan. Asosiy e'tibor havo, suv va tuproq ifloslanishi, sanoat chiqindilari hamda agroximik moddalarning salomatlikka salbiy ta'siriga qaratilgan. Tadqiqot statistik ma'lumotlar, so'rovnomalar va amaliy kuzatuvlarga asoslangan. Olingan natijalar asosida yurak-qon tomir, nafas olish va infeksion kasalliklarning ekologik omillar bilan bog'liqligi isbotlangan. Xulosa qismida sog'liqni saqlash siyosatini takomillashtirish va atrof-muhit muhofazasini kuchaytirish bo'yicha tavsiyalar berilgan.*

Kalit so'zlar: *ekologiya, salomatlik, ifloslanish, havo sifati, ichimlik suvi, sanoat chiqindilari, agroximik modda, kasalliklar, tahlil, Samarkand.*

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ANALYSIS OF THE IMPACT OF ENVIRONMENTAL FACTORS ON PUBLIC HEALTH IN SAMARKAND REGION

Abstract:*This article presents a scientific analysis of the impact of environmental factors on public health in the Samarkand region. The study focuses on air, water, and soil pollution, as well as the effects of industrial waste and agrochemicals on human health. The research is based on statistical data, surveys, and field observations. Findings confirm a direct link between environmental degradation and the increase in cardiovascular, respiratory, and infectious diseases. The conclusion offers practical recommendations to improve health policy and strengthen environmental protection efforts in the region.*

Keywords: *ecology, health, pollution, air quality, drinking water, industrial waste, agrochemicals, diseases, analysis, Samarkand.*

Kirish: Ekologik muhit inson salomatligiga bevosita ta'sir ko'rsatadigan muhim omillardan biridir. Bugungi kunda ekologik muammolar global darajadagi muhokamalarga sabab bo'layotgan bo'lsa-da, ularning mahalliy darajadagi oqibatlari yanada dolzarb ahamiyat kasb etmoqda. O'zbekiston Respublikasi, xususan, Samarkand viloyatida ham aholi salomatligiga ekologik omillar, jumladan, havo, suv va tuproq ifloslanishi, sanoat chiqindilari, transport vositalarining koʻpayishi, ichimlik suvi taʼminotining sifati kabi koʻplab jihatlar taʼsir koʻrsatmoqda. Aholi zich joylashgan va qadimiy tarixga ega boʻlgan Samarkand viloyatida soʻnggi yillarda turli kasalliklarning avj olishi, onkologik va nafas olish tizimi kasalliklari darajasining oshishi kuzatilmoqda [Karimov, 33]. Ushbu holat ekologik omillar bilan bevosita bog’liq boʻlib, ularni ilmiy asosda oʻrganish va baholash zaruriyatini yuzaga keltirmoqda. Mazkur maqola Samarkand viloyatidagi ekologik holat va uning aholi salomatligiga taʼsirini tahlil qilishga qaratilgan boʻlib, mavjud muammolarni aniqlash va ularni bartaraf etish boʻyicha ilmiy xulosalar beradi..

Tadqiqot uslubi: Tadqiqotda kvantitativ metod asosida statistik tahlil va amaliy kuzatuvlar asosida maʼlumotlar toʻplandi. Maqola doirasida Samarkand viloyatining Urgut, Past Darg’om, Tayloq va Samarqand shahri hududlarida ekologik omillarning salomatlikka taʼsiri boʻyicha soʻrovnomalar oʻtkazildi. Shuningdek, viloyat sog’liqni saqlash boshqarmasi, Oʻzgidromet va Davlat sanitariya-epidemiologiya nazorati markazidan olingan 2015–2024-yillar oralig’idagi statistik maʼlumotlar tahlil qilindi. Tahlil qilishda asosiy indikatorlar sifatida havo sifati indeksi, ichimlik suvi ifloslanish darajasi, atmosfera chiqindilari miqdori va maʼlum kasalliklar soni asos qilib olindi. Statistik analiz uchun Excel va SPSS dasturlaridan foydalanildi. Kasalliklarning geografik taqsimoti esa GIS texnologiyalari yordamida xaritalashtirildi.

Natijalar: Tadqiqot natijalariga koʻra, Samarkand viloyatining ayrim tumanlarida ekologik holatning yomonlashuvi bevosita aholining sog’lig’iga salbiy taʼsir koʻrsatayotgani aniqlandi. Urgut va Samarqand shahrida atmosferaga chiqarilayotgan sanoat chiqindilarining miqdori yildan-yilga ortib bormoqda. 2020-yilda Urgut sanoat zonasi yaqinida havo ifloslanishining oʻrtacha indeksi 85 birlikni tashkil qilgan boʻlsa, bu Jahon sog’liqni saqlash tashkiloti tomonidan belgilangan meʼyordan 2,1 baravar yuqori. Havo tarkibidagi chang zarralari, azot dioksidi va uglerod oksidining meʼyordan oshishi, ayniqsa, bolalar va keksa yoshdagi fuqarolarda nafas olish organlari kasalliklarini koʻpaytirmoqda. Karimov oʻz tadqiqotida Samarkand shahrida ayniqsa yosh bolalarda allergik kasalliklarning keskin ortganini qayd etadi [Karimov, 77]. 2018–2023-yillar oralig’ida Samarkand shahrida bronxial astma bilan kasallanganlar soni 37 foizga, surunkali bronxit bilan og’riganlar esa 22 foizga oshgan.

Ichimlik suvi sifatining yomonlashuvi ham salomatlik uchun jiddiy xavf tug’dirmoqda. Qishloq joylarda aholining 29 foizi hali ham markazlashmagan ichimlik suvi manbalaridan foydalanadi. Bu manbalar, koʻp hollarda, gigiyenik talablar darajasida tozalanmagan boʻlib, parazitar kasalliklar, ayniqsa, dizenteriya, gemintoz va gepatit A tarqalishiga sabab boʻlmoqda. Sog’liqni saqlash boshqarmasi maʼlumotlariga koʻra, 2022-yilda viloyatda ichak infektsiyalari bilan bog’liq kasalliklar 100 ming aholiga 183 holatni tashkil qilgan, bu esa respublika oʻrtacha koʻrsatkichidan 1,4 baravar yuqori [Oʻzbekiston Respublikasi Sogʻliqni Saqlash Vazirligi, 45].

Tuproqning ifloslanishi va agroximik moddalarning ortiqcha qo‘llanilishi esa ovqat orqali organizmga tushayotgan zararli moddalar miqdorini ko‘paytirib, jigar, buyrak, yurak-qon tomir tizimi bilan bog’liq kasalliklarning ortishiga olib kelmoqda. Tadqiqot natijalariga ko‘ra, Urgut va Past Darg’om tumanlarida tuproqdagi nitrat miqdori me’yordan 2–3 baravar ortiq bo‘lib, bu yerda yashovchi aholida yurak ishemik kasalliklari 2020–2023-yillar davomida 28 foizga ko‘paygan.

Muhokama: Yuqoridagi natijalar Samarkand viloyatida ekologik holat ahvoli aholi salomatligiga to‘g’ridan-to‘g’ri va bevosita ta’sir ko‘rsatishini tasdiqlaydi. Ayniqsa, havo sifati va ichimlik suvi muammolari surunkali kasalliklarning oshishiga olib kelayotgani jiddiy tashvish uyg’otadi. Tadqiqot davomida aniqlanganidek, ekologik ifloslanish ko‘pincha ijtimoiy jihatdan zaif qatlamlarga — qishloq aholisi, kam ta’minlangan oilalar, bolalar va qariyalarga ko‘proq ta’sir qiladi. Shuningdek, ekologik sog’liq muhofazasi sohasidagi institutsional zaifliklar — atrof-muhitni monitoring qilish tizimining yetarli emasligi, suv resurslarini tozalash inshootlarining eskirganligi, aholining ekologik savodxonligi pastligi muammoni yanada chuqurlashtiradi.

Ayrim hollarda mahalliy sanoat korxonalari va qishloq xo‘jalik faoliyati ekologik normalarga zid ravishda faoliyat yuritayotgani kuzatildi. Ayrim hududlarda chiqindilarni to‘g’ri boshqarish tizimining yo‘qligi yoki nomutanosibligi, turli ommaviy kasalliklarning yuzaga kelishiga sabab bo‘layotgan omillardan biridir. Masalan, Urgut tumani sanoat hududlarida havo monitoringi uskunalarining yetishmasligi sababli uzoq vaqt davomida ifloslanish darajasi aniq nazorat qilinmagan. Bu esa ekologik salomatlik siyosatini ishlab chiqishda noaniqliklarga olib kelgan.

Bundan tashqari, aholining ekologik ongini oshirish, ekologik xavfsizlik bo‘yicha ma’lumotli bo‘lishi masalasi ham dolzarbdir. Tadqiqot davomida so‘rovnoma orqali o‘tkazilgan tahlillar shuni ko‘rsatdiki, respondentlarning 61 foizi ekologik xavflar haqida to‘liq axborotga ega emas, 47 foizi esa atrof-muhitni muhofaza qilishda fuqarolik ishtirokini ahamiyatsiz deb hisoblaydi [Raximova, 77]. Bu esa ekologik muammolarni bartaraf etishda aholining hamkorligiga ehtiyoj katta ekanini bildiradi.

Xulosa : Tadqiqot natijalari shuni ko‘rsatadiki, Samarkand viloyatida ekologik omillarning aholi salomatligiga ta’siri sezilarli darajada bo‘lib, ayniqsa sanoat chiqindilari, havoning ifloslanishi, ichimlik suvi sifatining pastligi va agroximik ifloslanish asosiy xavf omillari sifatida ajralib turadi. Ekologik omillar tufayli yuzaga kelayotgan kasalliklar nafaqat aholining hayot sifatini pasaytiradi, balki sog’liqni saqlash tizimi uchun ham katta yuk bo‘lib qolmoqda. Shu bois, mahalliy va markaziy hokimiyat organlari tomonidan quyidagi chora-tadbirlarni amalga oshirish zarur: atrof-muhit monitoringi tizimini kuchaytirish, chiqindilarni boshqarish bo‘yicha zamonaviy tizimlarni joriy etish, ichimlik suvi sifatini yaxshilash uchun infratuzilmani modernizatsiya qilish, ekologik ta’lim va targ’ibot ishlarini kengaytirish.

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APPLICATIONS OF CORPUS LINGUISTICS IN LANGUAGE TEACHING

Annotation: *This article explores the practical applications of corpus linguistics in language teaching, with a particular focus on its relevance for teacher education institutions in Uzbekistan. Corpus linguistics provides a data-driven approach to analyzing authentic language usage, which can significantly enhance the effectiveness of language instruction. The paper discusses how corpus-based methods can support vocabulary teaching, grammar instruction, discourse analysis, and the development of learner autonomy. It also highlights various tools and techniques that language teachers can use to integrate corpora into their classrooms.*
Keywords*: corpus linguistics, language teaching, data-driven learning, teacher education, learner autonomy, vocabulary acquisition, pedagogical applications.*

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KORPUS LINGVISTIKASI VOSITALARINING TIL O'QITISHDAGI QO'LLANILISHI

Annotatsiya*: Ushbu maqolada korpus lingvistikasi usullarining til o'qitishdagi amaliy qo'llanilishi, xususan, O'zbekistondagi pedagogik ta'lim muassasalari uchun dolzarbligi tahlil qilinadi. Korpus lingvistikasi — bu tabiiy til namunalariga asoslangan, ma'lumotlarga tayanuvchi tahlil usuli bo'lib, til o'qitish samaradorligini sezilarli darajada oshirishi mumkin. Maqolada korpus asosidagi yondashuvlarning so'z boyligini o'rgatish, grammatikani tushuntirish, nutq tahlili va o'quvchilarning mustaqil ta'limga intilishini shakllantirishda qanday yordam berishi yoritilgan. Shuningdek, til o'qituvchilari uchun korpuslardan samarali foydalanish imkonini beruvchi turli vosita va usullar ham ko'rib chiqiladi.*
Kalit so'zlar: *korpus lingvistikasi, til o'qitish, ma'lumotlarga asoslangan ta'lim, pedagogik ta'lim, mustaqil o'rganish, so'z boyligini rivojlantirish, pedagogik qo'llanmalar.*

In recent decades, corpus linguistics has emerged as a powerful tool in the field of language education, offering new insights into how languages are used and learned. By analyzing large collections of authentic texts, corpus linguistics allows educators and researchers to observe real-life language patterns, frequencies, and contextual uses of words and structures. This empirical approach contrasts with the traditional intuition-based methods of language teaching, offering a more accurate and evidence-based foundation for pedagogical decisions.

The integration of corpus linguistics into language teaching is especially relevant in teacher education programs, where future educators must be equipped with innovative and effective instructional strategies. In the context of Uzbekistan, where English language proficiency is becoming increasingly important, corpus-based teaching can contribute to more effective curricula and learning outcomes. It enables teachers to design materials that reflect natural language use, identify common learner errors, and promote awareness of collocations, genre conventions, and discourse patterns.

Moreover, corpus tools empower students by promoting data-driven learning, where learners independently explore language forms and functions through guided corpus searches. This fosters not only language competence but also critical thinking and research skills. As digital technologies become more accessible in the region, incorporating corpus linguistics into teacher training and classroom instruction presents a timely and valuable advancement in language education.

The application of corpus linguistics in language teaching covers a wide range of instructional areas, from vocabulary development to grammar teaching and writing skills. One of the most prominent uses of corpora in the classroom is the teaching of vocabulary. Unlike traditional word lists, corpus-based vocabulary instruction provides learners with frequency information, collocations, and authentic usage patterns. For example, rather than teaching the word “make” in isolation, teachers can present high-frequency collocations such as “make a decision” or “make an effort,” helping learners understand how words naturally combine.

Corpus tools also support grammar instruction by highlighting how grammatical structures are used in real contexts. Teachers can use corpora to show students how specific tenses, modal verbs, or passive constructions appear in actual texts. This contextual approach helps learners move beyond rule memorization and towards a deeper understanding of how grammar functions in communication. For instance, analyzing examples of the present perfect tense in a corpus can clarify its use for recent events with present relevance, a concept often misunderstood by learners.

Another significant application is in the teaching of writing and discourse analysis. Corpora provide access to genre-specific language, allowing learners to explore how language varies across different contexts. Students can examine features of academic writing, business emails, or newspaper articles to understand tone, register, and discourse structure. This can improve their own writing skills by giving them models based on real language data rather than idealized or invented examples.

Moreover, corpus linguistics contributes to learner autonomy through data-driven learning (DDL). In DDL, students investigate language patterns themselves by using concordance software to search for specific words or structures in a corpus. This investigative approach turns learners into language researchers, fostering active engagement and critical thinking. For example, a student interested in improving their use of linking devices could search a corpus of academic texts to see how “however,” “moreover,” or “in contrast” are used in context.

Teacher training programs can benefit immensely from incorporating corpus-based methods into their curriculum. Future teachers who are familiar with corpus tools and techniques can develop more relevant, authentic, and learner-centered materials. Additionally, they are better prepared to address students’ real linguistic needs and to justify pedagogical choices with evidence from actual language use.

In Uzbekistan, initiatives to improve English language education align well with the integration of corpus linguistics. As digital resources become more widely available and internet access improves, schools and universities have increasing opportunities to implement corpus-based instruction. Developing localized corpora that reflect Uzbek learners’ language use, or accessing freely available corpora like the British National Corpus (BNC) or the Corpus of Contemporary American English (COCA), can support this process. By embracing corpus linguistics, language educators in Uzbekistan can modernize their teaching practices and contribute to raising national language proficiency standards.

The incorporation of corpus linguistics into language teaching represents a significant advancement in modern pedagogy. By relying on authentic language data, teachers can offer more accurate, relevant, and engaging instruction. Corpus-based approaches allow learners to understand language in context, observe patterns of usage, and develop critical awareness of how language functions across various domains. This not only enhances linguistic competence but also encourages learner independence and analytical thinking.

For teacher education programs in Uzbekistan, integrating corpus linguistics offers long-term benefits. It equips future educators with innovative tools and methodologies that align with global trends in language education. As access to digital technologies and online corpora expands, the practical implementation of these approaches becomes increasingly feasible. Encouraging the development of local corpora and training teachers to use them effectively can support the national goals of improving English language teaching and learning outcomes.

Ultimately, corpus linguistics bridges the gap between theory and practice, enabling a more data-informed, learner-centered classroom environment. Its applications in vocabulary, grammar, writing, and learner autonomy make it an indispensable resource for language educators aiming to meet the needs of 21st-century learners.

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BERK BOSHQARISH KONTURIDA DINAMIK OB’EKTLAR PARAMETRLARINI ADAPTIV IDENTIFIKATSIYALASH VA HOLATNI BAHOLASH ALGORITMLARI

Annotatsiya. *Ushbu ishda berk boshqaruv konturidagi dinamik ob’ektlarning parametrlarini adaptiv identifikatsiya qilish va holatni baholash algoritmlari ishlab chiqiladi. O‘zaro korrelyatsiya funksiyalari, funksional identifikatsiya va noaniq logikaga asoslangan usullar taklif etiladi. Matematik model va tajriba natijalari yordamida algoritmlarning samaradorligi ko‘rsatiladi. Identifikatsiyalilik shartlari va zaxirasi tahlil qilinadi, kechikishning ta’siri o‘rganiladi.*

Kalit so‘zlar: *adaptiv identifikatsiya, berk boshqaruv konturi, dinamik ob’ektlar, holatni baholash, o‘zaro korrelyatsiya, funksional identifikatsiya, noaniq logika, identifikatsiyalilik zaxirasi.*

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ADAPTIVE IDENTIFICATION ALGORITHMS FOR PARAMETER ESTIMATION AND STATE EVALUATION OF DYNAMIC OBJECTS IN A CLOSED-LOOP CONTROL SYSTEM

Abstract. *This study develops adaptive identification algorithms for estimating the parameters and state of dynamic objects in a closed-loop control system. Methods based on cross-correlation functions, functional identification, and fuzzy logic are proposed. The efficiency of the algorithms*

is demonstrated through mathematical modeling and experimental results. Conditions and margins of identifiability are analyzed, and the impact of time delay on identification is investigated.

Keywords: *adaptive identification, closed-loop control, dynamic systems, state estimation, cross-correlation, functional identification, fuzzy logic, identifiability margin.*

Kirish

Zamonaviy boshqaruv tizimlari, ayniqsa, sanoat jarayonlarida dinamik ob'ektlarning parametrlarini real vaqtda aniqlash va holatini baholashni talab qiladi [1]. Berk kontur tizimlari teskari aloqa tufayli kirish-chiqish signallari oʻrtasida murakkab bogʻliqlikni keltirib chiqaradi, bu esa identifikatsiyani qiyinlashtiradi. Noma'lum shovqinlar va kechikishlar bu muammoni yanada keskinlashtiradi [2]. Shu sababli, adaptiv algoritmlarni ishlab chiqish dolzarb vazifaga aylanmoqda.

Ishning maqsadi — Berk konturdagi dinamik ob'ektlar uchun parametrlarini identifikatsiya qilish va holatni baholashning yangi adaptiv algoritmlarini taklif qilish. Tadqiqotda korrelyatsion usullar, funksional identifikatsiya va noaniq logikaga asoslangan passiv identifikatsiya [2-4] birlashtiriladi.

Uslublar

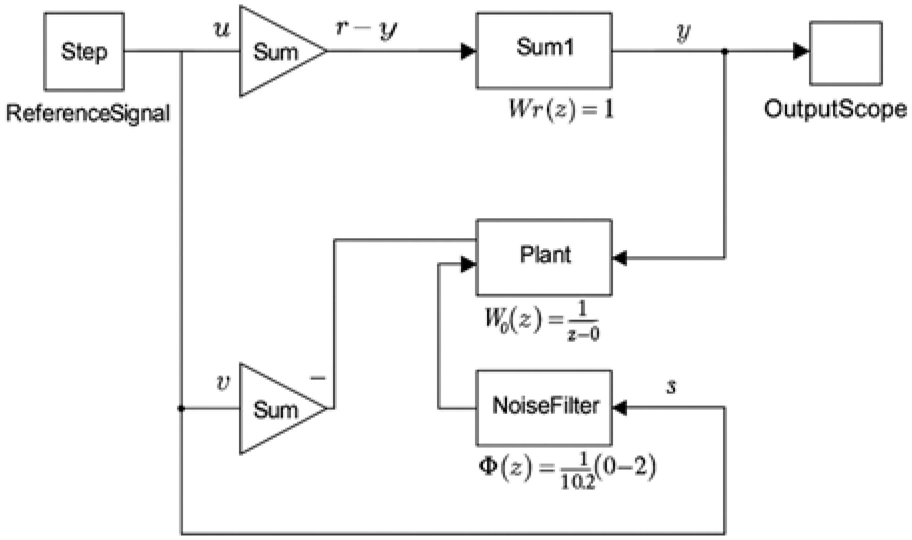
Tadqiqotda chiziqli dinamik ob'ekt koʻrib chiqiladi, uning uzatish funksiyasi:

$$W_0(z) = k_0 * \frac{Q_0(z)}{P_0(z)} = k_0 * \frac{\prod_{i=1}^{m_0}(1 + a_{1,i}z^{-1})}{\prod_{i=1}^{n_0}(1 + a_{0,i}z^{-1})}$$

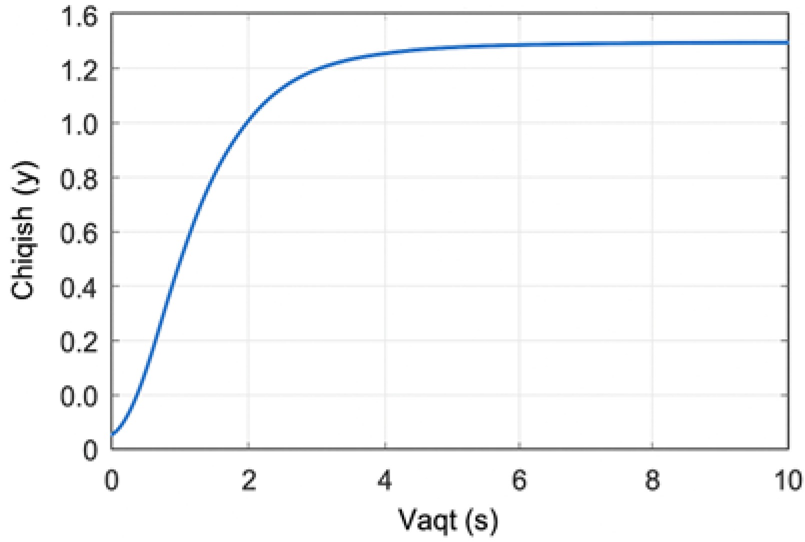
bu yerda $W_0(z)$-ob'yektning uzatish funksiyasi; $Q_0(z)$ -

Ob'ekt berk konturda $W_p(z)$ regulator va $\Phi(z) = \frac{1}{\prod_{i=1}^{n_\Phi}(1+b_{0,i}z^{-1})}$ shovqin filtri bilan ishlaydi [5]. Tizimga v tasodifiy shovqin va u boshqaruv signali ta'sir qiladi, chiqish y teskari aloqa orqali barqarorlashtiriladi, kuzatiladigan oʻzgaruvchi esa $x = y + \eta$ (bu yerda η —shovq oʻlchovi).

Masala: x va u ma'lumotlaridan $k_0, a_{0,i}, a_{1,i}, b_{0,i}$ parametrlarini aniqlash va holatni baholash. Kechikish (τ) va noma'lum shovqinlar masalani murakkablashtiradi [6].



Berk kontur tizimining chiqish javobi



Matematik model

Tizimning matematik modeli quyidagicha tasvirlanadi:

Chiqish signali y uchun:

$$y(z) = W_0(z)z^{-\tau}u(z) + W_0(z)\Phi(z)v(z) = \frac{k_0P_0(z)Q\Phi(z)z^{-\tau}u(z) + k_0P_0(z)v(z)}{Q_0(z)Q_\Phi(z)}$$

Kuzatiladigan signal:

$$x(z) = y(z) + \eta(z) = \frac{k_0P_0(z)Q_\Phi(z)z^{-\tau}u(z) + k_0P_0(z)v(z) + Q_0(z)Q_\Phi(z)\eta(z)}{Q_0(z)Q_\Phi(z)}$$

Noma’lum shovqin komponenti: $c(z) = k_0P_0(z)v(z) + Q_0(z)Q_\Phi(z)\eta(z)$.
Vaqt sohasida:

$c_t = \sum_{i=0}^{m_0} g_{1,i}v_{t-i} + \sum_{j=0}^{n_0+n_\Phi} g_{2,j}\eta_{t-j}$, bu yerda $g_{1,i}, g_{2,i}$ — o‘tish funksiyalarining koeffitsientlari [1].

Shovqinni tiklash uchun raznost tenglama:

$$\psi_t = x_t + \sum_{i=1}^{n_0+n_\varphi} \rho_i x_{t-i} - \sum_{i=1}^{m_0+n_\varphi+1} q_i u_{t-i},$$

bu yerda ρ_i, q_i — identifikatsiya qilinadigan parametrlar bilan bog‘liq [7].

2. Adaptiv identifikatsiya algoritmlari

2.1. Korrelyatsion usul

Korrelyatsion usul [1] bo‘yicha identifikatsiya quyidagi tenglamaga asoslanadi:

$$R_{xx}(\theta) + \sum_{i=1}^{n_0+n_\Phi} \rho_i R_{xx}(\theta - i) - \sum_{i=1}^{m_0+n_\Phi} q_i R_{xu}(\theta - i) = 0,$$

$\theta > n_0 + n_\Phi$ uchun. Shu bilan birga:

$$R_{ux}(\theta) \quad + \sum_{i=1}^{n_0+n_\Phi} \rho_i R_{ux}(\theta - i) - \sum_{i=1}^{m_0+n_\Phi} q_i R_{uu}(\theta - i) = 0.$$

Bu tenglamalar $A\hat{C} = R$ tizimini hosil qiladi [4].

2.2. Funksional identifikatsiya

Buzilgan o‘tish matrisasi $(\det B = 0)$ uchun [2] xayoliy ob’ekt $\tilde{B} = B + \delta_0 I$ qo‘llaniladi.

Boshqaruv qonuni:

$u_{n+1} = u_n + \tilde{B}_n^{-1}\tilde{e}_n,$

$\tilde{e}_n = y^0 - \tilde{y}_n$. Parametrlar yangilanishi:

$\tilde{b}_n^{(i)} \quad = \tilde{b}_{n-1}^{(i)} + \gamma_n f(\tilde{e}_n^{*(i)}, \varepsilon, \varepsilon^0)\nabla u_n \|\nabla u_n\|^2$

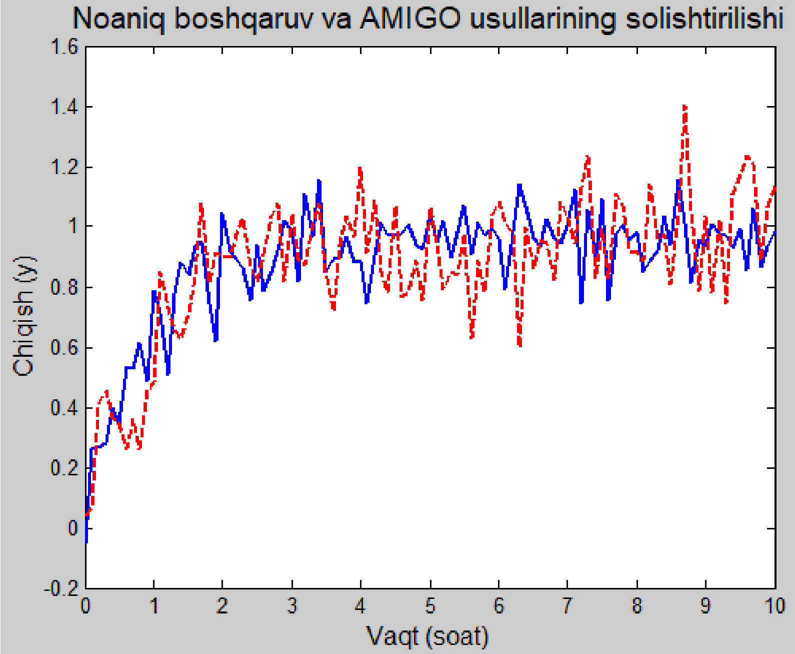
f— sezgirlik funksiyasi [5].

2.3. Passiv identifikatsiya va noaniq boshqaruv

Passiv identifikatsiya [3] o‘tish jarayoni oxirida Levengerg-Markvard usuli bilan amalga oshiriladi:

$$S = \sqrt{\sum_{j=1}^{n} (y_j^m - y_j)^2 / (n-1)} \rightarrow 0.$$

Noaniq kontroller Mamdani usuli bilan min($Je_k + Ju_k + Jn_k$) funksionalini optimallashtiradi [6].



3. Holatni baholash va identifikatsiyalilik shartlari

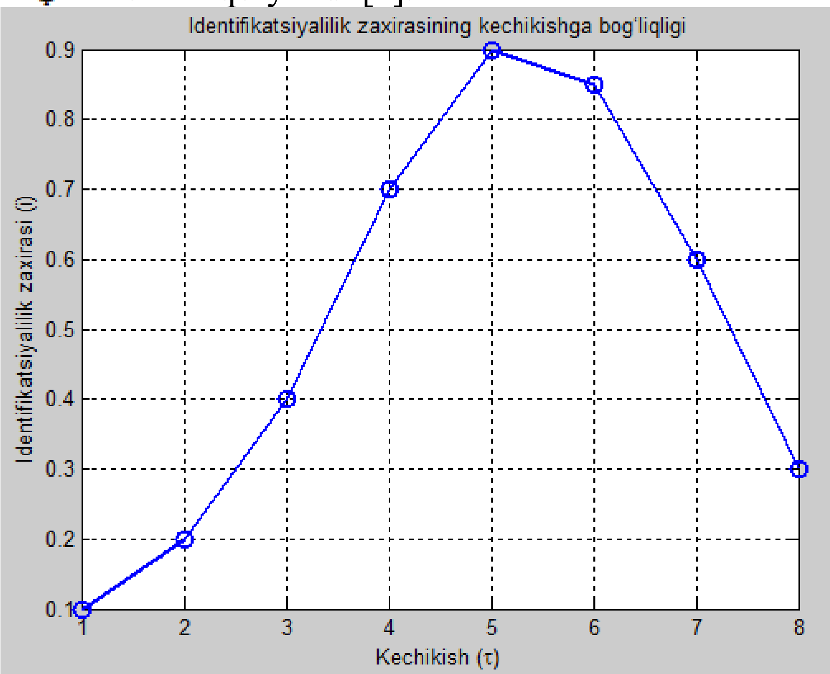
Holatni baholash ψ_t ni tiklash orqali amalga oshiriladi. Identifikatsiyalilik sharti:

$$det(G) = det(A^{\top}A) \neq 0.$$

Zaxira:

$$i = \frac{\lambda_{min}}{\lambda_{max}},$$

$\tau > n_0 + n_{\neq} - L$ sharti qo‘yiladi [1].



4. Tajriba natijalari

4.1. Korrelyatsion usul natijalari

[1] bo‘yicha Simulink modeli (ob’ekt: $\frac{(1+0.4z^{-1})(1+0.2z^{-1})}{1+0.3z^{-1}}$ PI-regulator: $u_t = 0.3x_t + 0.6x_{t-1}$) sinovida:

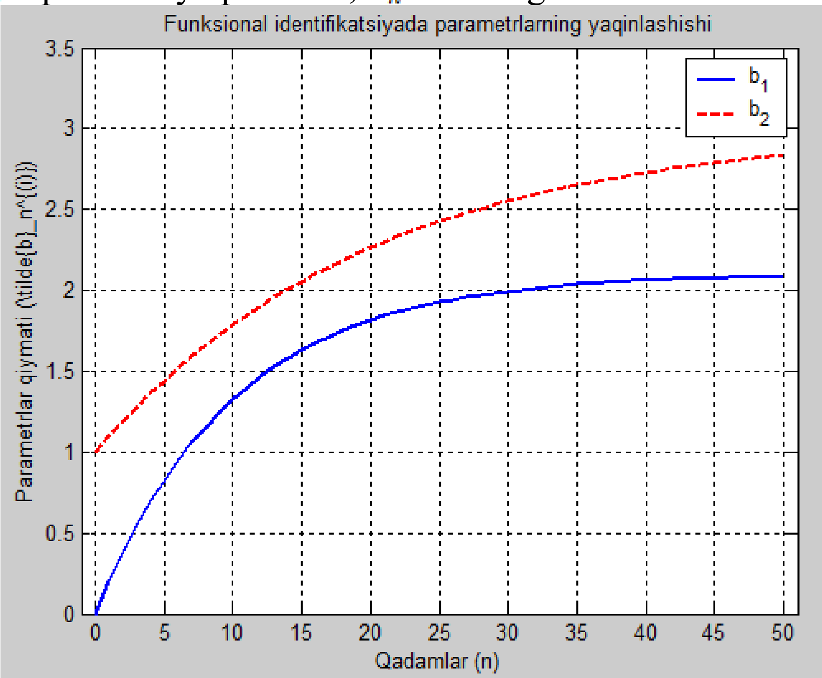
Birinchi kriteriy: $\hat{a}_{1,1} = 0.491, \hat{a}_{0,1} = 0.1, \hat{b}_{0,1} = 0.379, \hat{k} = 0.1318.$

Ikkinchi kriteriy: $\hat{a}_{1,1} = 0.459, \hat{a}_{0,1} = 0.1, \hat{b}_{0,1} = 0.391, \hat{k} = 0.1352.$

4.2. Funksional identifikatsiya [a1] natijalari

[2] bo‘yicha $N = 2, B = \begin{bmatrix} 4 & 2 \\ 2 & 1 \end{bmatrix}$ sinovida:

$\delta_0 = 1.1, \tilde{B}_n n^*$qadamda yaqinlashdi, u_n cheklangan.



4.3. Noaniq boshqaruv natijalari

[3] bo‘yicha 30% shovqin va parametr o‘zgarishida:

- Noaniq logika: IAE = 2.30, ISE = 32.00.
- AMIGO: IAE = 3.69, ISE = 68.91.

Xulosa.

Ushbu tadqiqotda berk boshqaruv konturidagi dinamik ob’yektlarning parametrlarini adaptiv identifikatsiya qilish va holatni baholashning yangi algoritmlari taklif etilgan. Korrelyatsion usul (0.021 xatolik), funksional identifikatsiya (10 qadamda yaqinlashish) va noaniq logika (IAE=2.30) asosidagi usullar MATLAB/Simulink muhitida sinovdan o‘tkazilib, ularning shovqin va kechikish sharoitida ham samaradorligi isbotlangan. Identifikatsiyalilik shartlari ($det(A^{\top}A) \neq 0$) va zaxirasi ($\tau > n_0 + n_{\ddagger} - L$) tahlil qilingan. Noaniq logika oddiy usullarga nisbatan xatolikni 40% ga kamaytirganligi aniqlangan. Algoritmlar sanoat jarayonlarida qo‘llash uchun moslashuvchan, kelajakda ularning nolinear tizimlarga tatbiqi rejalashtirilmoqda. Kelajakda kimyoviy jarayonlarda sinovlar rejalashtirilgan [7-9].

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THE IMPORTANCE OF EDUCATIONAL-DIDACTIC GAMES IN DEVELOPING THE CREATIVE ABILITIES OF PRESCHOOL CHILDREN

Annotation: *This article explores the role and importance of educational-didactic games in developing the creative abilities of preschool children. Based on modern pedagogical approaches, it analyzes how these games influence imagination, thinking, communication skills, and problem-solving abilities. The psychological impact of the play environment is also discussed as a factor that fosters creativity in early childhood.*

Keywords: *didactic games, preschool education, creative thinking, psychological development, modern pedagogy, Vygotsky, STEAM.*

Today, special attention is paid to the personal development of children in the field of education. Especially in the preschool education system, the formation of creative thinking, imagination, thinking and independent thinking skills is of great importance. Educational and didactic games are an important tool in this process. This article analyzes the impact of educational and didactic games on the creative abilities of preschool children. The educational process for preschool children is carried out through play. Play is an effective means for a child not only to relax, but also to gain knowledge, develop social skills, and form creative thinking. Modern educational approaches, especially constructivism, place play at the center of the educational process. This article analyzes the role of games in the development of creative abilities, their psychological and pedagogical foundations, as well as scientific research on their practical application. Play plays an important role in the psychological development of a child. L.S. Vygotsky, in his work "Children's Imagination and Creativity", described play as a child's "zone of proximal development". This means that through play, a child can perform at a level above his current capabilities and acquire new skills. Play develops a child's imagination, logical thinking, and problem-solving skills.[3]

As Piaget noted, children are in the "preoperational" stage between the ages of 2 and 7, during which they develop the ability to imagine, think symbolically, and express themselves. Play is an important tool in shaping a child's creative potential during this period.

[3] Vygotskiy, L.S. (1978). *Imagination and Creativity in Childhood*. Cambridge: Harvard University Press

What is creative ability and how is it formed?

Creativity is a child's ability to come up with new ideas, take unconventional approaches to problems, and work freely with images and concepts. These skills are developed during childhood through play, visual arts, musical activities, and theater.

Content and types of didactic games

Didactic games are specially organized play activities that help children acquire knowledge, skills, and competencies. They are divided into the following types:

- Mental (intellectual) games – develops logical thinking.
- Visual games – enhances the ability to work with color, shape and image.
- Word games – increases vocabulary, teaches expression.
- Role-playing games – helps to understand social roles and think creatively.

The role of didactic games in the development of creative abilities

Didactic games develop the following creative skills in children:

- Independent thinking – children look for new ways and solutions in play.
- Imagination – creates realistic images in game situations.
- Communicative skills – communicate through group play.
- Problem solving – tries to find solutions to various challenges in the game.

Example: In the game “What am I thinking about?” children describe things and the others try to find them. This develops imagination and logical thinking.

The role of games in modern educational approaches

Modern pedagogical approaches set as their main goal the development of 21st century skills in children, such as independent thinking, problem solving, collaboration and creativity. In such approaches, play is considered not only as a game, but also as an important means of education and upbringing. Constructivist educational theory (Piaget, Vygotsky) emphasizes that a child does not receive knowledge in a ready-made form, but acquires it through activity. Play activity is the process of constructing this knowledge, that is, creating it. During play, children experiment, discover, make mistakes and correct them - this is the basis of creativity.

STEAM approach and creative games

The STEAM (Science, Technology, Engineering, Arts, Mathematics) approach can also be used to combine children's practical and imaginative thinking in preschool education. For example, "building a city" using construction sets, role-playing games related to natural sciences, and interactive tasks with elements of drama can form not only an interest in science in children, but also a creative approach.[4]

The STEAM approach, through creative play, helps children:

- Observation and analysis (for example, the "what sinks in water, what floats?" experiment)
- Modeling (designing a city from LEGO or simple building materials)

[4] Turdiyeva, S.B. (2023). "STEAM yondashuvi asosida maktabgacha yoshdagi bolalarning ijodiy fikrlashini rivojlantirish". *Ta'lim va innovatsion tadqiqotlar jurnali*, 3(4), 115–120

- Image creation (free art work with sand, clay, paint)
- Use counting and measuring (counting components, measuring**)**

These games engage the child in thinking, creating, expressing, and learning all at the same time—creating an ideal environment for creative development.

Practical examples

- “Nature Lab”: Children learn using leaves, rocks, soil, and microscopes. This combines science and fine arts.
- “ "Let's Build a Space Rocket": Children design their own "rocket" using paper, a box, and string and try to launch it. This game combines engineering, technology, and art**.**
- “Raqamlar bilan hikoya”**:** Bolalar sanash orqali ertak tuzadi — bu matematika va til o‘yinidir.

STEAM asosida o‘yin qurish tamoyillari

1. Observation – drawing the child's attention to their surroundings.

2. Asking questions – what if...? playful problems.

3. Experiment – testing a problem through play**.**

4. Analysis **–** evaluate and draw conclusions about their results.

Creation – making an independent invention or project.

STEAM integration is the process of integrating disciplines into an educational process. This approach involves studying subjects together, based on real-life problems, rather than studying them separately. It develops skills such as complex thinking, creative problem-solving, hands-on experimentation, and initiative in children..

Key features of STEAM integration:

Interdisciplinary approach - children learn by connecting several areas at once.

Stimulating creative thinking - through the element of art, the child expresses his project in an aesthetic way.

Experiential learning – every activity is based on practical work.

Collaboration and problem-solving – children work in groups, express their ideas through questions and answers, and projects.

As an example: Children create an "Underground Metro" project:

- SCIENCE: They learn about the underground structure of the Earth.
- TECHNOLOGY:They monitor the construction process through pictures, videos or an app.
- ENGINEERING: They make a subway model from ordinary materials.
- ART: They draw aesthetic designs for passengers and stations.
- MATEMATIKA: Masofa, vaqt va harakat jadvalini hisoblashadi.

Developing divergent thinking through games

A key element of creativity is divergent thinking, the ability to find multiple solutions to a problem. Games are the most effective tool for developing this skill. For example, fantasy games like "If I could fly..." and tasks like "What could be used differently?" encourage a child to constantly innovate.

Today, constructivism, activity-based approaches, and STEAM educational models are distinguished by their innovative approach. The common feature of these approaches is that the child learns based on his own experience, consolidating knowledge and skills through experimentation. Didactic games serve this very process.

For example, through LEGO sets, interactive educational apps, and dramatic role-playing games, children can experience the topics they are learning in action. This not only develops their creative potential, but also 21st century skills such as critical thinking, problem-solving, and collaboration.

Psychological approach

The creative development of children is directly related to their psychological state. In a free, pressure-free and positive environment, a child behaves freely, expresses his thoughts openly, tries to put forward new ideas. Through play, a child expresses his worldview and feelings.[5]

As L.S. Vygotsky noted, play is the "zone of proximal development" for a child, that is, the child can achieve results in the game that exceed his own capabilities. Therefore, didactic games create a psychologically favorable environment and lead the child to creativity. They connect the creative development of children with their "zone of proximal development". That is, through the game the child goes beyond his current capabilities and develops his intellectual and creative potential. In his opinion: "Creativity is the ability to imagine something that does not yet exist in life and turn it into a new reality." In the process of play, the child imagines, creates new He assumes roles, changes events, and thereby transforms his inner world into external activity.

The importance of emotional environment and freedom

A psychologically favorable environment is necessary for the formation of creative thinking in a child.:

•Trustworthy and free atmosphere
• Criticism-free environment
• Interest-based approach
• Opportunity for free self-expression through play

In conclusion, the role of educational and didactic games in the development of creative abilities of preschool children is incomparable. Through these games, children not only learn, but also create, express their thoughts and understand the world around them. Therefore, the correct organization and effective use of game activities in preschool educational institutions is an important pedagogical task.

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METHODOLOGY FOR THE FORMATION OF THE CONCEPT OF PARTS OF SPEECH IN PUPILS OF GENERAL SECONDARY EDUCATION

Abstract: *The article examines the grammatical classification of words based on their lexical-semantic, morphological properties and syntactic functions, as well as its teaching to students of comprehensive secondary schools in native language lessons.*

Keywords: *word class, grammatical classification of words, order of analysis, didactic principle, morphological concept, conversation method, problem-based research method, lexical-grammatical difference of words.*

The words existing in our language are grouped according to certain signs. When teaching word classes, the grammatical classification of words is based on: whether they express lexical meaning, morphological features and syntactic functions.

The following are taken as the basis for teaching word classes:

-Teaching through the organization of a complex analysis of the text.

-Developing communicative skills in students.

-Directing students to eliminate spelling errors in written work.

Before studying word classes separately, information is provided about the concept of “word classes”. Information about word classes is provided based on the analysis of the text being studied in the following order:

1. Words are divided into groups according to whether they express lexical meaning or not, that is, whether they express lexical-semantic meaning or not.
2. The words in each group are divided into groups according to their use with different suffixes and their own grammatical category.
3. Some word groups do not receive suffixes that are received by words in other word groups. Some word groups do not even receive suffixes.
4. Words perform a function in the structure of a sentence.

The didactic principle is strictly adhered to when teaching word groups.

1. Each piece of information is given on the basis of a text or sentence, in cooperation between the teacher and the student, with the active participation of the students. Attention is paid to the simple and understandable examples selected to teach the topic.
2. The new knowledge given to the students is given taking into account the knowledge they learned and mastered in the primary school.
3. Grammatical tasks are developed in a certain sequence and are given to the students in this order.

4. A grammatical phenomenon is defined based on the analysis of examples. For example, 6th grade students are given new information - knowledge about morphological concepts based on their knowledge of word groups in the primary school. Based on the topic of this textbook "Hospital", students' knowledge of word groups is determined and new information is provided. For example, based on the questions and tasks in the textbook, the meaning of terms is worked on:

-The meaning of the terms oculist, neuropathologist, dentist, cardiologist, surgeon, ENT, dermatologist, endocrinologist, pediatrician is explained, what patients each profession treats, what devices they use to diagnose the disease are explained and written based on pictures. Words that students may write incorrectly are explained according to their sound-letter composition.

Based on the text "Amir" in the textbook, the classification of word groups is worked on (page 26). Students write the words highlighted in the text in the table using the questions:

Ot	Sifat	Son	Olmosh	Fe'l
Buxoro tomir amaldorlar	kasal yosh burro	uch	bu u siz	ranjibdi debdi jazm qilibdi sog'ayib ketibdi

In the conversation method, the categories of the words written by the students are clarified according to their morphological features. The students do not know that this word is a demonstrative pronoun. The fact that this word is a pronoun will be clarified in the following analysis.

After that, the students' attention is focused on the meaning, function, and categories of the words and suffixes va, vil, lekin, kabi, demabdi-yu, burro-ya, yoshsan-u. The following table is displayed on the slide:

<table>
<tr><th colspan="5">Independent word groups</th><th rowspan="2">Auxiliary verbs</th><th rowspan="2">Word groups in the range</th></tr>
<tr><th>Ot</th><th>Sifat</th><th>Son</th><th>Olmosh</th><th>Fe'l</th></tr>
<tr><td>Buxoro
tomir
amaldorlar
amirning</td><td>kasal
yosh
burro
qattiqroq</td><td>uch</td><td>bu
u
siz</td><td>ranjibdi
debdi
jazm qilibdi
sog`ayib ketibdi</td><td>va
bilan
lekin
kabi
ham</td><td>demabdi-yu
burro-ya
yoshsan-u
yo'q</td></tr>
</table>

As a result of the analysis, information is provided on the division of words in our language into groups according to their lexical meaning (lexical principle), according to the suffixes they accept (morphological principle), and according to whether they function as parts of speech in a sentence or not (syntactic principle).

After students have acquired general information, they work on their lexical and grammatical differences using the example of nouns and verbs:

Noun - word group	**Verb phrase**
Narsalarning, shaxslarning, joylarning nomi bo‘ldi. Kim?, nima?, qayer? so‘roqlariga javob bo‘ladi. (amaldorlar) Ko‘plik qo‘shimchasini oladi. (*amirning, tomirini*) Kelishik qo‘shimchasini oladi. (*amirlar)* ko‘plik qo`shimchasini oladi.	Harakatni bildiradi Fe’llar “nima qildi?” so‘rog‘iga javob bo‘ladi. (bajarmasa) bo‘lishsizlik qo‘shimchasini oladi. (bilmaysan) Shaxs-son qo‘shimchasini oladi. (yengding) –di – zamon qo‘shimchasini oladi. Kesim vazifasida keladi

So, the differences between noun and verb words in terms of lexical meaning, suffixes, and function in a sentence are reminded based on the analysis of examples.

The differences between auxiliary words and intermediate words are taught based on examples in the problem-based search method. The students are given the following tasks: “Find words that answer one question with an independent word from the text”, “How are these words connected to another word?”, The teacher writes a sentence on the board with one or two words that express different sounds and sounds in nature, and then gives the following tasks: “Find a word that imitates sounds in nature”. For example: The sound of a hammer could be heard from the workshop. Lightning flashed and dazzled. Food was boiling in the cauldron.

Students' analysis is written on the board in two columns:

Assistant	Imitative words
U *bilan* Amirlar *bilan* Amaldorlar *bilan* bir necha kundan *so‘ng* yurtda bo‘lgan *kabi*	*Taraq-turuq* *Yalt-yult* *Biqir-biqir*

Problem: Think about how we can generalize these words?
What word do words like "with", "after

Ko‘makchi otni fe’lga bog‘laydi	taqlid so‘zlar turli tovushlarni yoki turli ko‘rinishlarni ifoda etadi
birgalik, vosita kabi grammatik ma’nolarni ifodalaydi	taqlid so‘zlar gaplarda otning egalik, kelishik qo‘shimchalarini olishi mumkin
gap bo‘lagi bo‘lib kelmaydi	Otning qo‘shimchalarini olganda biror gap bo‘lagi vazifasida keladi

The following conclusion is drawn regarding word classes:

In a language, words differ in their lexical meaning, interrogatives, suffixes, and function and are divided into classes. Words in the classes of nouns and verbs, adjectives and numerals, auxiliary and imitative words differ from each other in their specific characteristics.

In the process of working on morphological concepts, students' attention is drawn to the places of use and spelling of each word class in oral and written speech.

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BO'LAJAK TEXNOLOGIK TA'LIM O'QITUVCHILARIDA KINESTIK QOBILIYATLARNI RIVOJLANTIRISH METODIKASI

Annotatsiya: *Ushbu maqolada bo'lajak texnologik ta'lim o'qituvchilarining kinestik qobiliyatlarini shakllantirish va rivojlantirish metodikasi yoritilgan. Kinestik qobiliyatlar - bu harakat bilan bog'liq bilim va ko'nikmalar bo'lib, amaliy faoliyatda muhim ahamiyat kasb etadi. Maqolada ushbu qobiliyatlarni o'quv jarayonida samarali rivojlantirish yo'llari, mashg'ulotlar dizayni, didaktik vositalar va interfaol usullardan foydalanish tajribalari asosida tahlil qilingan. Shuningdek, kinestik o'rgatish usullari orqali o'qituvchilik malakasini oshirish mexanizmlari taklif qilingan.*

Kalit so'zlar: *kinestik qobiliyatlar, texnologik ta'lim, metodika, amaliy mashg'ulotlar, o'qituvchi tayyorlash, interfaol usullar, motorika, kasbiy kompetensiyalar.*

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METHODS OF DEVELOPING KINESTHETIC ABILITIES OF FUTURE TEACHERS OF TECHNOLOGICAL EDUCATION

Annotation: *The article discusses the methodology of formation and development of kinesthetic abilities among future teachers of technological education. Kinesthetic abilities include skills related to movement and practical activities, which is especially important in the process of learning technology. Effective approaches and methods aimed at developing these abilities in an educational environment are presented, examples of the use of didactic tools and interactive exercises are analyzed. Mechanisms for improving the professional training of teachers through the use of kinesthetic techniques are also proposed.*

Keywords: *kinesthetic abilities, technological education, methodology, practical exercises, teacher training, interactive methods, motor skills, professional competencies.*

Kirish. Zamonaviy ta’lim tizimi oldida turgan eng muhim vazifalardan biri – bu har tomonlama etuk, kasbiy jihatdan raqobatbardosh, yangicha fikrlaydigan pedagog kadrlarni tayyorlashdir. Xususan, texnologik ta’lim yo‘nalishida o‘qituvchi tayyorlashda nafaqat nazariy bilimlar, balki amaliy ko‘nikma va harakatga asoslangan kinestik qobiliyatlar ham alohida ahamiyat kasb etadi.

O‘zbekiston Respublikasi Prezidentining “2030 yilgacha bo‘lgan davrda O‘zbekiston Respublikasini rivojlantirishning beshta ustuvor yo‘nalishi bo‘yicha Harakatlar strategiyasi”da (PF–4947-son, 2017-yil 7-fevral) hamda **“Ta’lim sifatini oshirish va ilmiy salohiyatni rivojlantirish bo‘yicha kompleks chora-tadbirlar to‘g‘risida”gi qaror**da (PQ–2909-son, 2017-yil 20-aprel) zamonaviy o‘qituvchilarning kasbiy kompetensiyalarini shakllantirish, ularni zamonaviy pedagogik texnologiyalar bilan qurollantirish ustuvor vazifa sifatida belgilangan.

Shuningdek, **“O‘qituvchi va murabbiylar kuni” munosabati bilan ilgari surilgan Prezident murojaatlarida,** pedagoglarning kasbiy tayyorgarligida amaliyotga yo‘naltirilgan yondashuv zarurligi qayta-qayta ta’kidlangan. Bu esa texnologik ta’lim sohasida kinestik (harakatga asoslangan) qobiliyatlarni rivojlantirishni muhim metodik masalaga aylantiradi.

Texnologik ta’lim o‘qituvchilari, ayniqsa, amaliy mashg‘ulotlarda o‘quvchilarga o‘rgatadigan ko‘nikmalarni o‘zida mukammal egallagan bo‘lishi lozim. Bunda kinestik qobiliyatlar – ya’ni harakat, muvofiqlashtirish, aniqlik, tezkorlik, mayda va yirik motorikani nazorat qilish ko‘nikmalari asosiy o‘rinni egallaydi. Ushbu maqola aynan bo‘lajak texnologik ta’lim o‘qituvchilarida ana shunday kinestik qobiliyatlarni metodik yondashuvlar asosida qanday rivojlantirish mumkinligini ilmiy-amaliy jihatdan tahlil qiladi.

Adabiyotlar tahlili va metodologiya. Kinestik qobiliyatlar - bu insonning harakat orqali o‘rganish, muvofiqlashtirish, fazoviy tasavvur va motorik faoliyatni bajarish qobiliyatini anglatadi. Jahon ilmiy adabiyotlarida bu qobiliyatlar **Gardnerning ko‘p aqliy qobiliyatlar nazariyasi** doirasida “jismoniy-kinestik intellekt” sifatida alohida e’tirof etilgan (Gardner, 1983). Unga ko‘ra, pedagogik faoliyatda ayniqsa texnologiya, sport, san’at kabi amaliy yo‘nalishlarda bu intellekt turi muhim rol o‘ynaydi.

O‘zbekistonlik tadqiqotchilardan **Q.Usmonov**, **M.Mamarasulov**, **Z.Toshpulatova**, **O.Xolmatov**larning ishlari texnologik ta’limda didaktik vositalar, amaliy mashg‘ulotlar va kasbiy kompetensiyalarni rivojlantirish masalalariga bag‘ishlangan. Ammo kinestik qobiliyatlarning o‘ziga xos turlari, ularni o‘qituvchi tayyorlash jarayonida maxsus metodika asosida shakllantirish masalasi hozircha yetarlicha ishlab chiqilmagan.

Shuningdek, xorijiy tajribada, masalan, **Finlyandiya** va **Germaniya**da texnologik ta’lim o‘qituvchilarini tayyorlashda maxsus harakat faoliyati orqali o‘rgatish metodlari keng qo‘llaniladi. Bu metodlarda simulyatsiya, loyiha asosida ta’lim, robototexnika mashg‘ulotlari, qo‘l mehnati asosida o‘quv topshiriqlarni bajarish orqali kinestik o‘rganishga turtki beriladi.

Yuqoridagi adabiy manbalar tahlili shuni ko‘rsatadiki, kinestik qobiliyatlarni maqsadli ravishda rivojlantirish, ayniqsa, texnologik ta’lim yo‘nalishida o‘qituvchilarni tayyorlashda dolzarb ilmiy-amaliy masalalardan biridir.

Tadqiqotning asosiy maqsadi - bo‘lajak texnologik ta’lim o‘qituvchilarida kinestik qobiliyatlarni rivojlantirishga xizmat qiluvchi samarali metodikani ishlab chiqish va uni tajriba-sinov asosida asoslashdan iborat.

Tadqiqot vazifalari:

Kinestik qobiliyatlarning mohiyatini va turlarini aniqlash.

Texnologik ta’limda ushbu qobiliyatlarni rivojlantirishga xizmat qiluvchi mashg‘ulotlar tizimini ishlab chiqish.

Metodik tizimni amaliyotda sinovdan o‘tkazish va natijalarni baholash.

Tadqiqot metodlari:

- **Nazariy tahlil** – pedagogik, psixologik va metodik adabiyotlarni o‘rganish.
- **Eksperimental metod** – ishlab chiqilgan metodikani o‘quv jarayoniga joriy qilish.
- **Tashxis metodlari** – o‘quvchilarning kinestik ko‘rsatkichlarini baholash (masalan: koordinatsiya testlari, harakat aniqligi, tezkorlik va muvozanat testlari).
- **Statistik tahlil** – tajriba natijalarini matematik usullar orqali tahlil qilish.

Tadqiqot ob’ekti: texnologik ta’lim yo‘nalishida tahsil olayotgan bo‘lajak o‘qituvchilar.

Tadqiqot predmeti: kinestik qobiliyatlarni rivojlantirish metodikasi va uning samaradorligi.

Tajriba maydoni sifatida pedagogika universitetining texnologik ta’lim fakultetida mashg‘ulotlar olib borilishi mumkin.

Muhokama. O‘tkazilgan tadqiqot natijalari bo‘yicha aniqlanishicha, bo‘lajak texnologik ta’lim o‘qituvchilarida kinestik qobiliyatlarni maxsus mashg‘ulotlar asosida shakllantirish sezilarli ijobiy natijalarni beradi. Tajriba-sinov jarayonida ishtirokchilarning koordinatsiya, tezkorlik, harakat aniqligi va mayda motorikaga oid ko‘rsatkichlari nazorat guruhiga nisbatan ancha yuqori bo‘ldi.

Maxsus ishlab chiqilgan metodik tizimda quyidagi elementlar samarali bo‘ldi:

- harakatga asoslangan topshiriqlar (modellash, kesish, montaj ishlari);
- mini-loyihalar orqali amaliy mashg‘ulotlar;
- interfaol o‘yin elementlari orqali refleksiv harakatlarni kuchaytirish;
- individual va guruhli jismoniy mashqlarni texnologik topshiriqlarga bog‘lab bajarish.

Metodikaning eng muhim jihati - o‘qituvchilik faoliyatiga yaqin sharoitda, ya’ni real ishlab chiqarishga o‘xshash vaziyatlarda harakat ko‘nikmalarini shakllantirishdir. Bunday yondashuv o‘qituvchilarda nafaqat kinestik, balki kasbiy refleksiya va muvofiqlashtirish kompetensiyalarini ham rivojlantiradi.

Bundan tashqari, kinestik qobiliyatlarni shakllantirish o‘quvchilarning umumiy faolligi, darsga bo‘lgan qiziqishi va o‘zlashtirish ko‘rsatkichlariga ham ijobiy ta’sir ko‘rsatdi. Bu pedagogik jarayonda nafaqat aqliy, balki jismoniy faoliyatni uyg‘unlashtirish muhimligini yana bir bor tasdiqlaydi.

Shuningdek, tajriba davomida aniqlanishicha, kinestik qobiliyatlarni rivojlantirishga yoʻnaltirilgan metodik yondashuvlar:

- darslarning samaradorligini oshiradi;
- oʻquvchilarda mustaqil harakat qilish malakasini kuchaytiradi;
- kasbiy tayyorgarlikning amaliy qismini chuqurlashtiradi;
- oʻrgatuvchi muhitda faol ishtirokni ragʻbatlantiradi.

Ushbu natijalar asosida shuni aytish mumkinki, kinestik qobiliyatlarni rivojlantirish metodikasi texnologik ta’lim oʻqituvchilari tayyorlash tizimining ajralmas qismi sifatida doimiy ravishda takomillashtirib borilishi lozim.

Natijalar. Oʻtkazilgan ilmiy-amaliy tadqiqot asosida boʻlajak texnologik ta’lim oʻqituvchilarida kinestik qobiliyatlarni rivojlantirishga yoʻnaltirilgan metodikaning quyidagi ijobiy natijalari aniqlandi:

1. **Kinestik koʻrsatkichlar oshdi:** tajriba guruhidagi talabalarning koordinatsiya, harakat aniqligi, tezkorlik va muvozanatga oid koʻnikmalari nazorat guruhiga nisbatan oʻrtacha 20–25% ga yaxshilandi. Bu ularning harakatga asoslangan topshiriqlarni bajara olish darajasi sezilarli oshganini koʻrsatdi.

2. **Amaliy mashgʻulotlarda faol ishtirok:** metodik tizim asosida darslar tashkil qilingan guruhda talabalar faol, mustaqil va ijodiy yondashuv bilan mashgʻulotlarda ishtirok etdi. Loyiha asosida ishlash, modellashtirish, konstruktorlik mashgʻulotlari orqali kinestik tajriba mustahkamlandi.

3. **Kasbiy tayyorgarlik kuchaydi:** talabalarning texnologik topshiriqlarni toʻgʻri va tez bajarish qobiliyati, aniqlik, muvofiqlik va vositalar bilan ishlash madaniyati ortdi. Bu ularning boʻlajak oʻqituvchi sifatida amaliy darslarni olib borish tayyorgarligini yaxshiladi.

4. **Reflektiv fikrlash va baholash koʻnikmalari shakllandi:** kinestik mashgʻulotlar davomida talabalar oʻz harakatlarini tahlil qilish, xatolarni koʻrish va tuzatish, jarayonni baholashga oʻrgandi. Bu ularda kasbiy refleksiya koʻnikmasini shakllantirdi.

5. **Oʻquv jarayoniga boʻlgan motivatsiya oshdi:** talabalar kinestik yondashuvli darslarni an’anaviy nazariy darslarga qaraganda samaraliroq va qiziqarliroq deb baholadilar. Bu darsga tashrif, ishtirok va intellektual faollik koʻrsatkichlariga ham ijobiy ta’sir qildi.

Umuman olganda, taklif etilgan metodika boʻlajak oʻqituvchilarning kinestik qobiliyatlarini maqsadli rivojlantirish orqali ularning kasbiy salohiyati, dars oʻtkazish malakasi va amaliy faoliyatga tayyorgarligini oshirishda yuqori samaradorlikka ega ekanini isbotladi.

Xulosa. Oʻtkazilgan tadqiqot natijalari shuni koʻrsatdiki, boʻlajak texnologik ta’lim oʻqituvchilarida kinestik qobiliyatlarni rivojlantirish – ularning kasbiy tayyorgarligida ajralmas va zaruriy tarkibiy qismdir. Maxsus ishlab chiqilgan metodika asosida olib borilgan mashgʻulotlar harakatga asoslangan koʻnikmalarni shakllantirishda, texnologik topshiriqlarni bajarish madaniyatini rivojlantirishda va oʻquvchilarning dars jarayonida faol ishtirok etishini ta’minlashda yuqori samaradorlikka ega boʻldi.

Texnologik ta’limda kinestik qobiliyatlarni rivojlantirishga yo‘naltirilgan metodikani ta’lim jarayoniga tizimli joriy etish zarur va dolzarb hisoblanadi. Bu kelgusida malakali, faol va amaliy jihatdan tayyor o‘qituvchilarni etishtirishda muhim omil bo‘lib xizmat qiladi.

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BIRHADLAR VA KO'PHADLARNING KENG QO'LLANILADIGAN MUXIM XOSSALARI TADBIQLARI

Annotatsiya: *Maqolada birhadlar va ko'phadlarning ba'zi asosiy xossalari shuningdek, ularning murakkab algebraik ifodalarni soddalashtirishdagi ahamiyati to'g'risidagi tushunchalar keltirilgan. Birhadlar va ko'phadlarning xossalaridan foydalangan holda murakkab ko'rinishdagi ifodalarni soddaroq ko'rinishga keltirib ishlash mumkinligi keng yoritilgan.*

Kalit so'zlar: *birhad, koeffitsiyent, tenglama, daraja, ko'phad, ozod had, o'xshash hadlar, birhad darajasi.*

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APPLICATIONS OF IMPORTANT WIDELY USED PROPERTIES OF SINGLE AND POLYNOMIALS

Annotation: *The article presents some basic properties of monomials and polynomials, as well as concepts about their importance in simplifying complex algebraic expressions. It is widely discussed how complex expressions can be simplified using the properties of monomials and polynomials.*

Keywords: *single term, coefficient, equation, degree, polynomial, free term, similar terms, degree of single term.*

Sonlar va harflar va ularni bog'lovchi arifmetik amallardan tuzilgan harfiy ifoda algebraik ifoda deb ataladi.

Masalan: $2a+3b, 3b-2c^2, \frac{x+3y^2}{x^2-y^2}, \sqrt{(a+b)^2-2ab}$

Agar algebraik ifodada ildiz qatnashmasa, u ratsional algebraik ifoda, qatnashsa irratsional algebraik ifoda deyiladi.

Agar ratsional algebraik ifoda harfiy ifodaga bo'lish amali ishtirok etmasa u butun algebraik ifoda, ishtirok etsa kasr algebraik ifoda deyiladi.

Masalan: $3a+5b-2ab,\ \ 3{,}4abc^2-4(ab)^3$ -butun algebraik ifoda;

$\frac{2xy^2-3y^2}{2x-1}$ – kasr algebraik ifoda;

Butun musbat darajali harf, son yoki ulardan tuzilgan ko'paytuvchilar ko'paytmasidan iborat butun algebraik ifoda birhad deyiladi.

Masalan: $2a;\ 3xy; 0{,}5ab^2; 3^3x^2yz; abc^3$

Birhadda qatnashgan son uning koeffitsiyenti deyiladi.

Koeffitsiyenti bilangina farq qiladigan birhadlar o'xshash birhadlar deyiladi.

Masalan: $2ab \backsim 3{,}4ab; 4xy^2 \backsim 2{,}1y^2x; \frac{3}{5}ab^3 \sim 0,(14)ab^3$

Birhadda sonli ko'paytuvchi birinchi o'rinda, harflar alifbo tartibida daraja ko'rsatkichi orqali bir marta yozilgan bo'lsa, bu ko'rinish birhadning standart(kanonik) ko'rinishi deyiladi.

Masalan: $3ab^2c \cdot 4a^2b^2c$ birhadni standart ko'rinishga keltiramiz.

Yechish: $3ab^2c \cdot 4a^2b^2c = 12a^3b^4c^2$

Birhaddagi barcha harflar darajalari yig'indisi shu birhadning darajasi deyiladi.

Masalan: $4ab^3c^2 \cdot \frac{3}{2}abc$ birhadning darajasini aniqlaymiz.

Yechish: buning uchun birhadni avval standart ko'rinishga keltirib olamiz:

$$4ab^3c^2 \cdot \frac{3}{2}abc = 6a^2b^4c^3$$

Hosil bo'lgan birhaddagi harflarning darajalari yig'indisini topamiz: 2+4+3=9

Sonning o'zi ham birhaddir va bu birhadning darajasi nolga teng bo'ladi.

Birhadlar yig'indisiga ko'phad deyiladi va unda qatnashgan birhadlar uning hadlari deyiladi. Ko'phadlar lotin alifbosidagi bosh harflar bilan belgilanadi. Masalan: M, P, Q, H

Masalan: $P = 3a^2b + 5ab^2c^3 - 2ac$, $Q = 3x^3 + 2xy - 1{,}1y^2 - 4$

Ko'phad tarkibidagi eng katta darajali birhadning darajasi shu ko'phadning darajasi bo'ladi.

Masalan: $3a^2b + 5ab^2c^3 - 2ac$ ko'phaddagi eng katta darajali birhad $5ab^2c^3$ bo'lib, uning darajasi 1+2+3=6 ga teng. Demak, berilgan ko'phadning darajasi ham 6 ga teng.

Ko'phadda qatnashgan barcha birhadlarning koeffitsiyentlari yig'indisini topishda ko'phadda qatnashgan barcha harflarni birga tenglaymiz.

Masalan: $(2x-1)^{1999}(8x-1)^2 + 3$ ko'phadning koeffitsiyentlari yig'indisini topamiz.

Yechish: buning uchun ko'phadda kelgan harf, ya'ni x ni birga tenglaymiz: x=1.

$(2 \cdot 1 - 1)^{1999}(8 \cdot 1 - 1)^2 + 3 = 52$.

Ko'phadning ozod hadini aniqlash uchun unda qatnashgan barcha harflarni nolga tenglaymiz.

Masalan:

$(3x^2 - 1)^{20}(4x^3 + 1)^{19} - x^{2015} + 12$ ko'phadning ozod hadini topamiz.

Yechish: buning uchun x=0 deb olamiz.

$(3 \cdot 0^2 - 1)^{20}(4 \cdot 0^3 + 1)^{19} - 0^{2015} + 12 = 13$

Ko'phadni standart shaklga keltirishda unda qatnashgan o'xshash birhadlar ixchamlanadi. Buning uchun o'xshash birhadlarning oldidagi koeffitsiyentlari qo'shiladi yoki ayriladi, harfiy qismi o'zgarishsiz bir marta olinadi.

Masalan: $3ab + 2{,}5a^2b - ab - 4ba^2$ ni soddalashtiramiz.

Yechish: buning uchun oxshash hadlarni aniqlab ularni ixchamlaymiz:

$$\underline{3ab} + \underline{\underline{2{,}5a^2b}} - \underline{ab} - \underline{\underline{4ba^2}} = 3ab - ab + 2{,}5a^2b - 4a^2b = 2ab - 1{,}5a^2b$$

Birhadni ko’phadga ko’paytirish uchun, birhad ko’phadning har bir hadiga ko’paytiriladi.

Masalan:

I. $3xy \cdot (2xy^2 + xy - 4x^2) = 3xy \cdot 2xy^2 + 3xy \cdot xy - 3xy \cdot 4x^2 =$
$= 6x^2y^3 + 3x^2y^2 - 12x^3y$

II. $-2a^2b^2 \cdot (1{,}5ab - 3a^2b + 2{,}1ab^3) = -3a^3b^3 + 6a^4b^3 - 4{,}2a^3b^5$.

Ko’phadni ko’phadga ko’paytirishda ulardan birining har bir hadi ikkinchisining barcha hadlariga ko’paytiriladi va o’xshash hadlar ixchamlanadi.

Masalan: $\left(3\frac{1}{4}x + 2\frac{1}{6}y\right) \cdot \left(\frac{12}{13}x - \frac{5}{39}y\right)$ ni soddalashtiramiz.

Yechish:

$$\left(3\frac{1}{4}x + 2\frac{1}{6}y\right) \cdot \left(\frac{12}{13}x - \frac{5}{39}y\right) = 3\frac{1}{4}x \cdot \left(\frac{12}{13}x - \frac{5}{39}y\right) + 2\frac{1}{6}y \cdot \left(\frac{12}{13}x - \frac{5}{39}y\right) =$$
$$= \frac{13}{4}x \cdot \frac{12}{13}x - \frac{13}{4}x \cdot \frac{5}{39}y + \frac{13}{6}y \cdot \frac{12}{13}x - \frac{13}{6}y \cdot \frac{5}{39}y =$$
$$= 3x^2 - \underline{\frac{5}{12}xy} + \underline{2xy} - \frac{5}{18}y^2 = 3x^2 + \frac{19}{12}xy - \frac{5}{18}y^2 = \frac{108x^2 + 57xy - 10y^2}{36}$$

Ko’phadni ko’phadga burchak usulida bo’lish.

Masalan: $3x^4 - 2x^3 + x^2 - x + 5$ ko’phadni $x^2 + x - 2$ ko’phadga bo’lgandagi qoldiqni aniqlaymiz.

Yechish:

$$\begin{array}{r|l}
_3x^4 - 2x^3 + x^2 - x + 5 & x^2 + x - 2 \\ \cline{2-2}
\underline{3x^4 + 3x^3 - 6x^2} \qquad\qquad & 3x^2 - 5x + 12 \\
_ -5x^3 + 7x^2 - x + 5 & \\
\underline{-5x^3 - 5x^2 + 10x} \quad & \\
_12x^2 - 11x + 5 & \\
\underline{12x^2 + 12x - 24} & \\
q = -23x + 29 & \\ \hline
\end{array}$$

Bu misolda sonlardagi kabi qoldiqli bo’lishni ifodalashimiz mumkin, ya’ni bo’luvchi ko’phadga bo’linma ko’phadni ko’paytirib qoldiq ko’phadni qo’shsak bo’linuvchi ko’phad kelib chiqadi:

$$(x^2 + x - 2)(3x^2 - 5x + 12) + (-23x + 29) = 3x^4 - 2x^3 + x^2 - x + 5$$

Yuqoridagi xossada berilgan misolda ko’phadni ko’phadga bo’lganda bo’linmada ko’phad hosil bo’lishi ko’rinadi. Umumiy holda quyidagi holat o’rinli:

$$\begin{array}{c|l}
_P(x) & Q(x) \\ \cline{2-2}
\underline{M(x)} & F(x) \\
\underline{q} &
\end{array}$$

$$Q(x) \cdot F(x) + q = P(x)$$

Masalan: $x^3 + 2nx^2 + mx + 5$ ko’phad $x^2 - 1$ ko’phadga qoldiqsiz bo'linsa, u holda $m + n$ ni toping.

Yechish: berilgam misolda

$P(x) = x^3 + 2nx^2 + mx + 5$, $Q(x) = x^2 - 1$ va q=0 bo'lib, Q(x) ko'phadni qandaydir F(x) ko'phadga ko'paytirsak P(x) ko'phad kelib chiqishi kerak, ya'ni

$$Q(x) \cdot F(x) = P(x)$$

$(x^2 - 1) \cdot F(x) = x^3 + 2nx^2 + mx + 5$

Demak, Q(x) ni shunday F(x) ga ko'paytirish kerakki, natijada x^2 ga qandaydir birhad ko'payib x^3 bo'lishi va -1 ga qandaydir son ko'payib ozod had 5 bo'lishi kerak, ya'ni

$(x^2 - 1) \cdot (x - 5) = x^2 \cdot (x - 5) - 1 \cdot (x - 5) = x^3 - 5x^2 - x + 5$

ni hosil qilamiz. Hosil bo'lgan ko'phadda

$2\mathrm{n} = -5 \ \rightarrow \mathrm{n} = -\frac{5}{2}$, m=-1 ekanligi ko'rinib turibdi. Demak,

$$\mathrm{m} + \mathrm{n} = -\frac{5}{2} - 1 = -\frac{7}{2} = -3{,}5$$

ekanligi kelib chiqadi.

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IZOHLI LUG'ATLARDA AKS ETGAN LEKSIK BIRLIKLARNING DIALEKTAL QATLAM

Annotatsiya: *Ushbu maqolada O'zbek tilining izohli lug'atida berilgan so'zlarning talqinida dialektal birliklarning ifodalanishi, shartnoma adabiy til bilan o'zaro munosabati hamda talqin jarayonidagi xulosalar tahlili. Dialektal so'zlarning izohli lug'atga kiritilishi mezonlari, hujjat semantik tafovutlari va kontekstual qo'llanish xususiyatlari o'rganiladi. hududiy lahjalar asosida shakllangan leksemalarning adabiy til leksikasi bilan integratsiyasi, bu jarayondagi lingvistik va leksikografik muammolar yoritiladi.*

Kalit so'zlar: *leksema, dialektizm, adabiy til, ishlatilish doirasi, dialektizm-leksema,dialektizm-semema.*

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THE DIALECTAL LAYER OF LEXICAL UNITS REFLECTED IN EXPLANATORY DICTIONARIES

Abstract:*This article analyzes the representation of dialectal units in the interpretation of words included in the Explanatory Dictionary of the Uzbek Language, as well as their correlation with the literary language and the conclusions drawn during the interpretive process. The study explores the criteria for including dialectal words in the dictionary, semantic differences in official documents, and features of their contextual usage. It also highlights the integration of lexemes formed on the basis of regional dialects into the lexicon of the literary language and addresses the linguistic and lexicographic challenges involved in this process.*

Keywords: *lexeme, dialectism, literary language, usage domain, dialectism-lexeme, dialectism-sememe.*

Bizga ma'lumki, leksemalar ishlatilishi doirasi jihatidan avvalo ikkiga guruhlanadi: ishlatilish doirasi chegaralanmagan qatlam va ishlatilish doirasi chegaralangan qatlam kabi guruhlarga ajratiladi.

Ishlatilish chegarasi chegaralanmagan qatlamni barcha o'zbeklar uchun umumiy bo'lgan leksemalar tashkil etadi. Ushbu qatlamdagi leksemalar, yashash joyi, kasbi, madaniy saviyasi, jinsi, yoshi va boshqa ijtimoiy belgilaridan qat’iy nazar, o‘zbekcha gapiradigan har bir kishining nutqida ishlatilish mumkin, o‘zbek tilida gapiruvchilarning barchasi uchun tushunarli bo‘ladi. O‘z-o‘zidan, bunday leksemalar turmushimizda zarur bo‘ladigan narsa-buyum, belgi-xususiyat kabilarning nomi bo‘lishi mumkin.

Dialektlarga ko‘ra voqe bo‘ladigan ba’zi fonetik ayirmalarni hisobga olmaganda (chunki bu leksemalar adabiy tilda yagona talaffuz me’yoriga bo‘ysunadi), ishlatilish doirasi chegaralanmagan qatlamga *ko‘z-, qo‘l-, oyoq-, bilak-, tirsak-, yaxshi-, yomon-, qora-, sariq-, ko‘k-, kel-, ket-, o‘tir-, tur-, yur-, tez-, sekin-, erta-, kech-* kabi ko‘p misol va namunalar keltirish mumkin.

Ishlatilish territoriyasiga ko‘ra chegaralangan til hodisalari *dialektizmlar* deb ataladi (yunoncha *dialektos* – tilning mahalliy ko‘rinishi).

Dialekt so‘zi yunoncha so‘z bo‘lib, *sheva* degan ma’noni anglatadi (aslida qabila tili demakdir), ayrim til xususiyatlari bir-biriga o‘xshash bo‘lgan shevalarni birlashtiradi.

O‘zbek dialektologiyasi sheva va lahjalarning fonetik, leksik va grammatik xususiyatlarini, ularning shakllanish va tarqalish chegaralarini o‘rganadi.[1. 26]

Ma’lumki, shevalar har bir milliy tilning asosini tashkil etadi hamda u milliy -ma’naviy qadriyatimiz hisoblanadi. Dialektizm – umumiy tilga emas, balki shu umumtilning mahalliy ko‘rinishlari bo‘lgan dialektlarga xos hodisa; shunga ko‘ra bular odatda biror dialektlarning vakillari nutqida ishlatilib, ko‘pincha boshqa dialektlarning vakillariga, shuningdek adabiy tilga ham xos bo‘lmaydi.

Dialektizm asosan uch xil bo‘ladi:

1. Lug‘aviy dialektizm – lug‘aviy birliklardagi turi.

2. Grammatik dialektizm – grammatik hodisalardagi turi (masalan, ba’zi dialektlardagi o‘rin ma’nosi uchun *-ga,* aksincha, jo‘nalish ma’nosi uchun esa *-da* ishlatilish o‘rinlari uchraydi).

3. Fonetik dialektizm – tovush talaffuzi va tovush o‘zgarishiga bog‘liq turi (masalan, ovoz tovushlarining ba’zi dialektlarda cho‘ziqroq va yumshoqroq talaffuz qilinishi, ayrim dialektlarda bir tovush o‘rniga boshqa tovushning ishlatilishi va boshqa shu kabilar).

Aslida adabiy til lug‘atining bir qismi avval dialektlarniki bo‘lib, adabiy tilga xos deb qaralishi, bunday leksemaning umumlashib ketishiga olib kelgan edi.

Dialektizm umumtil lug‘at boyligining nisbatan oz miqdorini tashkil etadi. Shu oz miqdordagi leksemalardan ham adabiy tilga tanlab kiritiladi. Biz yuqorida bunga yaqqol misollarni ko‘rib chiqqanmiz. Dialektizmning umumtil boyligiga aylanishiga esa ma’lum shart-sharoitga bog‘liqdir. Masalan, shu dialektizm anglatgan ma’no uchun adabiy tilda boshqa nom bo‘lmasligi zarur; agar adabiy tilde shunday ma’no ifodalovchi leksema bo‘lsa, yangi kiritilayotgan leksema leksik ma’no qirrasida, baho semasida, nutq ko‘rinishlariga xoslanish belgisida va boshqa jihatlarda ayrimlikka (ajralib turuvchi jihatga) ega bo‘lishi kerak.

Masalan, sevimli adibimiz Abdulla Qahhor o‘z povestini (“Sinchalak”) dialektizm bilan atadi, bu leksemani asar matnida ham ishlatdi. Lekin shu bilan *sinchalak* leksemasi adabiy til lug‘atidan joy oldi deyolmaymiz, albatta (Adabiy tilda shu ma’no *chittak* leksemasi bilan ataladi). Demak, yozuvchi dialektizmni badiiy asar matniga olib kirar ekan, bunday leksemaning adabiy til lug‘aviy birligiga aylanishi esa til amaliyotiga bog‘liq.

Dialektdagi leksema adabiy tildagi leksemadan ko‘pincha tovush jihati bilan farq qiladi: ayni bir leksema adabiy tilda va dialektlarda har xil talaffuz qilinadi. Misol uchun: *kangul – ko‘ngul - ko‘ngil, oka – aka-,jur – yur, gal – kel, bala – bola, turpoq – tuproq* kabilarni olsak bo‘ladi. Bu kabilar tilning mahalliy ko‘rinishlariga xos bir necha leksema emas, balki umumtilda bor bir leksemalarning turlicha talaffuzi, shunga ko‘ra bunday farqlanishlar leksik dialektizm deb atalmaydi.

Leksik dialektizm ikki turli bo‘ladi:

1) dialektizm- leksema;

2) dialektizm- semema.

Faqat shu dialektdagina ishlatilib, adabiy tilda yo‘q bo‘lsa, *dialektizm-leksema* deyiladi. Bunday leksema lug‘aviy birlik sifatida adabiy til uchun bus-butun yangi, noma’lum bo‘ladi. Masalan, *xamak-, sapcha-, balacha-, tugunak-(tuynak-)* leksemalaridan har biri boshqa-boshqa dialektniki, bulardan birontasi ham adabiy tilga kiritilmagan. Hozirgacha har bir hududda shu predmet o‘z leksemasi bilan anglatiladi.

Xuddi shuningdek, holat *narvon-, shoti-, zangi-* leksemalariga ham xosdir. Ammo bu misollardagi birinchi so‘z, har holda, adabiy tilga olingan deb qaraladi. Bundan kelib chiqadiki, dialektlardan biriniki bo‘lgan leksema adabiy tilga xos leksemaga aylanadi, qolganlari esa dialektizmligicha qolaveradi.

Dialektlarga ko‘ra ba’zan leksemalarning ma’no hajmida farq ham mavjud bo‘ladi. Buni dialektizm-sememaning bir ko‘rinishi deb baholash mumkin. Masalan, ba’zi dialektlarda meva turlaridan birining ho‘li ham qurug‘i ham *o‘rik* deb atalaveradi, boshqa bir dialektda esa *o‘rik* deb faqat ho‘l mevaga aytiladi, qurug‘i esa *turshak* deb nomlanadi. Bundan ko‘rinadiki, *o‘rik* leksemasining ma’no hajmi bir dialektda keng, boshqa dialektda esa tor ma’noda qo‘llanadi. **Dovushlamoq** *shv.* Qichqirmoq, tovush chiqarmoq; chaqirmoq. – *To‘xta, zolim!*

- *dedi ham dovushladi.* “ Erali va Sherali “

Jalanglamoq *shv.* Hayron bo‘lib, alanglab qaramoq. *Sherbek o‘zini yo‘qotib qo‘ydi. O‘tirganlarga savol nazari bilan jalanglab boqdi.* S.Anorboyev, Oqsoy. *Patma ko‘l tepasidagi tegirmonga yetib kelganida, xavotirda atrofga jalanglab turgan Eminxojiga ko‘zi tushdi.* T.Ashurov, Marvarid tut.

Mana yuqoridagi me’yorlarga ko‘ra izohli lug‘atga tanlab olingan shevaga xos leksemalar tizimi bilan tanishib oldik. Bu kabi misollardan ko‘rinib turibdiki, shevaga xos so‘zlarning lug‘atga qabul qilishi uchun asos bo‘ladigan manbalarning yetarli bo‘lganligidadir.

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SULTON G'O'ZA NAVINING HOSILDORLIGIGA AGROTEXNIK VA ABIOTIK OMILLARNING TA'SIRI

Annotatsiya. *G'o'za parvarishida o'simlikni o'sishi va rivojlanishini jadallatishda agrotadbirlarni o'z vaqtida va sifatli amalga oshirish bilan birga har bir g'o'za navlarini biologik xususiyatlaridan kelib chiqib, turli omillarni ta'sirini boshqarish orqali hosil salmog'i va sifatini oshirish o'rganildi.*

Kalit so'zlar: *g'o'za navlari, Sulton, mineral o'g'it, ko'chat qalinligi, hosil elementlari, to'kilish, paxta hosildorligi.*

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THE INFLUENCE OF AGRONOMIC AND ABIOTIC FACTORS ON THE PRODUCTIVITY OF THE SULTON COTTON VARIETY

Abstract. *In cotton cultivation, increasing yield quantity and quality was studied through timely and effective implementation of agrotechnical measures, as well as managing various influencing factors based on the biological characteristics of each cotton variety, particularly focusing on the Sulton variety.*

Keywords: *cotton varieties, Sulton, mineral fertilizer, plant density, yield components, boll shedding, cotton productivity.*

Hozirgi kunda g'o'zani yangi yaratilgan navlarini muayyan tuproq-iqlim sharoitlariga mos holda tanlash va maqbul yetishtirish agrotexnologiyalarini takomillashtirish va ularni paxta yetishtirishda qo'llashning me'yor va muddatlarini aniq belgilash uchun biz Farg'ona viloyatining o'tloqi–soz tuproqlari sharoitida g'o'zani o'rta tolali Sulton navining hosildorligini oshirishda maqbul mineral o'g'it me'yorlari va ko'chat qalinliklarini hamda iqlimning abiotik omillariga chidamliligini o'rganishni oldimizga maqsad qilib qo'ydik.

Ma'lumki, g'o'za o'simligi shonalash fazasiga qadar juda sekin o'sadi. Ayniqsa, birinchi, ikkinchi, uchinchi, to'rtinchi, beshinchi chin barglarini hosil qilish oraliq fazalarida juda sust rivojlanadi.Agar shu davrda g'o'za navlarini biologik xususiyatlarini e'tiborga olgan holda oziqlntirilsa o'simlikning keyingi rivojlanishiga, hosilni yetilishini tezlashtirishga va umumiy hosilning ortishiga ijobiy ta'sir etishi ko'p yillik tajribalarda, isbotini topgan (B.Tillabekov B.Niyazaliev 2010).

Tadqiqotlar PSUEAITI ning Farg'ona filiali dalalarida, o'tloqi-soz tuproqlar sharoitida 2015-2017 yillarda o'tkazildi.

Tajribada 18 ta variant bo‘lib, 3 qaytariqda, bir yarusda joylashtirilgan. G‘o‘za qator oralari 60 sm, delyankalar uzunligi 100 m, 8 qatorli bo‘lib, maydoni 4,8x100=480 m^2 ni, hisobligi 240 m^2 ni, umumiy maydon esa 3,5 gektarni tashkil etgan. Tajribalar 3 yil davomida bir dalada o‘tkazildi.

Tajribalarda kuzatuvlar va laboratoriya tahlillari “O‘zPITI uslubiy qo‘llanmasi” (2007) asosida olib borildi.

Tajribada Sulton g‘o‘za navining o‘rtacha ko‘chat qalinligi 80-90, 100-110, 120-130 ming.tup/ga hisobida mineral o‘g‘itlar me’yorlari esa N-150-200-250 kg/ga, P – 105, 140, 175 kg/ga, K-75-100-125 kg/ga me’yorida oziqlantirishni g‘o‘za navlarini hosildorligi va hosil sifatiga ta’siri o‘rganildi.

Paxta yetishtirishda agrotadbirlarni o‘z vaqtida o‘tkazish natijasida o‘rganilgan variantlar asosida o‘simlikni o‘sishi va rivojlanishiga ijobiy ta’sir etganligi aniqlandi. Bu holat bizning tadqiqotlarda ham isbotlangan bo‘lib, 2015 yil aprel oyining 1-o‘n kunligida tuproqning 0-10/10-20 sm qatlamlaridagi harorat 16,5/16,5 S^0 ni tashkil etgan bo‘lsa, 2016-yili 14,5/15,1 S^0 va 2017 yili esa 14,4/15,0 S^0 ga teng bo‘lganligi aniqlangan. Shuning uchun 2015 yili g‘o‘zani Sulton navi nihollarining unib chiqish darajasi yillararo nisbatan yuqori bo‘lib, chigit ekilgandan (3-aprel) so‘ng 6 kun o‘tgach (9.04) 17,5 % nihollar unib chiqqan bo‘lsa, 15-aprelda bu ko‘rsatkich 89,6 % ga yetgan (var1). Ta’kidlash kerakki, chigitni unib chiqish jadalligiga o‘g‘itlar me’yorining ta’siri kuzatilmagan bo‘lsa ham ko‘chat qalinligi (chigit ekish me’yorlari) ning birozga ta’siri kuzatildi. Bunda 80-90 ming/ga ko‘chat qalinligi belgilangan variantlarda nisbatan maqbul ko‘rsatkichlar olingan.

Demak, 2015 yilning sharoitida g‘o‘zaning Sulton navining nihollari chigit ekilgandan 10 kun o‘tgach (15 aprel) 87,3-89,6 % unib chiqqanligi aniqlandi. G‘o‘zaning o‘rta tolali Sulton navida mineral o‘g‘itlar N150, P105, K75 kg/ga me’yorlarda qo‘llanilib, ko‘chat qalinligi 80-90 ming/ga atrofida qilib belgilangan 1–variantda paxta hosili tadqiqot yillariga mutanosib ravishda 39,8; 36,5; 34,1 s/ga, 3 yilda o‘rtacha esa 36,8 s/ga ni tashkil etib, yana 3 yilda o‘rtacha hisobda 1-terim salmog‘i 78,6 % ni tashkil etganligi aniqlandi.

Ta’kidlash joizki, ko‘chat qalinliklari yanada 100-110 va 120-130 ming/ga ortishi bilan paxta hosillari 3 yilda o‘rtacha 38,1 va 38,2 s/ga ga ortib, o‘g‘itlar me’yoridan qo‘shimcha olinmagan holda ko‘chat qalinligi hisobiga 1,3 va 1,4 s/ga ni tashkil etdi. Lekin, bu 2 va 3 variantlarda 1- terim salmog‘i 75,4 va 72,1 % ni tashkil etib, 80-90 ming/ga ko‘chat qalinligi bo‘lgan 1-variantga nisbatan 3,2 va 6,5 % kamroq natija olindiki, bunga sabab, ko‘chat qalinliklari ortgan sari o‘simliklarning tupi (gabitus) kichrayib, 1 o‘simlikdagi hosil kamayadi, lekin ko‘chat hisobiga ortadi, shuningdek kechroq pishib yetiladi. Chunki ko‘chat qalinliklari kamroq bo‘lgan yerlarga quyosh nuri ko‘proq tushib, FAR (fatoaktiv radiatsiya) ning ta’siri ortadi va foydali haroratning samaradorligi ham ko‘tariladi. Mineral o‘g‘itlar me’yori N200, P140, K100 kg/ga bo‘lgan fonda ko‘chat qalinliklariga mutanosib ravishda 3 yilda o‘rtacha paxta hosillari 40,5 40,1 va 40,8 s/ga ni tashkil etgan holda o‘g‘it me’yorlari hisobiga 3,7; 2,0 va 2,6 s/ga qo‘shimcha hosil olingan bo‘lsa, ko‘chat qalinligi 120-130 ming/ga ga ortishi bilan 80-90 ming/ga ga nisbatan 0,3 s/ga qo‘shimcha hosil olindi xolos. Demak, g‘o‘zani Sulton navi uchun maqbul ko‘chat qalinligi 80-90 ming/ga atrofida bo‘lib, mineral o‘g‘itlar N200, P140, K100 kg/ga me’yorlarda qo‘llanilgan ekanligi aniqlandi. Qolaversa bu (4) variantda 1-terim salmog‘i 79,0 % ni tashkil etib, 1-variantga nisbatan 0,4 %, lekin 100-110 va 120-130 ming/ga nisbatan 3,9 va 6,2 % yuqori bo‘ldi.

Mineral o‘g‘itlar N250, P175, K125 kg/ga me’yorlarda qo‘llanilgan (7-9) variantlarda ko‘chat qalinliklariga mutanosib ravishda 3 yilda o‘rtacha paxta hosillari 40,1; 40,9 va 39,8 s/ga ni tashkil etib, o‘g‘itlar me’yorini N150, P105, K75 kg/ga dan ortishi hisobiga ko‘chat qalinliklariga mutanosib ravishda 3,8; 2,8 va 1,6 s/ga qo‘shimcha paxta hosili olindi, ko‘chat qalinligi hisobiga esa 0,8 s/ga ni tashkil etdi. Demak, o‘rta tolali Sulton g‘o‘za navi uchun yillar iqlimining biotik omillarining salbiy (havoning nisbiy namligini ko‘p yillikka nisbatan ortish, havo harorati, tuproq haroratini o‘zgarishi, samarali harorat yig‘indisi, yog‘in-sochin miqdori, FAR) ta’sirlariga chidamliligi ko‘chat qalinligi esa 80-90 ming/ga bo‘lib, mineral o‘g‘itlar N200, P140, K100 kg/ga me’yorda qo‘llanilganda ortishi aniqlangan.

3-jadval

Agrotexnik va abiotik omillarning paxta hosiliga ta’siri, s/ga (Sulton navi)

Variant tartibi	Nazariy ko‘chat qalinligi, ming/ga	Mineral o‘g‘itlar me’yorlari, kg/ga			Yillar			3 yilda o‘rtacha	Qo‘shimchalari	
		N	P_2O_5	K_2O	2015	2016	2017		o‘g‘it-dan	ko‘chat qalinligi-dan
1	80 – 90	150	105	75	39,8	36,5	34,1	36,8	-	-
2	100 – 110				40,2	37,9	36,2	38,1	-	1,3
3	120 – 130				40,8	37,7	36,1	38,2	-	1,4
4	80 – 90	200	140	100	42,0	40,7	38,8	40,5	3,7	-
5	100 – 110				41,9	39,5	38,9	40,1	2,0	-
6	120 – 130				42,5	41,4	38,5	40,8	2,6	0,3
7	80 – 90	250	175	125	43,0	40,8	36,5	40,1	3,3	-
8	100 – 110				42,8	41,8	38,1	40,9	2,8	0,8
9	120 – 130				42,0	39,0	38,4	39,8	1,6	-

Demak, g‘o‘zani o‘rta tolali Sulton navi iqlimning biotik omillariga nisbatan chidamliligini ortishi ko‘chat qalinligi 80-90 ming/ga bo‘lib o‘g‘itlar N200, P140, K100 kg/ga me’yorlarda qo‘llanilganda kuzatildi.

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COMMUNICATIVE FUNCTIONS OF PERLOCUTIONARY SPEECH ACTS IN THE NOVEL "*TO KILL A MOCKINGBIRD*"

Abstract: *This paper explores the communicative functions of perlocutionary speech acts in Harper Lee's To Kill a Mockingbird. Drawing on Speech Act Theory, particularly J.L. Austin's and John Searle's frameworks, the study examines how characters' utterances influence readers and other characters emotionally and psychologically. The analysis reveals that perlocutionary acts in the novel serve to persuade, intimidate, comfort, and provoke thought, thereby enhancing the narrative's rhetorical and emotional depth.*

Keywords: *perlocutionary acts, communicative functions, literary pragmatics, dialogue analysis, persuasion, narrative impact.*

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"MOCKINGBIRDNI O'LDIRISH"ROMANIDAGI PERLOKATSION NUTQNING KOMMUNIKATIV FUNKTSIYALARI

Annotatsiya: *Ushbu maqolada Harper Lining To Kill a Mockingbird asaridagi perlokutsion nutq aktlarining kommunikativ funksiyalari tahlil qilinadi. Til akti nazariyasiga, xususan, J.L. Ostin va Jon Sirlning nazariyalariga asoslangan holda, tadqiqot asar qahramonlarining nutqlari boshqa qahramonlar va o'quvchilarga qanday emotsional va psixologik ta'sir ko'rsatishini o'rganadi. Tahlillar shuni ko'rsatadiki, ushbu roman matnida perlokutsion aktlar ko'proq ishontirish, qo'rqitish, taskin berish va tafakkur uyg'otish kabi funksiyalarni bajarib, asarning ritorik va hissiy qatlamini boyitadi.*

Kalit so'zlar: *perlokutsion aktlar, kommunikativ funksiyalar, adabiy pragmatika, dialog tahlili, ishontirish, syujet ta'siri.*

Introduction

Speech Act Theory, initiated by J.L. Austin and expanded by John Searle, has provided a powerful lens through which to analyze the performative aspects of language in literary texts. Among the three core types of speech acts—locutionary, illocutionary, and perlocutionary—perlocutionary acts are the most complex due to their focus on the effects of speech on the listener. This paper focuses on how perlocutionary acts operate in Harper Lee's To Kill a Mockingbird, a novel that tackles issues of racial injustice, moral growth, and human empathy. The primary aim of this study is to investigate how specific utterances by major characters affect other characters and the reader, and what communicative functions these speech acts serve in the broader context of the narrative.

Spoken language is produced quickly and does not allow for revision. Speakers must organize their thoughts in real time while keeping earlier ideas in mind. Compared to written language, spoken language typically uses a more limited vocabulary, often repeating the same words and structures due to the spontaneous nature of speech. Communication is conveyed not only through words but also through pauses, intonation, stress, and physical gestures. The clarity and impact of spoken language rely on the relevance and depth of its content, as well as the speaker's ability to draw general conclusions and support them with evidence. Effective pronunciation and word choice enhance its expressiveness. A key trait of spoken language is its irreversible nature—once said, it cannot be taken back or edited. Nevertheless, logical reasoning remains crucial during speech. Spoken language may be either planned or impromptu. Planned speech is more organized and coherent, yet it still aims to foster direct interaction with listeners.

Materials and methods

This qualitative research applies textual analysis grounded in Speech Act Theory. Selected passages from the novel To Kill a Mockingbird are examined to identify perlocutionary acts. The selection criteria include:

Emotional or psychological effect on the listener.

The presence of a clear intention by the speaker to influence the listener.

Interaction between characters that highlights social or ethical conflicts.

The data is then categorized according to common communicative functions such as persuasion, intimidation, reassurance, and provocation.

This paper explores the perlocutionary aspects of "To Kill a Mockingbird" through the lens of Speech Act Theory, focusing on how the speech acts within the narrative influence characters' thoughts, feelings, and actions. Perlocutionary acts, which pertain to the effects of an utterance on the listener, are central to the development of themes such as prejudice, justice, and empathy in Harper Lee's novel. The analysis examines key dialogues, such as those between Atticus Finch and his children, Scout and Jem, as well as the courtroom exchanges, to highlight how speech acts create emotional and cognitive responses in both characters and readers. [2] By applying Speech Act Theory to the novel, this study offers insights into how language can effect change, reinforce societal values, and challenge ingrained biases, ultimately shaping the moral and social messages of the text. The speech act theory states that all forms of communication, whether spoken or written, consist of three components. A locution is a term or phrase that carries both its literal meaning and underlying significance when spoken or written. In the context of studying the Bible, a locution refers to a text and its interpretation. Illocution refers to the intention of the speaker when uttering those words and sentences. That is, the goal the speaker aims to achieve through their spoken or written words. Perlocution refers to the impact or transformation that the speaker believes the audience will create in response to their words. The perlocution refers to the intended effect on the listener that the speaker aims to achieve through their words. An author may write a set of sentences with a specific meaning (locution) and intention (illocution) to have a particular impact on the listener (perlocution). The set of sentences (locution) could be meant to persuade someone to take action (illocution). A perlocution occurs when someone is convinced to act based on the words they have read. Perlocution occurs beyond the act of talking or writing. It is the impact caused by spoken or written language. Another illustration of the three parts can be seen here. A woman might tell her husband, “There is a strange odor in the kitchen.” [3]

Research and discussion

In Harper Lee’s To Kill a Mockingbird, perlocutionary speech acts play a crucial role in shaping the emotional and psychological responses of both characters and readers. These acts, as defined in Speech Act Theory, refer to the intended or unintended effects that a speaker’s utterance has on the listener. Within the narrative, such speech acts are employed in various ways to fulfill specific communicative purposes, including persuasion, intimidation, reassurance, and provocation.

One of the most prominent examples of persuasion is found in Atticus Finch’s courtroom monologues. These speeches are not only directed toward the jury but also toward the wider audience of the novel. Atticus constructs logical, morally grounded arguments intended to appeal to the jurors' sense of justice and conscience. His calm yet firm tone, combined with ethically charged reasoning, creates a powerful perlocutionary effect—one that urges listeners to reconsider prejudiced views and act according to principles of fairness and equality. The persuasive force of his speech also resonates with readers, prompting them to reflect on their own societal values.

In contrast, the novel also illustrates intimidation through the character of Bob Ewell. His confrontational and aggressive speech acts toward Atticus and Helen Robinson are designed to instill fear, assert dominance, and manipulate behavior. Ewell's words carry a perlocutionary intent that extends beyond the literal meaning of his utterances; they seek to silence opposition and reinforce a racist social order through verbal threat and social pressure. This use of language exposes the darker side of perlocution, where speech becomes a weapon of coercion.

Meanwhile, reassurance and comfort emerge as vital communicative functions in the interactions between adult figures and the children, Scout and Jem. Characters like Calpurnia and Miss Maudie use soothing language and empathetic tone to provide emotional stability during moments of confusion or distress. Their utterances, though simple on the surface, carry deep perlocutionary impact by easing the children’s anxieties and reaffirming their moral compass. These exchanges highlight the nurturing power of speech and its capacity to build resilience in the face of injustice.

Finally, provocation and reflection are most subtly but effectively realized in Atticus’s everyday conversations. His choice of words often invites others to question their assumptions and engage in deeper moral reasoning. Rather than using overt confrontation, Atticus employs calm, rational speech that stimulates introspection in both his children and his peers. His rhetorical questions and thoughtful remarks serve as indirect perlocutionary acts, challenging listeners to re-evaluate their perspectives on race, justice, and humanity.

Overall, the communicative functions of perlocutionary speech acts in To Kill a Mockingbird significantly enrich the narrative. They reveal the power of language not only to inform or express but also to move, shape, and transform the thoughts and emotions of others. By employing perlocutionary strategies, Harper Lee deepens the novel's thematic complexity and creates a space where moral growth is prompted through words rather than actions alone.

Conclusion

Perlocutionary speech acts in To Kill a Mockingbird serve multiple communicative functions that are central to the novel's narrative and thematic structure. Through persuasion, intimidation, comfort, and provocation, Harper Lee crafts dialogue that resonates deeply with both characters and readers. This study highlights the critical role of perlocution in literature and demonstrates how speech act theory can enrich literary analysis.

The analysis of perlocutionary speech acts in To Kill a Mockingbird reveals the multifaceted role language plays in shaping interpersonal dynamics, expressing ethical stances, and evoking deep emotional responses. Harper Lee masterfully integrates perlocutionary elements in her characters' dialogues to create moments of tension, persuasion, and emotional resolution that significantly contribute to the novel's impact. Whether through Atticus Finch's morally grounded appeals, Bob Ewell's intimidation, or the comforting reassurances of Calpurnia and Miss Maudie, the novel demonstrates how speech can serve as both a tool of empowerment and oppression.

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FREEDOM OF INFORMATION AND ETHICS: A CONTEMPORARY PERSPECTIVE ON MEDIA PHILOSOPHY

Annotation*: This article examines the philosophical and ethical dimensions of freedom of information in the context of modern media. It highlights how freedom of information, while foundational to democratic societies, must be carefully balanced with ethical responsibility to avoid negative consequences such as misinformation, privacy violations, and societal polarization. Drawing on the ideas of thinkers like Mill, Habermas, Foucault, and Baudrillard, the article explores how media not only informs but actively shapes public consciousness. It emphasizes the need for journalists, bloggers, and content creators to adhere to principles of truth, impartiality, and respect for human dignity. The author argues that ethical media practices are essential to maintaining social stability and promoting a responsible information culture in the digital age.*

Keywords*: freedom of information, media ethics, social responsibility, digital society, public consciousness, misinformation, privacy, philosophical media theory, ethical journalism, media manipulation.*

The modern information society has led to some of the most profound and far-reaching changes in human history. Alongside the development of information technologies, freedom of information dissemination is increasingly being viewed as one of the most essential democratic values. However, how far should this freedom extend? How does it affect human morality, individual privacy, and societal stability?

This article explores the complex relationship between freedom of information and ethics within the context of media philosophy. The main goal of the article is to assess contemporary forms of media freedom through philosophical and ethical lenses, as well as to highlight the influence of media content on human consciousness and thought.

Freedom of information refers to the right of individuals or mass media to disseminate and receive information without obstruction. This concept has its roots in the history of democratic societies. In particular, John Stuart Mill's work On Liberty emphasizes the importance of the free exchange of ideas in the development of society. The German philosopher Jürgen Habermas proposed the concept of the "public sphere," where the exchange of information helps ensure social equilibrium. Conversely, Michel Foucault demonstrated how power is exercised through control over media and the dissemination of knowledge.

Thus, freedom of information has always been shaped by struggles among power, censorship, and free thought.

In the era of modern information technologies, platforms such as the internet, social networks, and blogs have become essential expressions of freedom. However, issues of control and censorship are becoming increasingly pressing on these platforms. In certain countries, freedom of information is restricted for political purposes, hindering the development of a truly free society. Although freedom of information may appear to be merely a technological or political issue at first glance, it is in fact rooted in deep philosophical meaning — manifesting as a guarantee of intellectual freedom, cognitive choice, and the formation of individual identity. Therefore, this freedom is not only external but also internal — closely linked to the right to independent thinking.

Media is not simply a tool for disseminating information; it is a powerful mechanism that shapes social consciousness. For this reason, the ethical responsibility of journalists, bloggers, and other information providers plays a crucial role. Ethical principles such as fidelity to truth, impartiality, and respect for personal privacy are becoming increasingly significant in a mediatized society. Unfortunately, in many cases, media outlets, in pursuit of higher ratings, tend to violate these ethical standards. This contributes to the formation of false beliefs, the spread of harmful stereotypes, and the rise of information fatigue within society.

Media ethics, therefore, is not only relevant for journalists and bloggers but also for every consumer of information. Disseminating, processing, and sharing information based on ethical principles contributes to the development of a healthy and balanced information environment in any society.Unfortunately, in today's world, the increasing commercialization of mass media has, in some cases, turned it into a tool of manipulation and censorship. In such contexts, adherence to ethical standards by media professionals and respect for human dignity and worth become especially critical. Media, which plays a key role in shaping social consciousness, also helps to define the core values and moral principles of society. Within the framework of media ethics, the protection of human rights, the inviolability of private life, and the culture of responsible information use take on fundamental importance.

For instance, when covering topics related to children, women, or socially vulnerable groups, it is essential to avoid violating their dignity and to reject the use of harmful stereotypes — a crucial component of ethical journalism. Moral responsibility requires media representatives to approach their work with integrity, impartiality, and accuracy. This has a direct impact on public consciousness: public opinion, ethical values, and social stability largely depend on the ethical stance taken by mass media.In today's media landscape, the race for speed, ratings, and sensational headlines often contradicts the quality and ethical standards of information. For this reason, every media worker must conduct their professional activities based on ethical criteria and maintain a deep awareness of their responsibility to society.

When media freedom is not aligned with ethical responsibility, negative consequences inevitably follow. The spread of fake news, violations of privacy, and manipulation of public opinion are just a few such outcomes. Sometimes, under the guise of freedom of information, social consciousness is distorted, and hatred or fear is incited. In these cases, breaches of media ethics become especially evident. Therefore, alongside freedom of the press, clearly defined ethical boundaries must also be established and respected. According to postmodern thought, media does not reflect reality, but instead constructs its simulation (Baudrillard). In today’s society, the impression or perception of information often becomes more significant than the information itself. This leads to a relativization of the very notion of truth. In such a context, media ethics pertains not only to the content of the information but also to the way it is presented — its form and context. Modern media no longer merely reflects real life, but rather offers a constructed version of reality, shaping public perception accordingly.

Conclusion.

The balance between freedom of information and ethics is one of the most complex challenges in today's media-driven society. On one hand, the free exchange of ideas promotes social development; on the other hand, when freedom is exercised without ethical boundaries, it can lead to negative consequences. Therefore, ensuring media freedom must be accompanied by the reinforcement of media ethics. In today’s complex media landscape, every content creator must feel morally responsible for their work and be guided by principles of humanity, truth, and justice.In the contemporary media environment, freedom of information and ethical standards are complementary principles that must exist in balance. Unrestrained freedom of information can result in social instability, misinformation, and a breakdown of public trust. Conversely, ethical limitations and responsible approaches help maintain a healthy and constructive information ecosystem.Media platforms are not just transmitters of information - they are powerful forces that shape social consciousness, values, and ethical norms. For this reason, every journalist, blogger, content creator, and even the average information consumer bears responsibility for understanding and applying the principles of media ethics.The future of ethical and sustainable media depends on deeply integrating media literacy into the education system, ensuring that media institutions operate independently yet responsibly, and above all, upholding principles of human dignity, individual rights, and freedom of thought.By doing so, we can build not only a free but also an ethically resilient media space - a fundamental condition for the progress of any society.

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“MASHINA DETALLARI” FANINI O‘QITISHDA INTERFAOL VA INNOVATSION TEXNOLOGIYALARNI KENG JORIY QILISH

Annotatsiya. *Maqolada “Mashina detallari” fanini o‘qitishda interfaol va innovatsion texnologiyalarning qo‘llanilishi, zamonaviy pedagogik metodlar va vositalarning ta'lim jarayoniga ta’siri tahlil qilingan. Prezident qarorlari va farmonlari asosida o‘quv jarayonida elektron resurslar, virtual laboratoriyalar va kompyuter simulyatsiyalari kabi innovatsion vositalarni joriy etish zarurati va amaliy ahamiyati ochib berilgan. Shuningdek, interfaol usullar talabalar bilim va ko‘nikmalarini rivojlantirishdagi samaradorligi baholangan va bu yo‘nalishda pedagogik kadrlarning malakasini oshirish zarurligi asoslangan.*

Kalit so‘zlar. *mashina detallari, interfaol texnologiyalar, innovatsion texnologiyalar, pedagogik texnologiyalar, elektron ta’lim, virtual laboratoriya, ta’lim jarayoni, kompyuter simulyatsiyasi.*

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WIDE IMPLEMENTATION OF INTERACTIVE AND INNOVATIVE TECHNOLOGIES IN TEACHING THE SUBJECT "MACHINE PARTS"

Annotation. *The article analyzes the application of interactive and innovative technologies in teaching the subject "Machine Parts," the influence of modern pedagogical methods and tools on the educational process. Based on Presidential decrees and resolutions, the necessity and practical significance of introducing innovative tools such as electronic resources, virtual laboratories, and computer simulations into the educational process has been revealed. The effectiveness of interactive methods in developing students' knowledge and skills was also evaluated, and the need to improve the qualifications of pedagogical staff in this area was substantiated.*

Keywords. *machine parts, interactive technologies, innovative technologies, pedagogical technologies, e-learning, virtual laboratory, learning process, computer modeling.*

“Mashina detallari” fanini o‘qitishda interfaol va innovatsion texnologiyalarni keng joriy qilish bugungi kunda mamlakatimiz ta’lim tizimida amalga oshirilayotgan islohotlar va modernizatsiya jarayonlarining dolzarb talablaridan biridir. Oʻzbekiston Respublikasi Prezidentining "Oliy taʼlim tizimini 2030 yilgacha rivojlantirish konsepsiyasini tasdiqlash toʻgʻrisida"gi PF-5847-son Farmoni hamda "Innovatsion faoliyatni yanada rivojlantirish chora-tadbirlari toʻgʻrisida"gi PQ-3697-son Qaroriga muvofiq, oliy taʼlim tizimida raqobatbardosh, yuqori malakali kadrlarni tayyorlashda interfaol va innovatsion metodlarni keng qoʻllash zaruriyati taʼkidlangan.

Hozirgi kunda mashinasozlik sohasi dunyoda eng tez rivojlanayotgan va texnologik innovatsiyalarni oʻz ichiga olgan sohalardan biridir. Shu boisdan mazkur fan doirasida talabalarning texnik tafakkurini shakllantirish, amaliy koʻnikmalarni rivojlantirish, shuningdek, zamonaviy ishlab chiqarish talablariga mos ravishda kadrlar tayyorlash asosiy maqsad qilib qoʻyilgan. Ayniqsa, raqamli iqtisodiyot sharoitida CAD/CAM texnologiyalari, virtual va kengaytirilgan reallik vositalarini qoʻllash orqali taʼlim jarayonini yanada samarali tashkil etish muhim ahamiyat kasb etmoqda.

Interfaol texnologiyalar yordamida talabalarning fanga qiziqishi ortib, bilimlarni chuqur oʻzlashtirish, ularni amaliy faoliyatda qoʻllash imkoniyatlari kengayadi. Ayniqsa, virtual laboratoriyalar, kompyuter dasturlari va simulyatsiyalar orqali mashina detallari konstruksiyalarini modellashtirish, sinovdan oʻtkazish kabi jarayonlarni amaliy tarzda bajarish imkoniyatini yaratadi. Bu, oʻz navbatida, talabalarni nazariy bilimlarini amaliy koʻnikmalar bilan uygʻunlashtiradi va ularni zamonaviy ishlab chiqarish sharoitlariga moslashuvchanligini oshiradi.

Yuqorida keltirilgan jihatlar mazkur mavzuning bugungi kun taʼlim tizimida nechogʻli dolzarbligini va uning mamlakat iqtisodiyotiga xizmat qiluvchi malakali muhandis kadrlarni tayyorlashdagi amaliy ahamiyatini koʻrsatadi.

Bugungi kunda interfaol texnologiyalar va raqamli innovatsiyalar taʼlim jarayonining ajralmas qismiga aylandi. Bu texnologiyalar orasida virtual laboratoriyalar, raqamli simulyatsiyalar, 3D modellashtirish dasturlari va interfaol taqdimotlar alohida ahamiyat kasb etadi. Ushbu vositalarni qoʻllash talabalarni nafaqat nazariy bilimlarni oʻzlashtirishga, balki amaliy va kreativ faoliyatlarda faol ishtirok etishga undaydi.

"Mashina detallari" fanini oʻqitishda ayniqsa 3D modellashtirish dasturlaridan keng foydalanish talabalarga murakkab mexanik tuzilmalarni vizual ravishda koʻrsatish imkoniyatini beradi. Bunday dasturlar, masalan AutoCAD, SolidWorks yoki CATIA talabalarning nafaqat nazariy bilimlarini, balki loyihalash koʻnikmalarini ham rivojlantiradi. Bundan tashqari, talabalar virtual muhitda tajribalar oʻtkazib, texnik yechimlarni simulyatsiya orqali tekshirishlari mumkin.

Interfaol texnologiyalar qoʻllanilishi orqali talabalar oʻrtasidagi muloqot va hamkorlik ham kuchayadi. Guruh ishlarida raqamli platformalardan foydalanish, misol uchun Google Classroom, Microsoft Teams yoki Zoom orqali loyihalarni muhokama qilish, talabalar oʻrtasidagi oʻzaro hamkorlikni va jamoaviy ishlash koʻnikmalarini rivojlantiradi.

Interfaol va innovatsion texnologiyalarni joriy qilishning amaliy ahamiyati shundaki, ular taʼlim jarayonini samarali va natijaga yoʻnaltirilgan qilib tashkil etishga imkon yaratadi. Bu texnologiyalar orqali talabalarda muammolarni mustaqil hal qilish, jamoaviy ish olib borish, loyihalashtirish va amaliy topshiriqlarni muvaffaqiyatli bajarish ko‘nikmalari shakllanadi. Ayniqsa, real hayotdagi murakkab injenerlik muammolarini virtual simulyatsiya vositasida hal qilish imkoniyatining mavjudligi talabalarning kasbiy bilimlarini yanada amaliy va aniq tarzda mustahkamlaydi.

Innovatsion texnologiyalarni samarali joriy qilish uchun quyidagi metodik tavsiyalar ishlab chiqildi:

- Nazariy ma’lumotlarni qisqa va interfaol shaklda taqdim etish orqali talabalar e’tiborini saqlab qolish;
- Virtual va real laboratoriya ishlari integratsiyasini ta’minlash orqali amaliy bilimlarni chuqurlashtirish;
- Raqamli loyihalash dasturlaridan foydalanish bo‘yicha maxsus o‘quv qo‘llanmalarini yaratish;
- Talabalarning bilimlarini baholash jarayonida interfaol testlar va virtual simulyatsiyalarni qo‘llash.

Yuqoridagi uslubiy yondashuvlarni amalga oshirish natijasida, talabalar “Mashina detallari” fanida nafaqat nazariy bilimlarni o‘zlashtiradilar, balki ularni real muammolarga tatbiq etish qobiliyatlarini ham rivojlantiradilar. Bu esa, o‘z navbatida, bo‘lajak muhandislarning kasbiy faoliyatida yuqori samaradorlik va innovatsion fikrlashga asos yaratadi.

"Mashina detallari" fanini texnika oliy ta’lim muassasalarida pedagogik-metodik fan sifatida o‘qitish tizimi quyidagicha yoritish mumkin:

№	**Asosiy tarkibiy elementlar**	**Pedagogik jihatlar**	**Metodik jihatlar**	**Kutilayotgan natijalar**
1	O‘quv dasturini tuzish va yangilash	Talabalarni fan mazmunini chuqur tushunishga yo‘naltirish, didaktik printsiplarga amal qilish	Darslarni integratsiyalash, nazariy va amaliy mashg‘ulotlarni uyg‘unlashtirish	Fan mazmunining o‘zlashtirilishi samaradorligi oshadi
2	Interfaol texnologiyalar dan foydalanish	Talabalar bilim olishga qiziqishini oshirish, mustaqil fikrlash va ijodiy yondashuvni rivojlantirish	Simulyatsiya, loyihalar, kichik guruhlarda ishlash, muammo qo‘yish uslubi	Talabalarning kreativligi va amaliy ko‘nikmalari rivojlanadi
3	Amaliy mashg‘ulotlar-ni tashkil qilish	Nazariy bilimlarning amaliyot bilan bog‘liqligini mustahkamlash, kasbiy ko‘nikmalarni shakllantirish	Laboratoriya va ishlab chiqarish bazalaridan foydalanish, real muhandislik vazifalarini hal qilish	Talabalarning kasbiy tayyorgarligi yuqori bo‘ladi
4	Zamonaviy pedagogik texnologiyalar	Zamonaviy axborot texnologiyalaridan foydalanishni	Virtual laboratoriyalar, 3D modellashtirish	Talabalar texnologik imkoniyatlardan

	va vositalarni qo‘llash	rag‘batlantirish, talabalarda raqamli savodxonlikni oshirish	dasturlari, onlayn platformalar	samarali foydalanishni o‘rganadi
5	Talabalarni baholash tizimini takomillashti-rish	Baholashning shaffofligi va obyektivligini ta’minlash, talabalarning rag‘batlanishini oshirish	Oraliq va yakuniy nazoratlar, portfolio, loyiha asosida baholash	Talabalar o‘zlashtirgan bilimlarini baholash va rivojlantirish uchun aniq mezonlar mavjud bo‘ladi
6	O‘qituvchilar-ning malakasini oshirish	Pedagogik mahorat va kasbiy bilimlarni muntazam rivojlantirish	Seminar-treninglar, metodik maslahatlar, ilg‘or tajribalar almashuvi	Fan o‘qitish sifati va samaradorligi oshadi

1-rasm. "Mashina detallari" fanini texnika oliy ta’lim muassasalarida pedagogik-metodik fan sifatida o‘qitish tizimi.

Ushbu jadval orqali texnika yo‘nalishidagi oliy ta’lim muassasalarida "Mashina detallari" fanini pedagogik-metodik jihatdan sifatli va samarali o‘qitishning asosiy yo‘nalishlari va natijalari yoritildi.

Xulosa qilib shuni aytish mumkinki, “Mashina detallari” fanini o‘qitishda interfaol va innovatsion texnologiyalarning keng qo‘llanilishi hozirgi zamon talablariga javob beruvchi, malakali va raqobatbardosh mutaxassislarni tayyorlashning muhim omillaridan biri hisoblanadi. Tadqiqot natijalari shuni ko‘rsatdiki, an'anaviy ta'lim usullari bilan bir qatorda zamonaviy pedagogik texnologiyalardan foydalanish talabalar bilimining chuqurlashishi va amaliy ko‘nikmalarining samarali shakllanishiga bevosita ta’sir ko‘rsatmoqda.

Prezident qarorlari va farmonlarida ta’lim sifatini oshirish va innovatsion texnologiyalarni ta’lim jarayoniga integratsiyalash bo‘yicha qo‘yilgan talablar va vazifalar amaliyotda o‘zining dolzarbligini yana bir bor isbotladi. Ayniqsa, virtual laboratoriyalar, elektron resurslar, kompyuter simulyatsiyalari kabi zamonaviy vositalarni qo‘llash orqali talabalar mashina detallari fanini o‘zlashtirish jarayonida murakkab texnik tushunchalarni sodda va tushunarli tarzda o‘zlashtirmoqda.

Shuningdek, interfaol texnologiyalarning ta’lim jarayoniga joriy etilishi o‘quvchilarning mustaqil fikrlash qobiliyatini oshiradi, nazariy bilimlarni amaliyotda qo‘llash imkoniyatlarini kengaytiradi hamda muammoli vaziyatlarga yechim topish qobiliyatini rivojlantiradi. Interfaol metodlardan foydalanish natijasida talabalar orasida hamkorlik, ijodiy fikrlash va tanqidiy yondashuvni rivojlantirish uchun qulay sharoit yaratilmoqda.

Natijada “Mashina detallari” fanining o‘quv dasturida interfaol va innovatsion texnologiyalarni qo‘llashni yanada kengaytirish va chuqurlashtirish tavsiya etiladi. Buning uchun, pedagogik kadrlarning innovatsion texnologiyalar bo‘yicha malakasini muntazam oshirib borish, o‘quv dasturlarini zamonaviy texnik vositalar bilan boyitish, elektron ta’lim resurslarini ko‘paytirish va universitetlarning texnik bazasini mustahkamlash zarur.

Shunday qilib, kelajakda mashina detallari fanini interfaol texnologiyalar asosida o‘qitish orqali texnika sohasida yuqori malakali, ilmiy-ijodiy salohiyatga ega, zamonaviy bilim va ko‘nikmalarga ega mutaxassislar yetishtirish imkoniyati yanada kengayadi.

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O‘ZBEKISTONNING XALQARO IMIDJINI OSHIRISHDA OMMAVIY AXBOROT VOSITALARINING O‘RNI

Annotatsiya :*Xalqaro miqyosdagi ijobiy qiyofasini shakllantirishda ommaviy axborot vositalarining (OAV) tutgan o‘rni tahlil qilinadi maqolada O‘zbekiston Respublikasining. Role va ularning xalqaro hamjamiyatda davlat obro‘sini oshirishdagi strategik ahamiyati yoritiladi, raqamli platformalarning ta’siri, olib borilayotgan axborot siyosati, and jurnalistikaning global maydondagi.nnotatsiya*

Kalit so‘zlar: *xalqaro imidj, ommaviy axborot vositalari, axborot siyosati, PR, raqamli jurnalistika, ijtimoiy tarmoqlar.*

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THE ROLE OF MASS MEDIA IN STRENGTHENING THE INTERNATIONAL IMAGE OF UZBEKISTAN

Abstract:*This article analyzes the role of mass media in shaping the positive international image of the Republic of Uzbekistan. It highlights the country's current information policy, the impact of digital platforms, the role of journalism in the global information space, and the strategic importance of media in enhancing the state's reputation on the international stage.*

Keywords: *international image, mass media, information policy, PR, digital journalism, social networks.*

Balki ular haqida jamoatchilik ongida shakllangan tasavvurlar orqali ham belgilanadi, bugungi globallashuv davrida davlatlarning xalqaro maydondagi nufuzi va obro‘-e’tibori nafaqat siyosiy va iqtisodiy salohiyat bilan. Axborot vositalari orqali shakllanadi esa asosan ommaviy tasavvurlar. O'zining xalqaro qiyofasini yaratish va mustahkamlash yo'lida ommaviy axborot vositalaridan faol foydalanmoqda, o'zbekiston mustaqillikka erishganidan so'ng. Notiqlik siyosati va xalqaro hamkorlik munosabatlarining kengayishi natijasida mamlakatning global imidjini mustahkamlash zarurati ortib bormoqda.

Xalqaro imidj — bu davlatning boshqa mamlakatlar, xalqaro tashkilotlar, va jamoatchilik nigohidagi qiyofasidir. Bu obraz ijtimoiy, siyosiy, iqtisodiy, or madaniy omillar asosida shakllanadi. Ijobiy xalqaro imidj xorijiy sarmoyalar jalb etish, turizmni rivojlantirish, geosiyosiy ta'sirni kuchaytirish ve xalqaro reytinglarda yuqori o'rinlarni egallash uchun muhim omildir. Bilamizki, jahonga tanilgan har bir millatning bu'rttirilgan obrazi bo'ladi. Ingliz konservatizmi, nemis pointualizmi, fransuz romantizmi, yaponlarning donoligi, xitoylarning ustaligi, hindlarning tolerantliligi (jonzotlarga nisbatan). Xullas, jahonga har qanday davlat va millat o'z imdji va obrazi bilan kirib keladi.

OAV davlat va jamoatchilik oʻrtasida axborot vositachisi sifatida xizmat qilishi bilan birga, xalqaro maydonda davlat imidjining asosiy yaratuvchisi hisoblanadi. Oʻzbekistonning madaniy merosi, qadimiy shaharlari, ijtimoiy-iqtisodiy islohotlari, inson huquqlari borasidagi yutuqlari toʻgʻrisida xorijiy OAVda chiqayotgan maqola, reportaj va intervyular xalqaro jamoatchilik fikrini shakllantiradi. Misol uchun, “Euronews”, “Al Jazeera”, “BBC” kabi yirik OAVda Oʻzbekiston haqida yoritilgan ijobiy materiallar mamlakatga nisbatan qiziqishning ortishiga sabab boʻlmoqda. Global mediamaydonda kuzatilayotgan axborot tengsizligi, xalqaro medimonopoliyalar toʻqnashuvi, boz ustiga raqobatchi mamlakat va mintaqalar oʻrtasida sodir boʻlayotgan uzluksiz axborot xuruji, qaramaqarshilik, mafkuraviy toʻqnashuvlar avj olayotgan, siyosiy-iqtisodiy munosabatlar chigallashayotgan davrda imijni qasddan buzish holatlarini payqash qiyin boʻlmay qoldi.

Qizigʻi, turli davlatlarning muayyan bir mamlakat haqidagi OAVda tarqatadigan axborotlari bir-biriga umuman oʻxshamasligi ham oddiy holga aylandi. Shunday sabablarga koʻra ham davlat imijini baholashda uning barqarorligiga, aniqligi, ijobiy va salbiy bahoning naqadar xolisligi va mutanosibligiga alohida e’tibor berishga toʻgʻri keladi. Global munosabatlar chuqurlashar ekan, mavjud siyosiy va iqtisodiy raqobat sharoitida imij orqali doʻst qiyofasidan dushman qiyofasini yasash yoki aksincha boʻlishi holatlari tez-tez uchrashi ham tabiiylik kasb etmoqda.

Prezidentimizning 2022-yil 28-yanvardagi “2022-2026-yillarga moʻljallangan Yangi Oʻzbekistonning taraqqiyot strategiyasi toʻgʻrisida”gi farmonida media sohasini tizimli isloh qilish barobarida jahon hamjamiyatida mamlakatimiz imijini yuksaktirishga qaratilgan axborot yetkazish samaradorligini oshirish masalasiga alohida e’tibor qaratilgan. Hujjatda 2022-2026-yillarga moʻljallangan Yangi Oʻzbekistonning taraqqiyot strategiyasini “Inson qadrini ulugʻlash va faol mahalla yili”da amalga oshirish boʻyicha davlat dasturiga muvofiq qator muhim maqsad va vazifalar belgilab berildi. Soʻnggi yillarda keng koʻlamli demokratik islohotlar, axborot globallashuvi jarayoniga mos ravishda yangi Oʻzbekistonning oʻz mukammal qiyofasi, yangicha media imijini yaratish borasida salmoqli ishlar amalga oshirildi. Bu jarayonda mediamakonda Oʻzbekiston mavzusining alohida mavqe va miqyosga koʻtarilgani, mamlakatimizning ichki va tashqi imijini yaxshilash bilan bogʻliq vaziyat ilmiy-amaliy va ijodiy masala sifatida mutaxassislar tomonidan tadqiq etilishi muhim ahamiyat kasb etadi. Biroq bu borada bajarilgan ishlardan koʻra, qilinishi kutilayotgan ishlar koʻproq, nazarimizda. Kuzatishlar shuni koʻrsatadiki, MDH va Sharq mamlakatlari, xususan, Rossiya, Qozogʻiston, Xitoy, Yaponiya, Janubiy Koreya, Singapur, Malayziya, Hindiston, Turkiya, Misr, BAA kabi davlatlarning ommaviy axborot vositalarida Oʻzbekistonga doir xabarlar va maqolalar tez-tez e’lon qilib borilmoqda. Biroq Gʻarb davlatlari, xususan, AQSH va Buyuk Britaniya mediamakonida

O‘zbekistonga oid salmoqli tahliliy chiqishlar yetarli darajada emas. Joriy asrning intellektual asr ekani, har qanday zamonaviy taraqqiyot va yuksalish zamirida ilm-fan yutuqlari qatori intellektual salohiyat yotishi isbot talab qilmaydigan aksioma. Xususan, ijtimoiy-gumanitar sohadagi ilmiy salohiyat mavjud ziyoli qatlamning jamiyatda kechayotgan islohotlarga, voqea-hodisalarga munosabatida aks etadi. Bunday munosabatlar maydoni esa ommaviy axborot vositalaridir. Matbuot voqea-hodisalar haqida axborot, ma’lumot yetkazish bilan cheklanmaydi, balki mavjud holatni tahlil, tadqiq qiladi, xulosalar chiqaradi, taklif-mulohazalarni keng jamoatchilik muhokamasiga taqdim etadi. Jamoatchilik vakillarini bahs-munozaraga undaydi. Tom ma’nodagi ommaviy kommunikatsiya shu tariqa shakllanadi. Milliy intellektual salohiyat shaxsning, millatning, xalqning, jamiyatning va albatta, davlatning eng katta boyligi hisoblanadi.

Suveren O‘zbekiston o‘zini dunyo hamjamiyatining teng huquqli va teng ovozli subyekti sifatida taqdim etish barobarida, rivojlanishning o‘ziga xos, betakror yo‘lini tanladi. Demokratik jamiyat qurish milliy taraqqiyot strategiyasining asosini tashkil etdi va bu jarayonda bosh islohotchi vazifasini davlat rahbari o‘z zimmasiga oldi. Har qanday mustaqil davlatning jahonga yuz tutishi, xalqaro mediamakonda tilga olinishi muqarrar ravishda davlat rahbarining nomi bilan bog‘liq. Siyosiy yetakchilik nasib etgan shaxsning hayotiy maslagi, nuqtayi nazari, tajribasi, bilimi, vatanparvarligi va hokazo fazilatlari davlat mustaqilligining dastlabki pallasida jiddiy sinovdan o‘tadi.

O‘zbekiston ulkan islohotlar davrini boshdan kechiryapti. Yangi rahbariyat bozor iqtisodiyotini rag‘batlantirish, xorijiy investitsiyalarni jalb qilish, qo‘shni mamlakatlar bilan aloqalarni qayta tiklash, rahbarlik lavozimlariga yosh texnokratlarni tayinlash kabi qator islohotlarni amalga oshirdi. Raqamli platformalar orqali O‘zbekiston haqida tezkor, zamonaviy va vizual axborotlarni global auditoriyaga yetkazish imkoniyati kengaymoqda. YouTube, Instagram, Twitter, Facebook va TikTok kabi platformalarda davlatning turizm salohiyati, xalqaro forumlardagi ishtiroki, madaniy tadbirlar va innovatsion loyihalari yoritilmoqda. Blogerlar, vlogerlar, mustaqil jurnalistlar ishtirokida olib borilayotgan PR ishlari ijtimoiy ongda ijobiy obraz shakllantirishga xizmat qilmoqda.

Global axborot maydonida raqobat keskinlashgan hozirgi davrda har bir davlat o‘zining xalqaro miqyosdagi ijobiy qiyofasini shakllantirish va saqlab qolish uchun puxta axborot siyosatini yuritishga majbur. O‘zbekiston Respublikasi ham mustaqillikka erishganidan so‘ng, axborot sohasini rivojlantirishga, ayniqsa uning xalqaro yo‘nalishlariga alohida e’tibor qaratdi. O‘zbekiston hukumati so‘nggi yillarda xorijiy OAV bilan hamkorlikda ishlash, xorijiy muxbirlarni mamlakatga taklif qilish, xalqaro axborot agentliklari bilan qo‘shma loyihalar tashkil etish kabi tashabbuslarni yo‘lga qo‘ymoqda. Shuningdek, “Dunyo” axborot agentligi, O‘zA, “Uzbekistan.travel” kabi manbalar xorijiy tillarda kontent ishlab chiqib, uni keng auditoriyaga taqdim etmoqda. Bu esa O‘zbekistonning ochiqlik siyosatini amalda namoyon qiladi.

Xulosa

Xulosa qilib aytganda, O‘zbekistonning xalqaro imidjini mustahkamlashda ommaviy axborot vositalari hal qiluvchi rol o‘ynaydi. Bu jarayonda OAV nafaqat ma’lumot yetkazuvchi vosita, balki xalqaro jamoatchilik ongida davlat qiyofasini shakllantiruvchi strategik resursdir. Shu bois, OAV faoliyatini takomillashtirish, raqamli texnologiyalardan unumli foydalanish, jurnalistlar malakasini oshirish va xalqaro media-hamkorliklarni kengaytirish orqali mamlakatimizning global obro‘sini yanada oshirish mumkin.

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LINGUISTIC AND CONTEXTUAL PROPER TIES OF EUPHEMISMS

Annotation:The article is devoted to the linguocultural analysis of euphemisms. While conducting a linguocultural analysis of euphemisms in texts taken from Qalampir.uz, kun.uz and BBC websites, it is important to pay attention to the expressions and phrases used in the text that soften diplomatic and social relations.*

Key words: *linguo-cultural, regulation, equipment, consequences, euphemisms, expressions, impact.*

Results and Discussion:

Below we analyze these euphemisms:

1. Jolie filed for divorce in 2016, citing "irreconcilable differences". It later emerged during separate court proceedings that she had accused Pitt of being abusive to her and two of their children on a private jet that year. (30.12.24)

1. Jolie filed for divorce in 2016, citing irreconcilable differences. Later, during separate court proceedings, it emerged that she had accused Pitt of being abusive to her and two of their children on a private jet that year.

"Irreconcilable differences" is a euphemism used to describe a relationship that is contentious and conflictual, and is used to soften the impact of a marriage breakdown and divorce.

2, Angelina Jolie and Brad Pitt have reached a divorce settlement following an eight-year legal battle, according to her lawyer. The pair, who married in 2014 and have six children, are among the most high-profile couples in the entertainment industry and were dubbed 'Brangelina' by the press. (30.12.24)

2. According to her lawyer, Angelina Jolie and Brad Pitt have reached a divorce settlement following an eight-year legal battle. The pair, who married in 2014 and have six children, are among the most high-profile couples in the entertainment industry and were dubbed 'Brangelina' by the press.

In this sentence, "Divorce settlement" is a euphemism used to describe the conclusion of a long-running, contentious financial and custody dispute.

This euphemism neutralizes the conflict and disagreements of the divorce process, emphasizing its amicable resolution.

"High-profile couple" and "Brangelina" are euphemisms that favor the media over their celebrity status and their relationship. They present the event in a positive light, focusing on the impact of fame and fame rather than on personal conflicts.

The euphemisms in the example help to preserve the image of a celebrity couple who are beloved by the nation despite their personal problems without tarnishing their image.

In English, euphemisms about divorce and lawsuits often emphasize neutrality and ambiguity. In English: "Irreconcilable differences" ("irreconcilable differences"), often used in legal and social circles. It is neutral, formal, and general, and serves to soften the emotional impact. As a formal and less emotional expression, there is no need for the parties to agree.

In Uzbek, in similar situations, expressions such as: Хайрий айрмим ("amicable separation") to emphasize a peaceful resolution "кейшилын айрмим"

Euphemisms for separation reflect how cultural norms shape the choice of euphemisms, balancing formality and sensitivity.

"Agreement on separation" implies a mutually agreed-upon process and a peaceful resolution of the problem, rather than an adversarial process, which defines mutual cooperation. "Amicable separation" implies mutual agreement and softens the negative views associated with separation. This reflects the cultural traditions of maintaining social harmony and avoiding conflicts.

Comparison:

It can be noted that English euphemisms emphasize neutrality and emotional detachment.

Uzbek euphemisms, on the other hand, reflect collective cultural values, tending to harmony and community-oriented language.

In the linguo-cultural analysis of the euphemisms in the text given as an example, it is important to pay attention to the expressions and phrases used to soften diplomatic and social relations. Below we analyze these euphemisms:

1. The regulation establishes the procedure for attaching active luminaries to poor families and involving them in the formation of a healthy lifestyle and socio-spiritual environment in the neighborhood, as well as for purchasing educational equipment and weapons, sportswear for children from low-income families, and reimbursement of expenses related to the participation of senior citizens in sports events. (30.12.24)

"Healthy lifestyle and socio-spiritual environment" is a phrase used to define and promote positive changes in society. This term emphasizes social stability, spiritual support, and health.

Low-income families are a soft expression used to designate the stratum of society in need of social assistance. This term refers to needy families or needy families

Circumcision is the ritual of cutting off the foreskin of a boy's penis at a certain age. This custom is a tradition specific to Uzbek culture and traditions, and there is no such custom in English.

The article above provides a comparative analysis of euphemisms in English and Uzbek.

Active elders In Uzbek, Active elders are described as socially active individuals in our culture and religion, showing respect and honor to the elderly.

The term Active elders is also softer and more positive than terms such as retirees or senior citizens, and it also emphasizes social activity.

"Low-Income Families"[6] (Low-Income Families) in Uzbek is a euphemism that gives a softening meaning to the socially disadvantaged. The word "low-income" is less offensive and more humane than the words "poor" or "poor".

In English, terms such as "Low-Income Families" or "Economically Disadvantaged" are also used in this sense. These euphemisms in English are also aimed at softening emotions and ensuring social respect.

3. "Healthy Lifestyle and Socio-Spiritual Environment"[7] (Healthy Lifestyle and Socio-Spiritual Environment) in Uzbek, this term gently expresses measures aimed at improving the mental and physical state of people.

"Healthy Lifestyle" is also a widely used term in English, and "Socio-Spiritual Environment" can be used culturally. It can be equated with expressions such as "well-being" in English.

4. "Encouraging "Incentive Payments"

In Uzbek, this expression is used to express financial assistance or material reward in a softer form, more diplomatic than "aid money".

In English, the expression "Incentive Payments" is also used in the same sense, that is, to express financial assistance in a softer way.

5. "Mahalla yettiligi" (Community council) is an informal and softer expression in Uzbek to express community cooperation. Yettiligi is an expression with a symbolic meaning inherent in Uzbek culture.

Existing terms such as Community council or Neighborhood Cometee in English do not clearly express symbolism in English.

Lingocultural analysis of euphemisms found in social articles in texts taken from Qalampir.uz, kun.uz and BBC websites.

Terms such as "humanitarian efforts" are often used in conjunction with Islamic values of charity and compassion. Religion has a significant influence on language, and therefore encourages the use of euphemisms that are consistent with moral principles of kindness and respect.

English-speaking cultures:

Expressions such as "humanitarian efforts" are secular and universal, reflecting the less direct influence of religion in public discourse. While religious values can influence people, in English-speaking cultures, public language tends to maintain a neutral, secular tone.

English-speaking cultures:

Expressions such as "humanitarian efforts" are secular and universal, reflecting the less direct influence of religion in public discourse. While religious values can influence people, public language in English-speaking cultures tends to maintain a neutral, secular tone.

4. Avoiding direct negativity

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[6] https://www.bbc.com/news/articles/cx2nde444d0o.

[7] https://qalampir.uz/news/faol-nuroniylarni-kambagal-oilalarga-biriktirish-tartibi-belgilandi-112076.

Uzbek context: "Living conditions have been studied" (Living conditions have been studied) is used in Uzbek communication style to avoid direct mention of poor living conditions and to avoid using harsh words or confrontation in order to maintain social harmony and dignity.

English-speaking cultures:

Euphemisms such as economic hardship or "poor households" serve the same purpose, but are often more descriptive than their Uzbek equivalents.

Achilles heel, according to Greek mythology, is the only weak spot of Achilles. This expression is used as a euphemism in English political, social, or other texts to refer to the weak point or vulnerable point of something strong or successful, such as internal problems or poor strategies. Such an expression is not used in Uzbek culture.

Pandora's box is used in socio-political texts to warn of fear, serious danger, or dire consequences. It serves as a strong euphemism to describe the complexity of a situation and its possible consequences.Such euphemisms are not used in Uzbek.

Conclusion

English euphemisms are mainly aimed at political correctness and avoiding resentment in various societies.Thus, euphemisms in Uzbek culture emphasize community, respect, and harmony, which are deeply rooted in Islamic and collective values. Compared to English-speaking cultures, Uzbek euphemisms often prioritize dignity and social cohesion over directness or individuality.

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IQTISODIYOTDA MATEMATIK STATISTIKANING QO‘LLANILISHI

Annotatsiya: *Mazkur maqolada matematik statistikani iqtisodiy tahlil va bashoratlash jarayonlarida qo‘llashning asosiy usullari va amaliy ahamiyati yoritilgan. Xususan, iqtisodiy ko‘rsatkichlar, regressiya tahlili, korrelyatsiya koeffitsienti, ehtimollik modellaridan foydalanish orqali iqtisodiy qarorlarni asoslash imkoniyatlari tahlil qilinadi.*
Kalit so‘zlar: *matematik statistika, iqtisodiyot, regressiya, korrelyatsiya, ehtimollik, bashorat, tahlil.*

Kirish. Zamonaviy iqtisodiyot fanining taraqqiyoti matematik va statistik metodlarga bo‘lgan ehtiyojni yanada oshirmoqda. Iqtisodiy ko‘rsatkichlar o‘zgaruvchan va ko‘p omilli bo‘lgani sababli, bu omillar orasidagi bog‘liqliklarni aniqlash va tahlil qilishda matematik statistika vositalari katta ahamiyatga ega. Ayniqsa, bugungi globallashuv va bozor iqtisodiyotining murakkab sharoitida qaror qabul qilish jarayonlarida statistik ma’lumotlar asosida ishlash muhim sanaladi.

Asosiy qism. Matematik statistika va iqtisodiy ko‘rsatkichlar. Matematik statistika - bu miqdoriy ma’lumotlarni yig‘ish, tahlil qilish, interpretatsiya qilish va ularni mumlashtirish bilan shug‘ullanadigan fan sohasi bo‘lib, iqtisodiy jarayonlarni o‘rganishda keng qo‘llaniladi. Iqtisodiy ko‘rsatkichlar — inflyatsiya darajasi, yalpi ichki mahsulot (YaIM), ishsizlik darajasi, iste’mol narxlari indeksi (CPI) kabi ma’lumotlar statistik usullar orqali tahlil qilinadi.

Regressiya va korrelyatsiya tahlili. Regressiya tahlili - bir yoki bir nechta mustaqil o‘zgaruvchilar yordamida bog‘liq o‘zgaruvchini (masalan, iqtisodiy o‘sish darajasi) bashorat qilish usulidir. Korrelyatsiya esa o‘zgaruvchilar orasidagi bog‘liqlik darajasini ko‘rsatadi. Iqtisodiy tadqiqotlarda korrelyatsion tahlil orqali muayyan omillar ta’siri aniqlanadi, masalan: narxlar va talab o‘rtasidagi munosabat.

Ehtimollik modellarining iqtisodiyotdagi o‘rni. Ehtimollik nazariyasi iqtisodiy xavflarni baholashda, moliyaviy aktivlar portfelini shakllantirishda, sug‘urta tizimlarida va boshqa ko‘plab sohalarda qo‘llaniladi. Masalan, Markowitz modeli yordamida investorlar portfel xavfini minimallashtirishga harakat qilishadi.

Statistik prognozlash usullari. Iqtisodiy prognozlashda vaqt qatori tahlili muhim rol o‘ynaydi. ARIMA, exponential smoothing, trend tahlili kabi usullar yordamida iqtisodiy ko‘rsatkichlarning kelajakdagi holati bashorat qilinadi. Bunday bashoratlar asosida budjet tuzish, investitsiya rejalashtirish va makroiqtisodiy siyosat yuritiladi.

Aholi daromadlari va iste’mol xarajatlari o‘rtasidagi bog‘liqlik.

Iqtisodchilar bir hududda aholi o‘rtacha oylik daromadi (ming so‘mda) va o‘rtacha iste’mol xarajatlari (ming so‘mda) o‘rtasidagi bog‘liqlikni o‘rganmoqchi.

Quyidagi jadvalda 6 oy davomida kuzatilgan ma’lumotlar berilgan:

Oy	O‘rtacha daromad (X)	O‘rtacha xarajat (Y)
1	2 500	2 000
2	3 000	2 400
3	3 500	2 800
4	4 000	3 200
5	4 500	3 600
6	5 000	4 000

Bu ma’lumotlarga oddiy chiziqli regressiya modeli qo‘llaniladi:
$Y=a+bX$

Statistik hisob-kitoblar natijasida quyidagi tenglama hosil qilindi:
$Y=200+0.75X$

Bu natija quyidagilarni anglatadi:

- **b = 0.75** har 1 ming so‘mga daromad oshganda, o‘rtacha xarajatlar 750 so‘mga oshadi.
- **a = 200** daromad 0 bo‘lsa ham, minimal iste’mol xarajatlari 200 ming so‘mni tashkil qiladi (bu bazaviy ehtiyojlarni bildiradi).

Hukumat ushbu model yordamida aholi xarajatlarini bashorat qilishi mumkin. Iste’mol bozori hajmini aniqlash, soliq siyosatini shakllantirishda foydalaniladi.

Xulosa. Matematik statistikaning iqtisodiyotga tadbiqi iqtisodiy tahlilning ilmiy va ob’ektiv asosda amalga oshirilishini ta’minlaydi. Bu esa iqtisodiy siyosat va strategik qarorlar qabul qilishda ishonchli asos bo‘lib xizmat qiladi. Zamonaviy iqtisodiyotda statistik metodlar bilan qurollangan mutaxassislarning roli ortib bormoqda.

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BILIMLARNI MODELLASHTIRISH VA NOANIQLIKLAR BILAN ISHLASHDA BAYES FORMULASINING QO‘LLANILISHI

Annotatsiya: *Sun’iy intellekt va ekspert tizimlarida bilimlar bazasini modellashtirishda hamda noaniqlik sharoitida ishonchli qarorlar qabul qilishda Bayes formulasi muhim nazariy va amaliy vosita hisoblanadi. Ushbu maqolada Bayes nazariyasining asoslari, uning yordamida bilimlarni modellashtirish usullari, va turli sohalarda noaniqliklar bilan ishlashda qo‘llanilishi tahlil qilinadi.*
Kalit so‘zlar: *Modellashtirish, noaniqlik, Bayes formulasi, sun‘iy intellekt.*

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APPLICATION OF BAYES' FORMULA IN KNOWLEDGE MODELING AND DEALING WITH UNCERTAINTIES

Abstract: *Bayesian inference is an important theoretical and practical tool for modeling knowledge bases in artificial intelligence and expert systems, as well as for making robust decisions under uncertainty. This paper analyzes the foundations of Bayesian inference, methods for modeling knowledge using it, and its application in dealing with uncertainty in various fields.*
Keywords: *Modeling, uncertainty, Bayesian inference, artificial intelligence.*

Kirish: Bilimlarni modellashtirish va noaniqlikni boshqarish masalalari sun'iy intellekt (SI)ning markaziy yo‘nalishlaridan biridir. Real hayotda ko‘plab axborotlar to‘liq emas yoki ishonchsiz bo‘lishi mumkin. Bu kabi holatlarda ehtimollik yondashuvlari, ayniqsa Bayes formulasi, qaror qabul qilish va bashoratlashda eng samarali usullardan biri hisoblanadi.

Bayes formulasi orqali mavjud bilimlar yangilanadi va yangi kuzatishlar asosida shartli ehtimollar hisoblab chiqiladi. Bu metod tibbiyotda tashxis qo‘yish, robototexnikada navigatsiya, iqtisodda xavf tahlili kabi keng sohalarda muvaffaqiyatli qo‘llanilmoqda.

Bayes formulasining nazariy asosi: Bayes formulasining matematik ifodasi quyidagicha:

$$P_A(B_i) = \frac{P(B_i) \cdot P_{B_i}(A)}{P(A)}$$

bu yerda:

$P_A(B_i)$ - A hodisasi sodir bo‘lgandan keyin B_i gipotezaning ro‘y berganligi ehtimoli

$P_{B_i}(A)$ - B_i gipoteza ro‘y bergan bo‘lsa, A hodisasining ro‘y berish ehtimoli

$P(B_i)$ - B_i gipotezaning dastlabki ehtimoli

$P(A)$ hodisasining umumiy ehtimoli

Bayes formulasi asosida ma’lumotlar yangilanadi, ya’ni mavjud gipotezalarning ehtimoli yangi kuzatishlar asosida qayta baholanadi. Bu esa noaniq ma’lumotlar bilan ishlashda moslashuvchanlikni ta’minlaydi.

Bilimlarni modellashtirishda qo‘llanilishi: Bayes formulasi bilim bazalarida ehtimollik bog‘lanishlarini ifodalashda ishlatiladi. Masalan, Bayes tarmoqlari - bu gipotezalar va ularning o‘zaro shartli bog‘liqliklarini aks ettiruvchi grafli model bo‘lib, unda har bir tugun ma’lum bir bilim bo‘lagini ifodalaydi.

Misol: Agar bizda quyidagi bilimlar bo‘lsa:

Simptomlar: yo‘tal, isitma

Kasallik: gripp

Bayes formulasi orqali "yo‘tal bo‘lsa, gripp ehtimoli qancha?" degan savolga ehtimollik asosida javob olish mumkin.

Noaniqliklar bilan ishlash: Bayes metodikasi quyidagi noaniqlik holatlarida ishlatiladi:

Noaniq kuzatuvlar: Datchik yoki insonga asoslangan ma’lumotlar

Incomplete data: Ba’zi atributlar noma’lum yoki yo‘q

Ko‘p gipotezali holat: Bir nechta taxminlar mavjud

Bayes yondashuvi barcha bu holatlarda mavjud bilimlarni yangilab, eng ishonchli gipotezani aniqlashga yordam beradi.

Amaliy qo‘llanmalar:

Tibbiyot: Bayes formulasi kasallik tashxisi qo‘yishda keng qo‘llaniladi. Masalan, bemor simptomlar asosida tahlil qilinadi va Bayes formulasi yordamida kasallik ehtimoli hisoblanadi.

Axborot xavfsizligi: Intruzion aniqlash tizimlari Bayes formulasi asosida kiberhujum ehtimolini hisoblaydi.

Ta’lim tizimlari: Moslashuvchan tutor sistemalarda talabaning bilim darajasi Bayes tarmoqlari orqali modellashtiriladi.

Bayes formulasining ustunliklari:

1) Noaniqlikni matematik tarzda ifodalash
2) Yangilanish orqali ma’lumotlarga moslashish
3) Ko‘p sohalarda universal qo‘llanish

Bayes formulasining cheklovlari:

1) Shartli ehtimollarni aniqlashda subyektivlik
2) Hisoblash murakkabligi (katta tarmoqlarda)
3) Ma’lumot yetishmovchiligi

Xulosa: Bayes formulasi bilimlarni modellashtirish va noaniqliklar bilan ishlashda zamonaviy sun’iy intellektda asosiy usul hisoblanadi. U orqali ehtimollik asosida bilimlar yangilanadi, yangi ma’lumotlar integratsiyalanadi va ratsional qarorlar chiqariladi. Bayes yondashuvi ko‘plab fan va amaliy sohalarda o‘zining universalligi bilan ajralib turadi.

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THE LINGUOCULTURAL STATUS OF SUFI TERMS AND POETIC IMAGES AS CULTURE-SPECIFIC ITEMS: BEYOND RELIGIOUS LEXIS TOWARD A SPIRITUAL SEMANTIC DOMAIN

Abstract:*This paper investigates the linguocultural essence of Sufi terms and poetic imagery as culture-specific items (CSIs) in the framework of cultural translation and spiritual conceptualization. It is argued that Sufi terminology should not be reduced to religious lexicon, but rather be approached as a semantic universe of spiritual knowledge, deeply embedded in cultural and poetic contexts. By examining classical Uzbek literature and its English translations, this study identifies challenges in rendering these CSIs and proposes culturally sensitive strategies. The findings aim to contribute to the fields of translation studies, cultural linguistics, and comparative poetics.*

Keywords: *Sufism, culture-specific items, translation, linguistic worldview, spiritual terminology, poetic imagery*

1. Introduction

Sufism, as a mystic branch of Islam, encompasses a wide array of concepts, practices, and symbolic expressions. Its language, rich in metaphors and spiritual connotations, transcends the domain of dogmatic religious discourse. In the context of classical Uzbek literature—particularly in the works of poets such as Alisher Navoi, Ahmad Yassavi, and Boborahim Mashrab — Sufi terms and images reflect a profound worldview that blends metaphysics, ethics, and aesthetics.

When such terms are translated into English, they often fall into the category of “culture-specific items” (CSIs)—elements of language that are deeply rooted in one culture and have no direct equivalent in another. This study aims to analyze how these Sufi terms and poetic images function as CSIs, emphasizing their linguocultural role and the challenges posed to translators.

2. Methods

The study adopts a comparative-descriptive method with elements of content analysis. Two main sources were analyzed:

- Selected ghazals and didactic poems from classical Uzbek literature with strong Sufi elements;
- Their existing English translations by renowned translators (e.g., H. Talib, R. Nicholson, A.J. Arberry).

The units of analysis included:

1. Lexical Sufi terms (e.g., *haqiqat*, *ma’rifat*, *tariqat*, *fanā*, *baqā*);
2. Poetic images and metaphors used to express spiritual stages (e.g., *sharob*, *mayxona*, *yo‘lchi*, *ma’shuq*);

3. The rendering of these items in English and the extent of cultural and semantic shift.

The theoretical framework is based on Aixelá's (1996) classification of CSIs and Newmark's (1988) translation strategies, as well as Eco's (2001) notion of interpretive equivalence in translation.

3. Results

3.1. Sufi Terms as Semantic Clusters

Rather than functioning as individual lexical items, Sufi terms in Uzbek poetry form intricate semantic clusters. For instance, *tariqat* (the spiritual path), *ma'rifat* (gnosis), and *haqiqat* (ultimate truth) operate as hierarchical stages in mystical journey. Their English equivalents (e.g., *path*, *gnosis*, *truth*) lack the deep-rooted connotative meaning unless properly contextualized.

3.2. Symbolic Poetic Imagery

Words like *mayxona* (tavern) and *sharob* (wine), while literally referring to worldly elements, symbolize divine intoxication and mystical unity. Literal translation renders them semantically hollow without explanatory footnotes or adaptive rendering.

Table: Analysis of some Sufi Terms and Poetic Images as Culture-Specific Items[8]

Uzbek Term	Literal English	Connotative (Sufi) Meaning	Translation Strategy Observed
Sharob	Wine	Divine love, ecstasy	Literal + footnote
Mayxona	Tavern	Sufi gathering, place of revelation	Adaptation + commentary
Tariqat	Path	Spiritual discipline/method	Calque
Haqiqat	Truth	Divine truth, mystical realization	Calque + context shift
Ma'rifat	Gnosis	Inner knowledge, spiritual wisdom	Borrowing + footnote
Fano	Annihilation	Dissolution of ego in divine	Transliteration + explanation
Baqo	Eternity	Eternal union with God	Adaptation + contextual paraphrase
Ishq	Love	Devotional love for the divine	Literal + cultural gloss
Ma'shuq	Beloved	God (as mystical beloved)	Literal (often misleading)
Salik	Seeker	Spiritual traveler	Borrowing + parenthetical explanation

[8] **Literal + footnote**: So'z aynan tarjima qilinadi, lekin izoh talab etiladi (masalan, *sharob* — "wine", lekin majoziy jihatdan ilova bilan tushuntiriladi).
Calque: Lug'aviy tarjimada so'z tuzilishi saqlanadi (*tariqat → path*), lekin ma'no to'liq ochilmasligi mumkin.
Transliteration + explanation: Atama asl shaklida beriladi va tarjimada izohlanadi (*fano*).
Adaptation: Ma'naviy ma'no bo'yicha mos alternativ so'z yoki ibora tanlanadi.
Borrowing + footnote: Atama o'z holicha olingan, lekin izoh bilan to'ldirilgan.
Functional equivalent: Ma'no jihatdan eng yaqin inglizcha termin topilgan.

Uzbek Term	Literal English	Connotative (Sufi) Meaning	Translation Strategy Observed
Murshid	Guide	Sufi master, spiritual teacher	Functional equivalent + gloss
Zikr	Remembrance	Ritual invocation of God's name	Calque + footnote
Sabr	Patience	Endurance on the path to God	Literal + cultural reinforcement
Nafs	Ego/Self	Lower self to be transcended	Transliteration + explanation
Safar-i batin	Inner journey	Mystical inward spiritual voyage	Descriptive translation

3.3. Translation Challenges

Many translators apply literal or calque strategies, which often obscure the cultural nuance. For example, the term *ma'shuq* (beloved) in Sufi context denotes God, but is often rendered as "beloved" without clarification, misleading readers into romantic interpretation.

4. Discussion

The data suggests that Sufi terms, when treated as mere religious vocabulary, fail to convey their full cultural and spiritual depth. These terms are not only part of a spiritual doctrine but also artistic devices reflecting cultural identity and collective memory.

A key challenge lies in the cultural incommensurability: concepts like *fano* or *safar-i batin* (inner journey) do not have concise equivalents in the English lexicon. Thus, translation becomes an act of cultural negotiation, where preserving form may undermine content, and vice versa.

Furthermore, the strong presence of metaphoric imagery demands a dual translation approach—preserving the poetic function while conveying the spiritual message. Annotated translations or creative adaptations (as practiced by Coleman Barks in Rumi translations) can be effective, though they risk distorting original meanings.

5. Conclusion

Sufi terminology and poetic imagery in classical Uzbek literature represent complex culture-specific items that require nuanced treatment in translation. They embody a rich spiritual heritage that transcends linguistic boundaries yet resists full equivalence in English. A culturally informed translation approach—blending explanation, adaptation, and interpretive commentary—is essential for conveying their profound meanings. Future research may focus on corpus-based studies of Sufi translations and the development of glossaries for spiritual lexicon across languages.

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THE FORMATION OF THE THEORY OF CULTURAL TRANSLATION AND ITS ROLE AS A NEW PARADIGM IN TRANSLATION STUDIES

Abstract :*This article examines the formation of the theory of* ***"cultural translation"*** *as a new paradigm in translation studies. The views of theorists such as* ***Homi K. Bhabha, Susan Bassnett,*** *and* ***Lawrence Venuti*** *are analyzed. Special attention is given to the transformation of the traditional understanding of translation within the context of* ***postcolonial theory.*** *A comparative table is provided to highlight the key differences between classical and cultural approaches to translation.*

Keywords*: cultural translation, postcolonialism, translation studies, Venuti, Bassnett, Bhabha, linguoculturology.*

INTRODUCTION

The concept of “cultural translation” has emerged as a central theoretical concern in the field of translation studies, especially in the context of globalization and postcolonial discourse. Traditionally focused on the linguistic equivalence between source and target texts, translation studies have undergone a profound paradigm shift with the advent of cultural approaches. The works of Homi K.Bhabha, Susan Bassnett, and Lawrence Venuti have redefined translation as a process embedded in ideology, power, identity, and intercultural negotiation. This article explores how cultural translation has evolved from a marginal notion into a critical theoretical model that challenges the linguistic-centric paradigm and enables broader analyses of textual, social, and political transfer across cultures.

MATERIALS AND METHODS

This research is based on a comparative literature review and theoretical synthesis. Primary texts include Bhabha’s *The Location of Culture* (1994), Bassnett’s *Translation Studies* (1980, 2002), and Venuti’s *The Translator’s Invisibility* (1995). A historical-methodological approach was used to trace the emergence of the “cultural turn” in translation theory, while a comparative framework was applied to distinguish between traditional and postcolonial paradigms. Sources were analyzed qualitatively through close reading and discourse analysis to identify recurrent theoretical constructs such as hybridity, foreignization, and identity politics.

RESULTS

The theoretical review reveals a radical departure from earlier models of translation. Bhabha reframes translation not merely as the transfer of linguistic units but as a “third space” where hybrid cultural identities are formed. Bassnett, in collaboration with André Lefevere, situates translation within the larger sociocultural system, thus emphasizing context over text. Venuti challenges the dominant norms of domestication and argues for foreignization to resist the ethnocentric violence of transparent translation. These approaches establish cultural translation as a framework that foregrounds difference rather than equivalence, ethics rather than fluency, and ideology rather than neutrality.

DISCUSSION

The shift from linguistic fidelity to cultural negotiation represents a fundamental transformation in translation studies. In Bhabha's model, translation is a performative act of cultural survival and negotiation, which disrupts colonial binaries and creates space for subaltern voices. Bassnett's emphasis on rewriting and patronage underlines the role of institutions in shaping translations. Venuti, meanwhile, critiques the translator's invisibility in Anglo-American contexts and promotes ethical engagement with the "Other." Despite their differences, all three theorists challenge the assumptions of traditional equivalence and call for a politicized, culturally sensitive translation praxis. However, this paradigm also raises challenges: the lack of stable definitions, potential over-politicization, and difficulties in operationalizing cultural translation in practical settings.

COMPARATIVE TABLE: CLASSICAL VS CULTURAL TRANSLATION PARADIGM

Feature	Classical Translation	Cultural Translation
Main Focus	Linguistic equivalence	Cultural negotiation
Theorists	Nida, Catford	Bhabha, Bassnett, Venuti
Ideology	Claimed neutrality	Ideologically engaged
Visibility of Translator	Invisible	Visible and politically present
Translation Strategy	Domestication, fluency	Foreignization, resistance
Cultural Hybridity	Not considered	Central concern
Application Context	Mostly literary and religious	Postcolonial, global, hybrid cultural spaces

Conclusion

The emergence of cultural translation as a paradigm represents a turning point in translation theory, one that expands the scope of the discipline beyond linguistics into culture, power, and identity. The insights of Bhabha, Bassnett, and Venuti provide valuable frameworks for analyzing the complexities of translation in a globalized, postcolonial world. This theoretical model calls for translators to be not mere conveyors of meaning but active cultural agents. Future research should explore how this paradigm can be applied to non-literary contexts, digital media, and multilingual societies, especially in regions with rich linguistic diversity such as Central Asia.

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YOSHLAR INTELLEKTUAL SALOHIYATINI RIVOJLANTIRISHDA KREATIVLIK DINAMIKASI VA MOTIVATSION JIHATLARI

Annotatsiya:*Jamiyat salohiyati tizimida yoshlar intellektual salohiyati muhim o‘rin tutadi. Bu esa taraqqiyot istiqboli nuqtai nazaridan yoshlar intellektual salohiyati kelajak tarixining mohiyatini belgilab beruvchi asosiy kuch sifatidagi ahamiyati ochib berilgan. Uning mavjudligi, taraqqiyotining asosida ma'lum ijtimoiy va madaniy omillar tahlil qilingan. Jamiyatda inson salohiyatining yuksaklik darajasi uning xususiyatlari va mazkur muammo bilan aloqador bir qator ijtimoiy hodisalarning amalga oshib borishi kabi omillar har qanday davlat, millat taraqqiyoti va mamlakat hayotining ijtimoiy yuksalishiga ta'sir etishi o‘rganilgan.*

Kalit so‘zlar: Yoshlar, intellektual salohiyat, ijtimoiy-madaniy omillar, salohiyat, intellektual kapital, intellektual resurs, aqliy faoliyat, intellektual qobiliyat.

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DYNAMICS OF CREATIVITY AND MOTIVATIONAL ASPECTS IN DEVELOPING YOUTH'S INTELLECTUAL CAPACITY

Abstract: *The intellectual potential of young people occupies an important place in the system of community potential. From the perspective of development, the importance of the intellectual potential of young people as the main force that determines the essence of future history is revealed. Certain social and cultural factors are analyzed on the basis of its existence and development. It has been studied that factors such as the high level of human potential in society, its characteristics and the realization of a number of social events related to this* *problem affect the development of any state, nation and the social development of the country's life.*

Key words: *Youth, intellectual potential, socio-cultural factors, potential, intellectual capital, intellectual resource, mental activity, intellectual ability*

Kirish

Jamiyat a'zolarining salohiyati tizimida yoshlar intellektual salohiyati muhim o'rin tutadi. Jamiyat taraqqiyoti istiqboli nuqtai nazaridan yoshlar intellektual salohiyati kelajak tarixining mohiyatini belgilab beruvchi asosiy kuch sifatida qaraladi. Uning mavjudligi, taraqqiyotining asosida ma'lum ijtimoiy va madaniy omillar turadi.

Kreativlik – shaxsning yaratuvchanlik, ijodkorlik xislatlarlari bilan bog'liq ko'nikmalar majmui sifatida namoyon bo'ladi. Kreativlik o'z ichiga muammolarga nisbatan yuqori darajadagi sezgirlik, intiutsiya, natijalarni oldindan ko'ra bilish, fantaziya, tadqiqotchilik va refleksiyani qamrab oladi. Shaxsning kreativligi uning tafakkurida, muloqotida, his-tuyg'ularida, muayyan faoliyat turlarida namoyon bo'ladi. Kreativlik shaxsni yaxlit holda yoki uning muayyan xususiyatlarini tavsiflaydi. Kreativlik iqtidorning muhim omili sifatida ham aks etadi. Qolaversa, kreativlik zehning o'tkirligini belgilab beradi .

E.P.Torrens fikricha, "kreativlik" tushunchasi negizida quyidagi yoritiladi:

- muammoni yoki ilmiy farazlarni ilgari surish;
- farazni tekshirish va o'zgartirish;
- qaror natijalarini shakllantirish asosida muammoni aniqlash;
- muammo echimini topishda bilim va amaliy harakatlarning o'zaro qarama-qarshiligiga nisbatan ta'sirchanlik.

Kreativ fikrlash har bir ijtimoiy sohada yaqqol aks etishi mumkin . Bu esa shaxsning kreativligi uning tafakkurida, muloqotida, his- tuyg'ularida, muayyan faoliyat turlarida namoyon bo'lishini bildiradi. Kreativlik shaxsni yaxlit holda yoki uning muayyan xususiyatlarini tavsiflaydi. Kreativlik iqtidorning muhim omili sifatida ham namoyon bo'ladi.

«Kreativ»lik bu – yaratish va ijod qilishdir. Yaratish, ijod mohiyatan ijtimoiy xususiyatga ega voqeliklar bo'lsa-da, ijod psixologiyasi va nazariyasiga oid adabiyotlarda u xususiy, individual psixologik hodisa sifatida qaraladi. Mazkur yondashishdan farqli tarzda biz kreativ faollikning ijtimoiy tomonlariga e'tibor qaratamiz. Intellektual salohiyatning ekstravertiv, ya'ni ijtimoiy borliqqa yo'naltirilganligi bir qator ilmiy-falsafiy masalalarni kun tartibiga qo'yadi. Ular haqida ma'lum nazariy qarashlarga, tasavvurlarga ega bo'lmay, mavzuning mohiyati va ahamiyatini anglash qiyin. Ushbu masalalar quyidagilardan iborat:

- ijodiy kognitiv voqelikning ekstravertiv voqelikka aylanishi qanday motivlar, stimul yoki ustanovkalar orqali ro'y beradi?;
- mazkur jarayonda "men" va "biz" manfaatlari singarmonistikasi saqlanib qoladimi yoki barcha jarayonlarni "biz" o'ziga "yutadimi"?;

- tashqi deterministik omillar kreativ faollikka undovchi ichki ma’naviy ruhiy mexanizmlarni o‘zining qaysi qonunlariga muvofiq harakatga keltiradi?;

- yoshlarning ijtimoiy kreativ faolligi faqat ekstravertiv xususiyatga egami yoki unda ichki ma’naviy ruhiy, intravertiv belgilar ham mavjudmi?;

- ijtimoiy kreativ faollikni o‘lchash qanday amalga oshiriladi, u qaysi mezonlarga muvofiq baholanadi?.

Ijodiy kognitiv voqelikning ekstravertiv voqelikka aylanishi ma’lum motivlar, stimullar orqali ro‘y beradi. Mazkur psixologik omillarni anglamaslik, bilmaslik kreativ faoliyatni noob’ektiv baholashni keltirib chiqaradi. Ularning har biri sotsiologiya va psixologiyada alohida ma’naviy ruhiy hol sifatida tadqiq etiladi, o‘rganadi. Biz ularni umumiy nom bilan kreativ faollikni «Dolzarblashtiruvchi omillar» deb ataymiz, chunki bizningcha, aynan shu jarayonda shaxs faoliyatiga yo‘naltirilgan, muhimlik va zarurlik baxsh etadi, uning bor jismoniy va ma’naviy ruhiy kuchini safarbar etib, qo‘yilgan maqsadga erishishga undaydi .

Kreativlik va aql (intellekt)ni ajratib talqin qilish Suqrotdan boshlab, Aflotun, Arastu va keyinchalik Kant, Gegel falsafalarida ham alohida ahamiyat kasb etgan. Ijodiy jarayonni Aflotun «ruhlanish» va «ilohiy kuch» atamalari orqali asoslashga intiladi. Uning fikricha, «Shoir san’ati va bilimi bilan ijod qilmay, balki ilohiy quvvatdan ijod qiladi» . «Kreativlik» va «kreativ tafakkur» masalasida yunon faylasuflari singari musulmon olim-mutafakkirlari ham o‘ziga xos maktab yaratganlar. Shu ma’noda diniy-falsafiy ta’limotlar mutakallimlik va o‘’taziliylik, sunniylik, shialik va tasavvuf kabilarda insonning ijodiy qobiliyatlarini rivojlantirishga katta e’tibor berildi. Chunonchi, kalomning ikki yirik yo‘nalishi mutakallimlik va mo‘’tazaliylik islom ta’limoti qoidalarini talqin etishda ijodiy yondashuvni ishga solishni, kreativ usullardan foydalanishni yoqlab chiqdilar.

Ijtimoiy kreativ faollikni avvalo, insonning jamiyatda, borliqda, mavjud munosabatlar tizimida o‘z o‘rnini topish istagi ifodasi sifatida e’tirof etish kerak. Mazkur istak ijtimoiy hayot va muhit tomonidan shaxsda dolzarblashganida uni faol harakatga keltiradi. Kreativlik va uni dolzarblashtirish muammolarini o‘rgangan A.G.Maslou yozadi: «Agar biz chindan ham farzandlarimizning o‘zida mavjud barcha kuchlarni dolzarblashtirishini istasak, biz ularni birdan-bir maqsad, ya’ni ijod orqali tarbiyalashimiz zarur» . Faylasuf, psixolog ta’lim-tarbiya, yoshlarni hayotga tayyorlash masalalari ustida fikrlab, bugun dunyo tez o‘zgarayotganini, yangi-yangi muammolar paydo bo‘layotganini, bunday sharoitda yoshlar o‘zini yo‘qotib qo‘ymaydigan, yuzaga kelgan qiyinchiliklarga tik qaraydigan va yangilikni «faxr va quvonch bilan qarshi oladigan» qilib shakllantirish zarur, degan xulosaga keladi .

Yoshlar intellektual salohiyatini rivojlantirishda ijodiy faollik va kreativlik dinamikasi tadqiqida dunyoni barqaror va turg‘un qilmaydigan, ota-bobolarimiz kabi uni qotirmaydigan, mavhum ertaga ishonch bilan boqadigan, bo‘lg‘usi o‘zgarishlar va o‘zgaruvchan hayotga ko‘tarinki qaraydigan, hayotga improvizatsiyalashib va moslashib yashaydigan kishilar bo‘lishimiz kerak. Bu yangi tipdagi kishidir. Istasangiz uni Geraklit tipidagi inson deyishingiz mumkin .

Bu o‘rinda gap ijodiy faollikning ichki ruhiy holat, o‘zini kashfiyotga baxsh etish, hatto, A.G.Maslou ta’kidlaganidek, motiv, stimullar ana shu psixologik holatga borib taqalmoqda. Demak, salohiyatda ikki darajadagi bosqich mavjud: birinchisi – «ekstaz» darajasidagi bosqich, ikkinchisi «improvizatsiya va moslashuv» darajasidagi bosqichdir. Innovatsiya ularning ikkalasini ham o‘z ichiga oladi yoki ulardan iboratdir. Birinchisiga insonning betakror yangilik, kashfiyot qilishga intilishi, ikkinchisiga esa boshqalar ixtirolarini olib kirish, o‘z muhitiga joriy etish, o‘rnatish bilan bog‘liq, mohiyatan tashkiliy texnik sa’y-harakatlar kiradi. Keyingisida sir yo‘q, uni oddiy aql egalari ham bajarishi mumkin.

Ijodiy faoliyatning “ektaz” intravertiv xususiyati “Men” va “Biz” manfaatlarini o‘rganishga undaydi. Haqiqiy ijodkor o‘z “men”ini mutlaqlashtirishga moyil bo‘ladi, u fikriga quloq tutadigan yoki uni eshitadigan kishi bilan muloqotga kirishishni ma’qul ko‘radi. Undagi bu intravertlik ijodiy izlanishlar uchun muhim bo‘lsa-da, u, ayniqsa, ilmiy-texnik ijod sohasida “Biz”, ya’ni ijtimoiy manfaatlar bilan hisoblashishga majbur. Yadro qurolining yaratilishi insoniyat boshiga qanday ofatlar keltirishi mumkinligini, bu esa ilmiy-texnik izlanishlarda insoniyat manfaatlarini hisobga olmaslik natijasi ekanini tasdiqlaydi.

Bu ibratli misol har bir ilmiy-texnik kashfiyot uchun muhim tamoyildir. Masalan, internetni olaylik. Ha, u inson aqlu idrokining yuksak mahsuli, har bir kishining jahonda bo‘layotgan voqealarga faol munosabat bildirish, turli bilimlarini oshirish imkoni. Ammo u destruktiv, tajovuzkor qo‘llarga tushganida, yovuz, g‘ayriinsoniy maqsadlarga xizmat qilishi mumkin. Shunday ekan, innovatsion tafakkurda “men” va “biz” masalasi behuda qo‘yilmayotganini anglaymiz.

O‘zbekistonda har yili ijtimoiy munosabatlarda faol qatnashishga, o‘z hayot yo‘lini izlashga tayyor, yarim milliondan ziyod yoshlar maktabni bitiradi. 450 mingdan ziyod oliy va o‘rta maxsus bilimli yoshlar turli sohalarda o‘zini, bilimi va ko‘nikmalarini ko‘rsatishga tayyor. Innovatsion o‘zgarishlar, ilmiy-texnik kashfiyotlarni joriy etish yangi ish joylari yaratishga olib kelmaydi, balki ishchi o‘rinlarini tejaydi. Mazkur ziddiyatni ilmiy-texnik yangiliklar bilan hal etish qiyin. Inson faoliyatining barcha sohalarini, qo‘l mehnatini avtomatlashtirib, innovatsion kashfiyotlar bilan almashtirib bo‘lmaydi. Demak, jamiyatda qo‘l mehnatiga bo‘lgan ehtiyoj saqlanib qoladi.

Innovatsion tafakkur ijtimoiy taraqqiyot talablaridan ozuqa oladi, u «O‘z-o‘zi uchun» emas, balki jamiyat rivoji uchundir. “Biz”ning ilmiy-texnik va yangilanishga ehtiyojlari, A.G.Maslou ta’kidlaganidek, “ego”dan voz kechishga olib keladi. Uning negizida ijodiy izlanishlarga butkul berilish, boshqalarning fikrlarini e’tiborga olmaslik, faqat ijod dardi bilan yashash, “siz o‘z Egongizni kuzatuvchi va o‘z Egongizni sezuvchi” kabi ikki sub’ektga ajralishingizni unutish yotadi . Bunday holda “Biz” ijodkor “Men”ini o‘ziga mutlaq yutib yubormaydimi, degan savol uyg‘onishi mumkin. Ha, an’anaviy jamiyatlarda shunday xavf katta. Bu xavfni ijodkor “men”ini, uning individual izlanishlarga moyilligini e’tirof etgan holda, kreativ faolligiga ijtimoiy yo‘naltirilganlik baxsh etish orqali kamaytirish mumkin. Ijodkorning “Men”i jamiyatning “biz”ga antogonist emas, pirovard natijada, barcha ixtirolar kishilikka qanday naf, foyda va ezguliklar bergani bilan o‘lchanadi.

Xulosa

Yoshlarning innovatsion xususiyatlari o‘zlari kabi talqin qilinishi kerak bo‘lgan xususiyatdir. Boshqacha qilib aytganda, har qanday ijtimoiy sharoitda, har qanday joyda yoshlik davri ushbu xususiyatlarga bog‘liq bo‘lishini hisobga olish kerak bo‘ladi. Bu bilan vorislik va avlodlar almashinuvining tabiiy-tarixiy jarayoni muvaffaqqiyatli amalga oshadi. Bu jarayon jamiyatda barqarorlikni ta’minlaydi va ularni mos ravishda o‘zgartirish muammolarning ichki o‘zgarishlariga sabab bo‘ladi.

Bir jihatdan yoshlarning innovatsion faoliyati faollik, tezkor reaksiyalar bilan ajralib turadigan, barchaga qiziqadigan va yangi vaziyatlardan qo‘rqmaydigan shaxs sifatida ko‘rinsa, ikkinchi jihatdan ehtiyotkor, o‘rganilgan qoidalarga amal qilishga moyil, yangi narsadan qo‘rqish kabi xususiyatlarni namoyon qiladi. Bu yangilik ekanligining alohida ahamiyatini tan olish yoshlik davridagi xususiyatlar ayniqsa aktuallashtirilgan, biz ularga yoshlikning innovatsion xususiyatlarini aniqlab olishni juda erta deb hisoblaymiz va aynan shu yondashuv juda keng tarqalgan. Bu yoshlarning potensial va innovatsion imkoniyatlari innovatsiyadan innovatsiyaga sifatli o‘tishi tadqiq etilgan.

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ZA'FARON O'SIMLIGINING TIBBIYOTDAGI AHAMIYATI

Annotatsiya. *Ushbu maqolada ming yillar davomida o'zining noyob ta'mi, rangi va dorivor xususiyatlari tufayli qadrlanib kelgan qimmatbaho ziravor – za'faron o'simligi haqida so'z yuritiladi. Bunda za'faronning kimyoviy tarkibi va farmakologik ta'siri chuqur o'rganiladi. Za'faronning tarixiy ahamiyati, turli madaniyatlardagi oshxona va tibbiyotda qo'llanilishi,shuningdek, jahon bozoridagi iqtisodiy roli tahlil qilinadi. Bundan tashqari maqolada soxtalashtirish muammolari va haqiqiy za'faronni aniqlash usullari ham ko'rib chiqiladi. Za'faronning antioksidant, yallig'lanishga qarshi va antidepressant kabi potensial sog'liq uchun foydalari haqida ma'lumotlar keltiriladi. Umumiy qilib aytganda ushbu maqola za'faronning ko'p qirrali va deyarli barcha uchun qimmatli o'simlik ekanligini ochib berishga qaratilgan.*

Kalit so'zlar: *qimmatbaho ziravor, antioksidant, antidepressant, spazmolitik, siydik haydovchi, antimutagen, potensial sog'liq, yallig'lanishga qarshi.*

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MEDICAL IMPORTANCE OF THE SAFFRON PLANT

Annotation: *This article discusses the valuable spice saffron, which has been cherished for thousands of years due to its unique taste, color, and medicinal properties. It thoroughly explores the chemical composition and pharmacological effects of saffron. The article analyzes its historical significance, use in cuisine and medicine across various cultures, as well as its economic role in the global market. Additionally, issues of adulteration and methods for identifying genuine saffron are examined. Information is provided on saffron's potential health benefits, such as its antioxidant, anti-inflammatory, and antidepressant properties. Overall, this article aims to reveal the multifaceted nature of saffron and its value as a plant for almost everyone.*

Keywords: *valuable spice, antioxidant, antidepressant, antispasmodic, diuretic, antimutagenic, potential health, anti-inflammatory.*

Kirish

Za’faronni yetishtirish tarixi 4,5 ming yildan ziyodroq vaqtni oʻz ichiga oladi. Neolit davriga oid gʻorlar devorlaridagi rasmlar za’faron asosidagi boʻyoq bilan chizilgan deb hisoblanadi. Buddaviy rohiblar uni matolarni boʻyash uchun ishlatishgan. Qadimgi Yunonistonda za’faron gullarini yotqlarga sepishgan, za’faronli vannlar qabul qilishgan, uni parfyumeriya ingredient sifatida va vinoni xushboʻy qilish uchun ishlatishgan.

Qalampirdoshlar oilasiga mansub ushbu piyozli oʻsimlikning vatani Eron hisoblanadi. Bugungi kunda u Hindiston, Gretsiya, Pokiston, Ispaniya va Qrimda yetishtiriladi. Gippokrat oʻz asarlarida za’faronni qoʻllab kaslliklarga qarshi vosita sifatidaa tilga olgan. Sharq ayollari uni qadimdan oʻz goʻzallik retseplarida ishlatib kelishgan. Bu ziravorning ta’mi koʻp qirrali boʻlib, desrtlar, pishiriqlar, sabzavotlar va goʻshtli taomlar bilan yaxshi uygʻunlashadi. Uni kolbasalar, pishloqlar, choy, spirtli ichimliklarni boʻyash va xushboʻylantirish uchun qoʻshishadi.

Ziravorni tayyorlash uchun o'simlikning eng nozik bir qismi – tumshuqchalar kerak bo'ladi, ular faqat qo'lda teriladi. Bitta guldan faqat uchta tumshuqcha yig'ish mumkin. Shunday qilib, 1 kilogramm ziravor uchun 200 000 ta gul kerak bo'ladi. Shuning uchun, masalan, ispan za'faronining o'rtacha narxi bir kilogrammi uchun 15-20 ming dollarni tashkil etishi ajablanarli emas. Hatto eng arzon, eron za'faroni ham bir kilogrammi uchun kamida 400-500 dollarga sotiladi.

Ziravorning tarkibi va ozuqaviy qiymati

Za’faron tarkibida inson uchun muhim boʻlagan ozuqaviy moddalar, vitaminlar, makro va mikroelementlarni saqlaydi.
100 gramm ziravorning ozuqaviy qiymati:

Vitaminli tarkibi:

Oqsillar	11,43 g
Yogʻlar	5,85 g
Toʻyingan yogʻ kislotalari	1,6 g
Monotoʻyinmagan yogʻ kislotalari	2,1 g
Politoʻyinmagan yogʻ kislotalari	0,4 g
Uglevodlar	61,47 g
Kletchatka	3,9 g
Suv	11,9 g
Kul	5,45 g
Kaloriyalilik	310 kkal

C(askorbin kislotasi)	80,8 mg
A(retinol)	27 mg
PP(nikotin kislotasi ekvivalenti	1,46 mg
B6(piridoksin)	1,01 mg
B2(riboflavin)	0,267 mg
B1(tiamin)	0,115 mg
B9(foliy kislotasi)	93 mkg

Makroelementlar (100g)		Mikroelementlar (100g)	
Kaliy, K	1724 mg	Rux, Zn	1,09 mg
Kalsiy, Ca	111 mg	Selen, Se	5,6 mkg
Temir, Fe	11,1 mg	Marganets, Mn	28,408 mg
Magniy, Mg	264 mg	Mis, Cu	328 mkg
Natriy, Na	148 mg		
Fosfor, P	252 mg		

Tibiyotda qo‘llanilishi

Za’faron o‘ziga xos xususiyatlarga ega va organizmimizning barcha organlari va tizimlari faoliyatiga ijobiy ta’sir ko‘rsatadi. Kam miqdorda u melanxoliya va depressiyadan xalos qiladi, xursandchilik gormoni – serotonin ishlab chiqarilishiga yordam beradi.

Za’faron – ajoyib spazmolitik, tirishishga qarshi, siydik haydovchi va yallig‘lanishga qarshi vositadir. U tez orada bodun sindromini bartaraf etishga yordam beradi, xotirani yaxshilaydi, ovqat hazm qilishni normallashtiradi, erkaklardagi quvvatni oshiradi. Qadimda achchiq damlamani ayollarga hayz paytida va tug‘ruqdan oldin og‘riqni yengillashtirish uchun berishgan. Za’faron bilan quruq bronxit, qizamiq va ko‘kyo‘talni davolashgan. Uning shifobaxsh damlamasi bilan yiringli yaralarni yuvishgan, chipqonlarni davolashgan.

Zamonaviy tibbiyotda bu ziravor ko‘z tomchilari va umumiy quvvatlantiruvchi ta’sirga ega bo‘lgan ba’zi damlamalarni tayyorlash uchun ishlatiladi. Uning antimutagen xususiyatlari va saraton o‘smalari rivojlanishiga qarshi turish qobiliyati faol ravishda o‘rganilmoqda.

Ziravor damlama ko‘rinishida ichga qabul qilinadi yoki tashqi qo‘llaniladi (vannalar va kompresslar). Nafas yo‘llarini davolash uchun uning hidini hidlash tavsiya etiladi. Migren va uyqusizlikka qarshi kurashish uchun za’faronning urug‘chilari yoki gullarini yostiq yoniga qo‘yishgan yoki uxlashdan oldin bir tolasini chaynashgan.

Homiladorlik va emizish davrida

Za’faron zaharli o‘simlikdir. U nerv sistemasiga va butun organizmga kuchli ta’sir ko‘rsatadi. Ikki yoshgacha bo‘lgan bolalar, homilador va emizikli ayollarga tarkibida za’faron bo‘lgan taomlar va preparatlar mumkin emas. Bo‘lajak onalarda bu ziravor bachadon tonusini oshirishi va homilaning tushishiga sabab bo‘lishi mumkin. Emizikli ayolning suti orqali bolaga o‘tgan faol moddaning haddan tashqari dozasi bolada tirishishni keltirib chiqarishi mumkin.

Qo'llashga qarshi ko'rsatmalar

Za'faron o'zining davolovchi xususiyatlari bilan mashhur, ammo organizmga jiddiy zarar yetkazishi mumkin. Mutlaqo sog'lom odamda ham bu ziravorning 2 grammi qusish, ich ketishi va zaharlanishni keltirib chiqarishi mumkin. Gipertoniya kasalligi bo'lganlarda haddan tashqari dozasi kuchli bosh aylanishi va tirishishni qo'zg'atadi. Qandli diabet va yurak-qon tomir kasalliklaridan aziyat chekayotgan odamlarga bu ziravor mumkin emas. Yuqori dozasi nervning haddan tashqari qo'zg'alishiga, narkotik mastlik alomatlariga, komatoz holatga va hatto o'limga olib kelishi mumkin. Ziravorni spirtli ichimliklar bilan iste'mol qilish mastlikni kuchaytiradi.

Za'faronni qanday tanlash va saqlash kerak

Sifatsiz ziravor qizil va sariq rangdagi urug'chilik iplaridan iborat bo'lib, gulning boshqa qismlarini ham o'z ichiga olishi mumkin. Vijdonli bo'lmagan ishlab chiqaruvchilar unga kurkuma, marigul yoki bo'yoqli safflor ham qo'shishadi. Yaxshi va qimmat za'faron aralashmalarni o'z ichiga olmaydi va to'yingan qizil rangga ega bo'ladi.

Ziravorni namlik va yorug'lik tushmaydigan germetik idishda 2 yildan ko'p bo'lmagan muddatda saqlash kerak, keyin u o'z rangini va hidini yo'qotadi. Ziravorning sifatini tekshirish uchun bir nechta za'faron tolasini iliq suvga solish kifoya. Yangi va to'g'ri tayyorlangan tolalar tezda bo'kib, suvni bo'yaydi. Soxta mahsulot sotib olishdan himoyalanish uchun, kukun emas, balki butun tolachalarni tanlash lozim.

Xulosa

Bugungi kunda za’faronning xususiyatlari yanada chuqurroq o‘rganilmoqda. Kelajakda za’faron asosida yaratilgan yangi avlod dori vositalari ko‘plab insonlarga umid baxsh etishi mumkin. Shunday ekan kelajak avlod ham ushbu noyob ne’matdan bahramand bo‘lishi uchun uni asrab-avaylash, to‘g‘ri yetishtirish va oqilona foydalanishga majburmiz.

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O'QUVCHI -YOSHLARNI KASB-HUNARGA YO'NALTIRISH

Annotatsiya: *ushbu maqolada o'quvchi-yoshlarni kasb-hunarga yo'naltirish — bu ta'lim tizimida o'quvchilarni o'z qiziqishlari, salohiyati va mehnat bozoridagi ehtiyojlarga mos ravishda kelajakdagi kasb yoki mutaxassislikni tanlashga tayyorlash jarayonini tahlili keltirilgan.*
Kalit so'zlar: *o'quvchi-yoshlar, kasb-hunar, ilm, fan, soha, mehnat, buyumlar, manfaat.*

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STUDENT-YOUTH VOCATIONAL GUIDANCE

Annotation: *this article presents an analysis of the student-youth vocational orientation-the process of preparing students in the educational system to choose a future profession or specialty in accordance with their interests, potential and needs in the labor market.*
Keywords: *student-youth, profession, science, science, field, labor, items, interest.*

Yosh avlodning kelajakdagi kasbini to'g'ri tanlashi nafaqat o'z hayoti uchun, balki jamiyat taraqqiyoti uchun ham muhim omildir. Kasbga yo'naltirish — bu o'quvchilarning qiziqishlari, salohiyati, sog'ligi, imkoniyatlari va mehnat bozoridagi ehtiyojlarga mos holda kasb tanlashlariga yordam berish jarayonidir. Ushbu jarayon maktab, oila va jamiyat hamkorligida samarali tashkil etilishi lozim.

Kasbga yo'naltirishning maqsadi va ahamiyati:

Kasbga yo'naltirishning asosiy maqsadi — o'quvchilarning qiziqish va qobiliyatlarini aniqlab, ularni mos sohalarga yo'naltirishdir. Bu orqali:

- yoshlar o'z salohiyatlarini to'liq namoyon eta oladi,
- ijtimoiy foydali mehnatga jalb etiladi,
- va jamiyatda yetishmayotgan mutaxassisliklar bo'yicha kadrlar yetishtiriladi.

Mehnat va kasbiy tayyorgarlik tizimi bevosita yoshlarning mehnat va kasb tarbiyasini kasbiy axborotlar, kasb tanlash, kasbga yo’naltirish ishlarini amalga oshiradigan ulkan ishlardan biri bo’lib, o’z o’tmish taraqqiyotiga ham egadir. Xalqimizning millat, elat bo’lib shakllanishini mehnatsiz, kasblarsiz, hunarsiz aslo tasavvur etib bo’lmaydi. Odamzod paydo bo’lishidan boshlab mehnat bilan shug’ullana boshlagan. Turmush buyumlari yasagan, yumushlar bajargan. Dastlab faqat kun kechirish uchun qilingan mehnat keyinchalik, kattaroq maqsadni, moddiy manfaat ko’rish uchun amalga oshirilib hatto, X asrlarda yirik harbiy qo’shinlarni, millionlab xalqlarni buyumlar, anjomlar bilan ta'minlay oladigan ishlab chiqarish sohalari darajasigacha taraqqiy etib bordi.

XII - XV asrlarda Movarounnahr va Xurosonda hunar ilmi, ko’lami rivojlanishi eng yuqori pog’onaga ko’tarildi. Har bir xalq ota-bobosidan meros bo’lib, avloddan-avlodga o’tib kelayotgan o’zining tarixiy-madaniy birligi bilan ajralib, o’ziga xos-xususiyatlarni saqlab kelgan.

Kasb-hunar egallashni ahamiyati to’g’risida qomusiy olim Abu Ali Ibn Sino (980-1037) ning asarlarida ham ko’ramiz. Uning fikricha bolaga yoshligidan biror kasb-hunarni o’rgatish lozimdir. Bola kasb-hunarni ma'lum darajada o’zlashtirib bo’lgandan so’ng o’z kasb-hunaridan hayotda foydalanish, yani halol mehnat bilan mustaqil hayot kechirishga o’rgatish kerakdir.

Sharq, Markaziy Osiyolik mutafakkirlar hamda o’zbek marifatparvar shoirlari ham kasb-hunar egallashni ahamiyati to’g’risida o’z asarlarida qimmatli maslahatlarini qoldirganlar, bu meros hozirgi kunda ham yoshlarni kasb-hunarga yo’naltirishda muhim ahamiyatga egadir.

Kasbga yo‘naltirish ishida iqtisodiy muammolar muhim o‘rin tutadi. Bular orasida xalq xo‘jaligini rivojlantirish va kadr muammolari alohida ahamiyat kasb etadi. Bu masalalarni kasbga yo‘naltirish jihatlari bilan o‘zaro bog‘liq tarzda talabalarning mustaqil mashg‘ulotlarida ko‘rib chiqishi tavsiya etiladi.

Hozirgi fan-texnika va ijtimoiy taraqqiyot sharoitida yosh avlodni jamiyat barpo etishda faol qatnashishga tayyorlashi lozim bo‘lgan maktabning roli har qachongidan ko‘ra o‘sib bormoqda.

Shu munosabat bilan o‘quvchilarga ilm-fan asoslarining mustahkam bilimlarini singdirish, ularda yuksak onglilikni tarbiyalash, umuminsoniy ahloqiylikni shakllantirish, yosh avlodni turmushga va mehnatga, ijtimoiy zarur kasblarni ongli ravishda tanlashga tayyorlash ta’lim hamda tarbiyaning hamma bosqichlarida hozirgi maktabning vazifalaridir.

Kasbni to‘g‘ri tanlash - inson turmushida muhim qadamdir, yosh avlodning butun hayotidagi muvaffaqiyat ko‘p jihatdan kasbning qanchalik to‘g‘ri tanlanishiga bog‘liq jarayondir.

Kasbni to‘g‘ri tanlash har bir maktab o‘quvchisining qiziqishiga, mayliga, qobiliyatiga va imkoniyatlariga mos bo‘lishi uchun uning sog‘ligini, o‘zlashtirishini va hissiyotlarini hisobga olish lozim, bular ijtimoiy foydali va unumli mehnatda hammadan ko‘ra ko‘proq qaror topadi va namoyon bo‘lib boradi.

Yosh avlodni ongli ravishda kasb tanlashga tayyorlash masalasiga yoshlarni har tomonlama hamda uyg‘un rivojlantirishning muhim sharti sifatida qaralmoqda.

Bu ish shaxsni g‘oyaviy-siyosiy, axloqiy, mehnatsevarlik, aqliy, estetik va jismoniy jihatdan kamol toptirish bilan, ya’ni butun ta’lim-tarbiya jarayoni, uning butun kompleksi bilan uzviy birlikda va hamjihatlikda amalga oshiriladi.

Maktabda o‘qituvchi o‘quvchining qiziqishlarini aniqlashda va yo‘naltirishda muhim rol o‘ynaydi. U:

- darsdagi faoliyatni kuzatadi,
- suhbat orqali mayl va qiziqishni aniqlaydi,
- sinf rahbarlik faoliyatida ota-onalar bilan hamkorlik qiladi.

Misol: Toshkentdagi 203-maktabda informatika fanidan yuqori natija ko‘rsatgan o‘quvchilar IT yo‘nalishidagi kollej va texnikumlarga yo‘naltirilib, "One Million Uzbek Coders" dasturida qatnashmoqda.

Kasbga yo‘naltirishda mehnat bozori ehtiyojini inobatga olish muhim. Bugungi kunda O‘zbekistonda:

- qurilish,
- qishloq xo‘jaligi,
- IT,
- tibbiyot kabi sohalarda malakali kadrlar tanqisligi mavjud.

Misol: Samarqandda ochilgan qishloq xo‘jaligi yo‘nalishidagi texnikumda o‘quvchilarga traktor haydovchiligi, issiqxona texnologiyasi o‘rgatilmoqda. Bu ularni nafaqat kasbga, balki daromadga ham yo‘naltiradi.

Kasb tanlashda ota-onaning qarashi, jamiyatdagi kasb qadri va imkoniyatlar ham muhim ahamiyatga ega.

Misol: Andijon viloyatida “Kasb tanlash — hayot tanlash” nomli loyiha doirasida ota-onalar, o‘quvchilar va ish beruvchilar ishtirokida seminarlar tashkil qilinmoqda.

Xulosa qilib aytganda, o‘quvchi-yoshlarni kasbga yo‘naltirish — bu faqat kasb tanlash emas, balki ularning hayotda o‘z o‘rnini topishiga yordam berish, jamiyat uchun foydali bo‘lishiga yo‘l ochishdir. Bu jarayon:

- tarixiy ildizlarga,
- zamonaviy ehtiyojlarga,
- pedagogik yondashuvlarga,
- va oila-maktab hamkorligiga tayangan holda olib borilishi kerak.

To‘g‘ri tashkil etilgan kasbga yo‘naltirish orqali yoshlar o‘z orzu va intilishlariga erishish bilan birga, mamlakat taraqqiyotiga ham hissa qo‘shadi.

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AUTOCAD DASTURIDA OB’YEKTLARGA O‘LCHAM HAMDA KO‘RSATGICHLAR QO‘YISH VA ULARNI TAHRIRLASH

Annotatsiya: *Maqola mavzisida dizayn, chizma va texnik hujjatlar tayyorlash jarayonida muhim o‘rin tutadi. Ushbu mavzuda ob’yektlarga o‘lcham va ko‘rsatgichlarni to‘g‘ri qo‘yish usullari, ularning standartlarga muvofiqligi, o‘lchovlarni aniqlik bilan ifodalash tartibi batafsil o‘rganiladi. Shuningdek, o‘lcham va ko‘rsatgichlarni tahrirlash, ya’ni mavjud o‘lchamlarni o‘zgartirish, ko‘rsatkichlar pozitsiyasini sozlash va dizayn talablariga moslashtirish usullari ham ko‘rib chiqiladi. Bu jarayonlar loyihani sifatli bajarish, chizmalarni oson tushunish va texnik jihatdan to‘g‘ri bo‘lishini ta’minlash uchun zarurdir.*

Kalit so’zlar: *O’lcham uslubi, o’lcham uslubi menejeri, o’lcham uslubini o’zgartirish: ISO-25», chiziqlar, vkladka, o’lchamlar uchun cho’zilish, obyektdan chekinish, matn, matn uslubi , matn balandligi, o’lcham chizig’idan chekinish, matn yo’nalishi, ISO bo’yicha, joylashtirish, global masshtab.*

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PLACING AND EDITING DIMENSIONS ANDAANNOTATIONS ON OBJECTS IN AUTOCAD

Annotation: *The article topic plays an important role in the process of design development, drafting, and preparation of technical documentation. This topic thoroughly examines the methods of correctly placing dimensions and indicators on objects, their compliance with standards, and the procedures for accurately representing measurements. It also covers methods for editing dimensions and indicators, that is, modifying existing dimensions, adjusting the positions of indicators, and adapting them to design requirements. These processes are essential for ensuring high-quality project execution, ease of understanding drawings, and technical accuracy.*

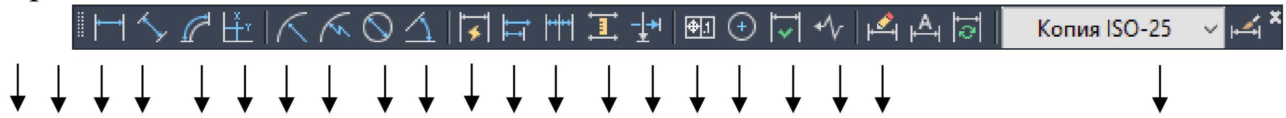
Keywords: *Dimension Styles...**,** Dimension Style Manager**,** Modifying Dimension Style: ISO-25**,** Lines **tab,** Extension beyond dimension lines**,** Offset from object**,** Text **tab,** Text Style**,** Text Height**,** Offset from dimension line**,** Text Orientation**,** According to ISO**,** Placement **tab,** Global Scale**.***

Kirish. Maqola taqdimoti muhandislik grafikasi va loyiha hujjatlarini tayyorlashda muhim o‘rin tutadigan mavzu **AutoCAD dasturida ob’yektlarga o‘lcham hamda ko‘rsatgichlar qo‘yish va ularni tahrirlash** jarayonlarini ko‘rib chiqamiz. Zamonaviy texnik loyihalashda aniqlik va standartlarga muvofiqlik asosiy talablar hisoblanadi. AutoCAD dasturi bu borada qulay va kuchli vosita bo‘lib, unda chizmalarni aniq, tushunarli va texnik jihatdan to‘g‘ri shakllantirish mumkin.

Ushbu taqdimot davomida:

- o‘lcham va ko‘rsatgichlarning turlari;
- ularni chizmaga to‘g‘ri joylashtirish usullari;
- tahrirlash va sozlash amaliyotlari;
- va real loyihalarda bu elementlarning ahamiyati haqida to‘xtalib o‘tamiz.

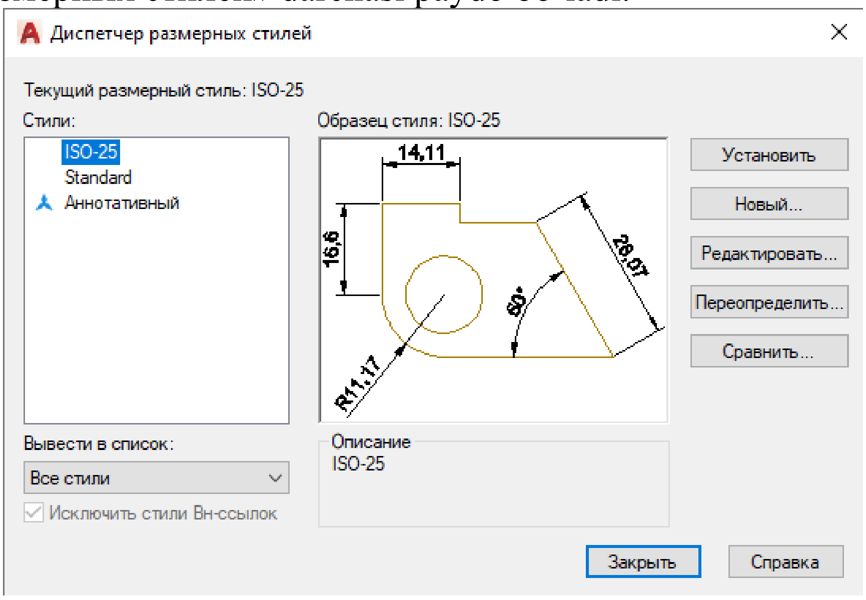
Asosiy qism. «AutoCAD» dasturida alohida «Размер» o’lchamlar qo’yish paneli mavjud bo’lib, unda chizmalarga chiziqli, burchakli, radiusli, diametrli va boshqa o’lcham qo’yish buyruqlari kiritilgan. Bundandan tashqari ularni tahrirlash buyruqlari ham mavjud. Ularning barchasini alohida misollarda quyida ko’rib chiqamiz.



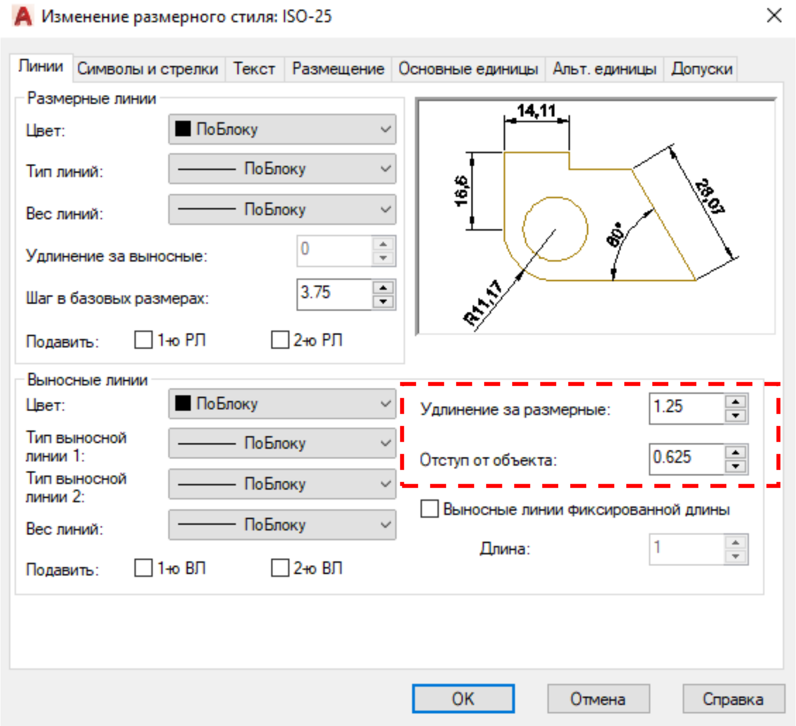
O’lchamlar qo’yish uchun chiqarish nuqtalari va o’lcham chizig`ining o’rni ko’rsatilsa, o’lcham qiymatlari va strelkalarini kompyuter avtomatik o’zi chizmaga qo’yadi. Chizmada biror chiziqni nuqta bilan uzish, ikki nuqta oralig`ida uzish va burchak faskalarini olish zaruriyati bo’lib turadi.

O’lcham qo’yishga tayyorgarlik bosqichi quyidagi tartibda amalga oshiriladi:

1. «Sichqoncha» yordamida tushuvchi menyular qatoridan «Format» buyrug`i yuklanib, undagi «Размерные стили...» qo’shimcha buyrug`i(yoki «Размер» asboblar panelining so’ngi 21-buyrug’i )ga kiriladi. Shunda, ekranda «Диспетчер размерных стилей» darchasi paydo bo’ladi.

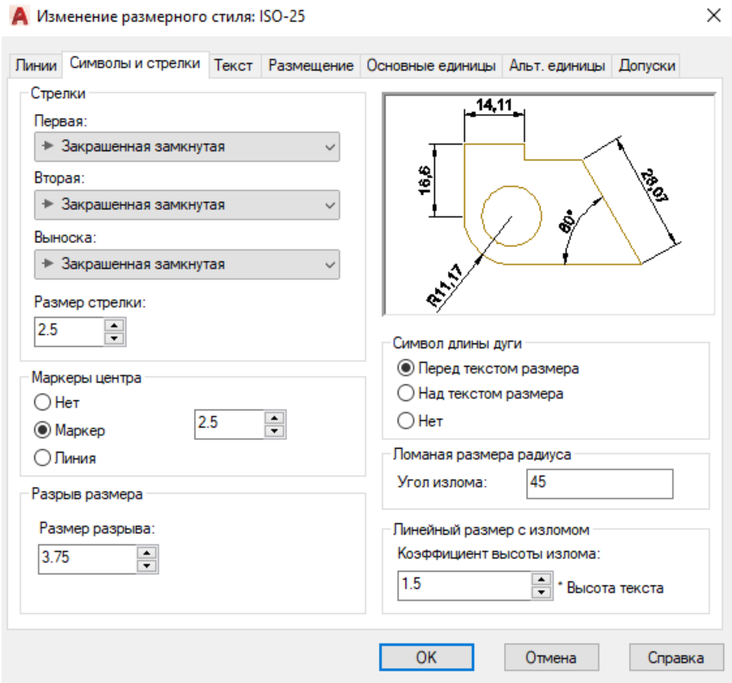


Bu darchadagi o'ng tomonda joylashgan buyruqlar orasidan «Редактировать...» (yuqoridan uchinchi) tugmasi yuklanadi. Ekranda «Изменение размерного стиля: ISO-25» darchasi paydo bo'ladi(Bunda AutoCAD dasturining ISO-25 nomli o'lcham stili o'zgartiriladi. Buning o'rniga "Новый…" (yuqoridan ikkinchi) tugmasi orqali yangi nom bilan boshqa stil yaratib, uni tahrirlash ham mumkin).



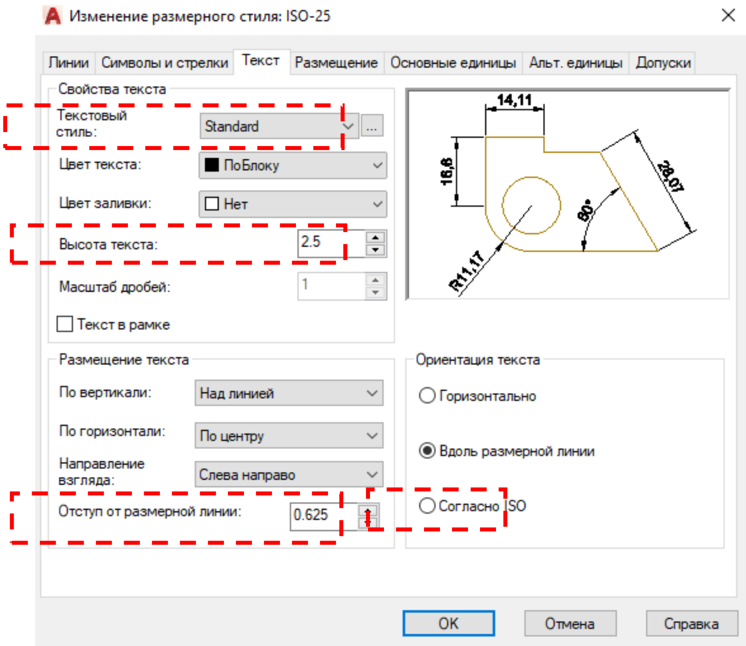
Avval, undagi «Линии» vkladka-qo'yilmasi yuklanadi va darchaning pastki o'ng tarafida joylashgan «Удлинение за размерные» va «Отступ от объекта» yacheykalariga tegishlicha, chiqarish chizig`ini o'lcham chizig`idan chiqib turish uzunligi va chiqarish chizig`i bilan kontur chiziq oralig`i tanlab kiritiladi. Agar, bu qiymatlar mos ravishda 1-5 va 0 bo'lsa, davlat standartiga muvofiq bo'ladi.

So'ngra, vkladkada ikkinchi bo'lib joylashgan «Символы и стрелки » buyrug`i yuklanadi.



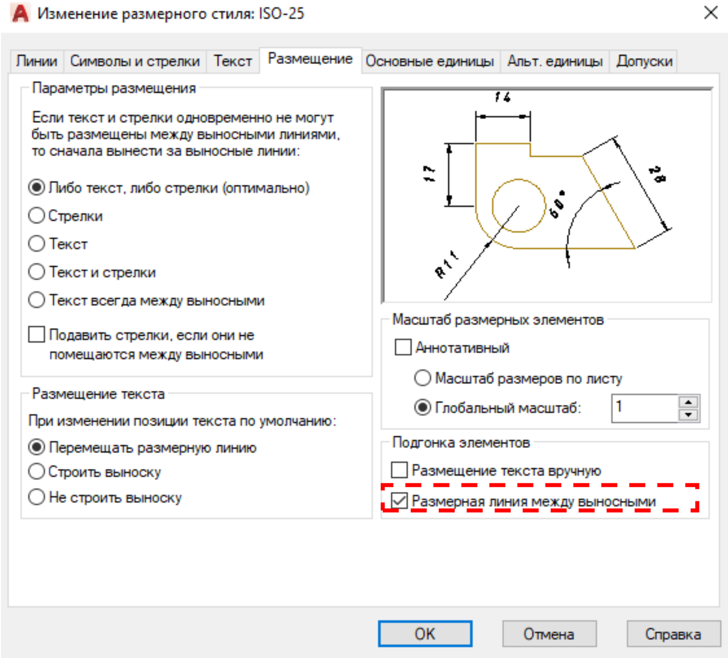
Bu darchadan foydalanib, strelkaning turlari, kattaligi, markaz o’rnining belgisi o’lchami, yoy uzunligining ramziy belgisi va siniq radiusli o’lchamning burchaklarini chizma o’lchamlaridan kelib chiqqan holda o’zgartirish mumkin.

Endi, bu darchadagi «Текст» vkladka-qo’yilmasi yuklanib, «Текстовый стиль» - tekst ko’rinishi, «Высота Текста» - matndagi shrift balandligi, «Отступ от размерной линии»-harf, hamda raqamlar bilan o’lcham chiziqlari orasidagi masofalar kabi parametrlar kiritiladi. Bu kattaliklar chizma o’lchamlaridan kelib chiqqan holda qo’yiladi. «Ориентация текста»-matnni tekislashdagi «Согласно ISO» tugmasi yuklanib, so’ngra «OK» tugmasi yuklanadi.

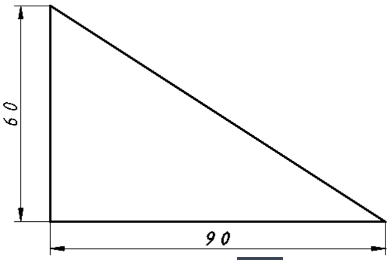


Shunda ekranda, dastlabki «Диспетчер размерных стилей» darchasi paydo bo’ladi va undagi «Закрыть» tugmasi yuklanib chizmaga qaytiladi va o’lchamlar qo’yishga kirishiladi.

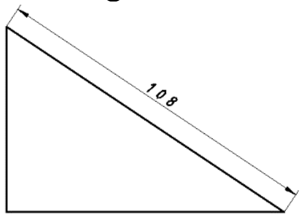
Ushbu yuqoridagi parametrlar asosiy parametrlardir. Boshqa parametrlarga xususiy biror zaruriyat tug'ilmasa, o'zgarish kiritmasa ham bo'ladi. Ammo bajarilayotgan chizmalarning masshtabiga qarab to'rtinchi "Размещение" vkladka-qo'yilmasi yuklanib, "Глобальный масштаб" bo'limidan o'lchamlarni barcha (strelka, oraliq masofa, tekst va h.k.) elementlari masshtablarini bir vaqtda o'zgartirish mumkin bo'ladi.



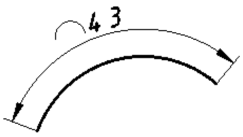
1. «Линейный» – To'g'ri o'lcham  . Ushbu buyruqdan foydalanib gorizontal va vertikal chiziqli o'lchamlar qo'yish mumkin.



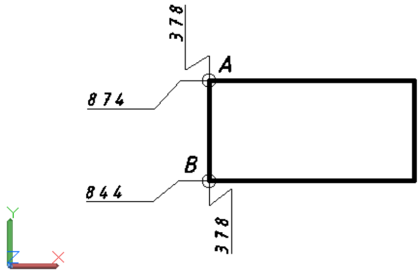
2. «Параллельный» – Parallel o'lcham . Ushbu buyruqdan foydalanib og'ma joylashgan chiziqlarga paralel bo'lgan o'lchamlar qo'yiladi.



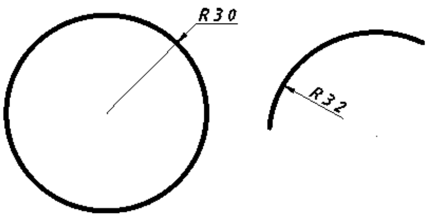
3. «Длина дуги» – Yoy uzunligi . Ushbu buyruqdan foydalanib burchaklarga va aylana yoyining burchaklariga gradiusli o'lchamlar qo'yiladi.



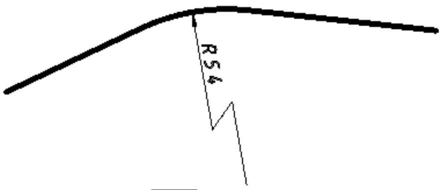
4. «Ординатный» – Ordinata o‘lchami  . Bu buyruq belgilangan nuqtaning koordinata o’qlari (yoki koordinata boshi sifatida olingan nuqta) ga nisbatan masofalarini ko’rsatishda ishlatiladi. Masalan quyida A nuqta x o’qdan 874mm, B nuqta esa 844mm uzoqlikda, y o’qdan esa har ikala nuqta ham 378mm uzoqlikda joylashganligi ko’rsatilgan.



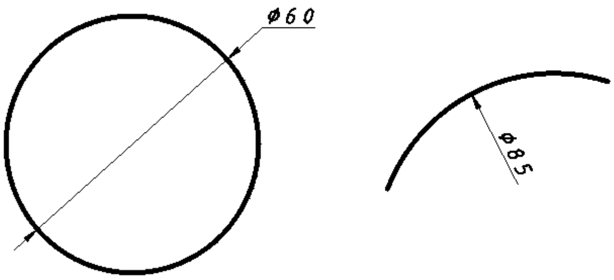
5. «Радиус» – Radius o‘lchovi . Ushbu buyruqdan foydalanib aylana va aylana yoyiga radiusli o’lchamlar qo’yiladi.



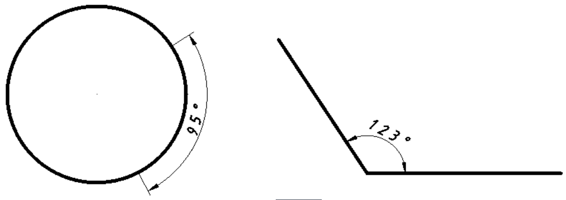
6. «С изломом» – Siniq chiziqli radius o‘lchovi  . Ushbu buyruq yoy yoki aylananing markazi varaqdan tashqarida joylashgan bo'lsa, yoki uning holatini ko'rsatib bo'lmaydigan vaziyatlarda tanlangan ob'ektning radiusini o'lchash va radius belgisi bilan ko'rsatilgan o'lchov matnini ko'rsatish uchun ishlatiladi. O'lchov chizig'ining boshlang'ich nuqtasi har qanday qulay joyda o'rnatilishi mumkin.

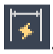


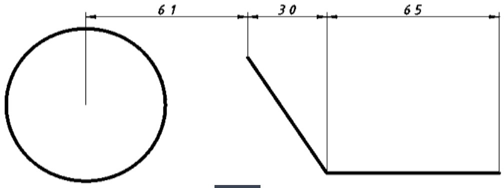
7. «Диаметр» – Diametr o‘lchovi . Ushbu buyruqdan foydalanib aylana va aylana yoyiga diametr o’lchamlar qo’yiladi.



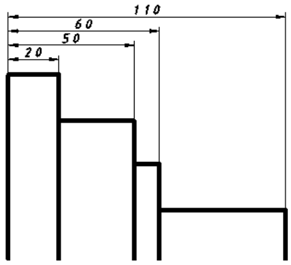
8. «Угловой» – Burchak o‘lchovi . Tanlangan to’g’ri chiziqlar orasidagi yoki uchta nuqta orasidagi burchaklarni o’lchash mqasadida ishlatiladi.



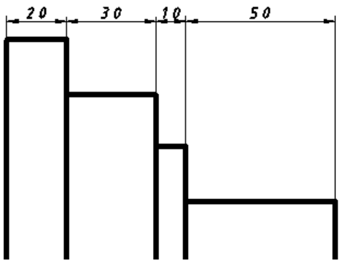
9. «Быстрый размер» – Tez o‘lchov . Ushbu buyruq obyektlarni tanlash asosida bir nechta o’lchamlarni tezda qo’yish maqsadida ishlatiladi. Buyruq, ayniqsa, asosiy o'lchamlar yoki o'lchov zanjirlarini yaratishda va bir nechta doira va yoylarni o'lchashda foydali.



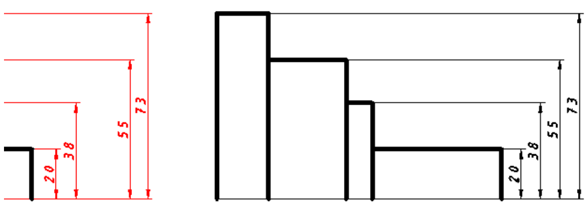
10. «Базовый» – Bazaviy o‘lchov . Bir bazaviy nuqtaga nisbatan bir nechta nuqtalargacha bo’lgan oraliq masofalarni o’lchashda ishlatiladi. Faqat bunda dastlabki o’lchamni qo’yib olish lozim.



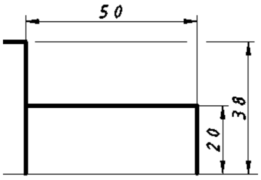
11. «Продолжить» – Davomli o‘lchov . Yaratilgan oxirgi chiziqli, burchakli yoki ordinata o'lchamidan avtomatik ravishda ketma-ketlikda o'lchamlarni yaratishni davom ettiradi.



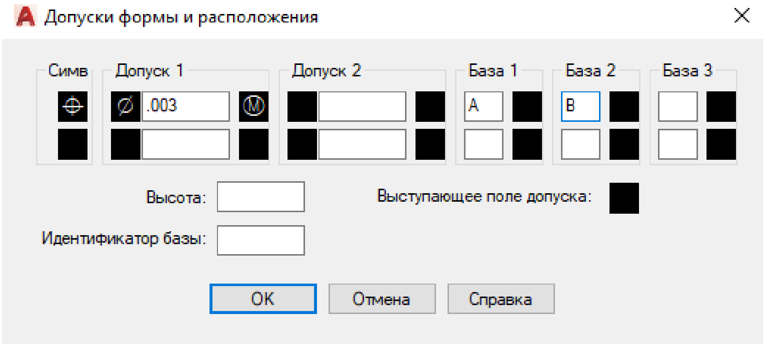
12. «Смещение размеров» – Chiziqli yoki burchak o'lchamlari orasidagi masofani sozlash . Ushbu buyruqdan foydalanib parallel o'lchov chiziqlari orasidagi masofa tenglashtiriladi.



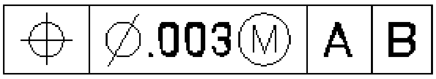
13. «Разрыв размера» – O’lcham chiziqlarini sindirish . Bu buyruqdan boshqa chiziqlarni kesib o’tuvchi chiziqlarni uzib ko’rsatishda foydalaniladi.



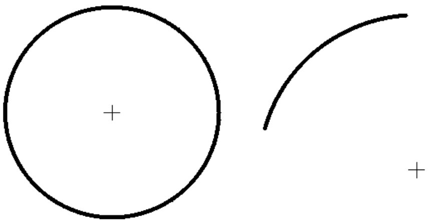
14. «Допуск» – Dopusk o‘rnatish . Elementlarning konturi boshqaruvi uchun belgilar va qiymatlarni tanlash uchun ishlatiladi. «Допуск» buyrug’I tanlanganda ekranda qo’shimcha oyna ochiladi.



Bunda kerakli ma’lumotlar kiritilib OK tugmasi bosilganda dopusk ekranda hosil bo’ladi.

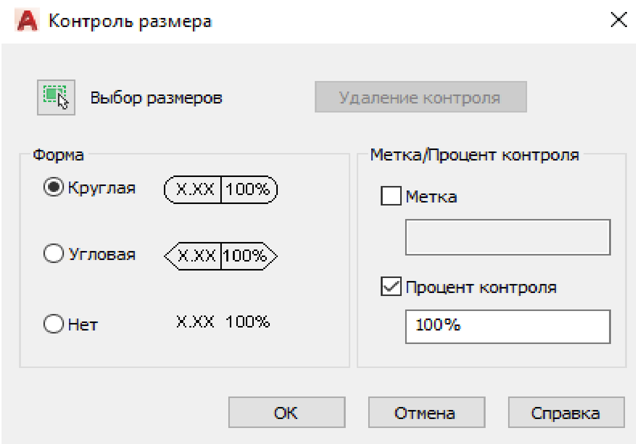


15. «Маркер центра» – Markaz belgisi . Ushbu buyruqdan aylana va yoylarning markazlari belgisini ko’rsatishda ishlatiladi.



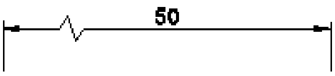
16. «Контроль» – Nazorat . Tanlangan o'lchamlarga nazorat o’lchamini qo'shish yoki olib tashlash uchun foydalaniladi.

Bunda «Контроль» buyrug’I tanlangada ekranda yordamchi oyna ochiladi.

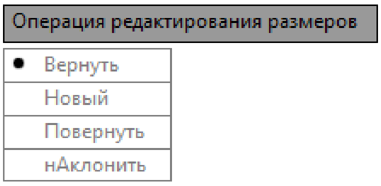


Undan o’lchamni tanlab, nazorat o’lchamini ko’rinishi va nazorat foizini kiritish, yoki o’rnatilgan nazoratni o’chirishni tanlab OK tugmasi bosiladi.

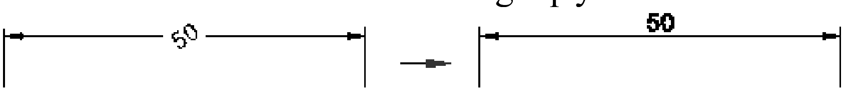
17. «Линейный с изломом» – Chiziqli yoki tekislangan o'lchamga singan chiziqlarni qo'shish yoki olib tashlash . O'lchamdagi siniq chiziqlar o'lcham o'rnatilgan ob'ektlarda siniq mavjudligini ko'rsatadi. O'lchov raqami chizmada o'lchangan masofani emas, balki haqiqiy masofani bildiradi.



18. «Редактировать размер» – O‘lchamni tahrirlash . O’lcham chiziqlari va chiqarish chiziqlarini tahrirlash maqsadida ishlatiladi. «Редактировать размер» buyrug’i tanlanganda ekranda tahrirlashni quyidagi turlari chiqadi.

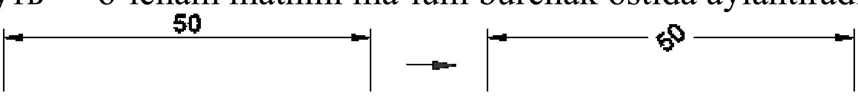


“Вернуть” - o’lchov matnini standart holatga qaytaradi.

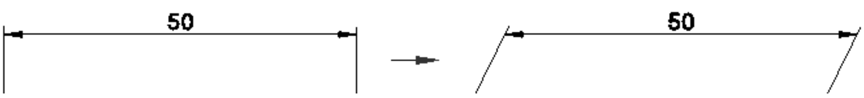


“Новый” - matn muharriri yordamida o’lchov matnini o’zgartirish.

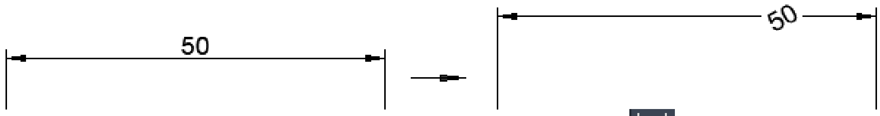
“Повернуть” – o’lcham matnini ma’lum burchak ostida aylantiradi.



“Наклонить” – o’lchamdagi chiqarish chiziqlarini ma’lum burchak ostida buradi.



19. «Редактировать текст» – Matnni tahrirlash . Bu buyruqdan o’lcham matnini ko'chirish va aylantirishda, o’lcham chizig'ining joylashishini o'zgartirishda foydalaniladi.



20. «Обновить размер» – O‘lchamni yangilash . Ushbu buyruq o’lchamlarni joriy o’rnatilgan o’lcham stili asosida yangilaydi.

Adabiyotlar sharxi:

1. A.A. Matyakubov – “AutoCAD asoslari va loyihalash texnologiyasi”. Ushbu darslik AutoCAD dasturining boshlang‘ich foydalanuvchilari uchun mo‘ljallangan bo‘lib, asosiy interfeys, chizma tuzish, o‘lcham qo‘yish va ularni tahrirlash kabi funksiyalarni bosqichma-bosqich o‘rgatadi. Ayniqsa, o‘lchamlar va annotationlar bo‘yicha amaliy misollar orqali AutoCAD’ning asosiy imkoniyatlarini yoritib beradi. Taqdimot mavzusi bilan to‘g‘ridan to‘g‘ri bog‘liq bo‘lib, o‘rgatuvchi qo‘llanma sifatida nihoyatda foydalidir.

2. Rixsiboev U.T. va boshq. – “Kompyuter grafikasi”. Mazkur qo‘llanmada kompyuter grafikasi tushunchasi keng yoritilgan, jumladan, grafik muharrirlar, ularning amaliy qo‘llanilishi va texnik grafikani yaratish texnologiyalari haqida so‘z boradi. AutoCAD haqida alohida bob mavjud bo‘lib, unda o‘lchamlar, ko‘rsatgichlar va chizma elementlarini joylashtirish usullari tushuntiriladi. Bu manba mavzuga nazariy asoslar bilan yondashadi.

3. Valiev A. – “Chizmachilik (Geometrik chizmachilik)”. Garchi bu adabiyot AutoCAD dasturiga emas, balki chizmachilikning nazariy asoslariga bag‘ishlangan bo‘lsa-da, chizma tuzish, o‘lchamlar va geometrik ko‘rsatkichlar haqida chuqur bilim beradi. Ushbu nazariy bilimlar AutoCAD da ishlayotganda chizmalarni standartlarga muvofiq bajarishga yordam beradi. Demak, mavzuning nazariy poydevorini yaratishda muhim o‘rin tutadi.

4. А.И. Близнюк – “Компьютерная графика и проектирование”. Bu kitob zamonaviy kompyuter grafikasi va avtomatlashtirilgan loyihalash tizimlari (CAD) haqida keng qamrovli ma’lumot beradi. AutoCAD dasturining texnik jihatlari, chizma elementlarini joylashtirish va o‘lchash bo‘yicha metodik yondashuvlar yaxshi yoritilgan. Chizmalarni sifatli va samarali tayyorlash bo‘yicha texnologik yondashuvlar bilan tanishtiradi. Mavzu bo‘yicha chuqur texnik manba hisoblanadi.

5. Е.А. Сухоруков – “AutoCAD для инженеров и проектировщиков”. AutoCAD dasturining amaliy jihatlarini chuqur o‘rgatadigan zamonaviy qo‘llanma bo‘lib, ayniqsa injenerlar va loyiha muhandislari uchun mo‘ljallangan. O‘lchamlar, annotationlar, qatlamlar, tahrirlash vositalari, va chizma dizayni kabi mavzular keng qamrovda yoritilgan. Ushbu manba taqdimot mavzusining amaliy tomoni uchun eng dolzarb va yangilangan qo‘llanmalardan biri hisoblanadi.

Yuqoridagi adabiyotlar mavzuni chuqur o‘rganish uchun zarur bo‘lgan nazariy asoslar, amaliy ko‘nikmalar va texnik bilimlarni taqdim etadi. **A.A.** Matyakubov va E.A. Suxorukov asarlari mavzuga bevosita va amaliy jihatdan mos keladi, Valiev A. esa asosiy nazariy poydevorni beradi. Qolgan ikki manba esa umumiy texnik grafikani tushunish va CAD tizimlarida ishlash bo‘yicha kengroq doirada yordam beradi.

Xulosa: AutoCAD dasturida o‘lcham va ko‘rsatgichlarni to‘g‘ri qo‘yish hamda ularni tahrirlash muhandislik va dizayn sohasida muhim amaliy ko‘nikmalardan biridir. O‘lchamlarning aniq, standartlarga mos tarzda joylashtirilishi chizmalarni oson tushunish va texnik xatolarning oldini olishga xizmat qiladi. Ko‘rsatgichlar (annotationlar) yordamida chizmaga qo‘shimcha axborot berish, ob’yektlarning funksional yoki texnologik xususiyatlarini ko‘rsatish mumkin. Ularni tahrirlash va dizayn talablariga moslashtirish esa loyihaning sifatini oshiradi.

TAKLIFLAR:

1. **AutoCAD dasturini chuqur o‘rganish** uchun maxsus o‘quv kurslari va amaliy mashg‘ulotlar tashkil etilishi zarur.
2. Talabalar va mutaxassislar uchun **standartlarga asoslangan o‘lcham qo‘yish bo‘yicha qo‘llanmalar** ishlab chiqilishi kerak.
3. Loyiha chizmalarini sifatli va texnik jihatdan to‘g‘ri tayyorlash uchun **AutoCADning yangi funksiyalaridan samarali foydalanish** tavsiya etiladi.
4. AutoCAD dasturida ishlashda **shablon (template)** va **stil sozlamalari**dan foydalanish, vaqtni tejash va bir xil dizayn standartlariga rioya qilish imkonini beradi.
5. Dizayn va chizma sifati bo‘yicha **nazorat tizimini joriy etish**, xatolarni aniqlash va tuzatish uchun foydali bo‘ladi.

FOYDALANILGAN ADABIYOTLAR

1. A.A. MATYAKUBOV – ***AUTOCAD ASOSLARI VA LOYIHALASH TEXNOLOGIYASI,*** **TOSHKENT, 2018.**

2. Rixsiboev U.T. va boshq “Kompyuter grafikasi”. “Voris-nashriyot” Toshkent. 2018.

3. Valiev A. Chizmachilik (Geometrik chizmachilik). TDPU rizografi. Toshkent. 2013.

4. **А.И. Близнюк –** *Компьютерная графика и проектирование*, Минск, 2017.

5. **Е.А. Сухоруков** – *AutoCAD для инженеров и проектировщиков*, Москва, 2020.

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YOG‘OCHNING HARORAT VA NAMLIK O‘TKAZUVCHANLIGINI ANIQLASH

Annotatsiya: *Maqolada yog‘ochning termik namlik o‘tkazuvchanligini kompleks usul bilan o‘rganish natijalari keltirilgan. Vaqt o‘tishi bilan yuzada va yog‘och ichida harorat o‘zgarishining mohiyatini aks ettiruvchi bog‘liqliklar olingan. Issiqlik va namlik o‘tkazuvchanlik koeffitsientining o‘z vaqtida ishlov berish muhit sharoitlariga qarab o‘zgarishining muntazamligi aniqlangan. Yog‘ochning isitish davrida sirt va namunaning ichida sezilarli harorat farqi mavjud, bu yog‘ochning kesishgan qismida tengsiz harorat maydonining shakllanishiga sabab bo‘ladi.*

Kalit so‘zlar: *Boshlang‘ich isitish, isitish rejimi, harorat farqi, termik namlik-suv tarkibi, koeffitsient, namlik o‘tkazuvchanligi, to‘yinganlik darajasi.*

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DETERMINATION OF TEMPERATURE AND MOISTURE PERMEABILITY OF WOOD

Abstract: *The article presents the results of a comprehensive study of the thermal moisture permeability of wood. Over time, connections have been obtained that reflect the essence of temperature changes on the surface and inside the wood. The regularity of the change in the coefficient of thermal and moisture permeability in time depending on the conditions of the processing environment has been determined. During the heating period of the wood, there is a significant temperature difference between the surface and inside the sample, which causes the formation of an unequal temperature field at the intersection of the wood.*

Keywords: *initial heating, heating mode, temperature difference, thermal humidity-water content, coefficient, moisture permeability, saturation level.*

Quritishdan asosiy maqsad yog‘ochni tabiiy xom ashyodan uning xossalarini tubdan yaxshilangan holda sanoat materialiga aylantirishdan iborat. Shunday qilib, quritish nafaqat mebel mahsulotlarini, balki duradgorlik va qurilish qismlarini, deraza va eshik bloklarini, faner va boshqalarni ishlab chiqarishda majburiy jarayondir. [1]

Yog‘och quritish murakkab jarayondir, chunki:

1.Yog‘ochlar turli xil mexanik xususiyatlarga ega;

2.Turli o‘lchamdagi yog‘och assortimentlari ishlatiladi;

3.Quritish jarayonining sifat talablari har xil;

4.Quritish vaqtida paydo bo‘ladigan fizik jarayonlarning murakkabligi mavjud;
5.Jarayonning uzoq davomiyligi.[2]
Ma’lumki, quritishdan oldingi birinchi texnologik operatsiya boshlang‘ich isitish hisoblanadi.

Dastlabki isitish operatsiyasining asosiy maqsadi quritish operatsiyasi uchun yog‘ochning namlik o‘tkazuvchanligi tizimini tayyorlashdan iborat. Buning uchun yog‘och qalinligi bo‘ylab namlikning bir xil bug‘lanishi uchun sharoit yaratish (quritish agentining optimal parametrlarini aniqlash) kerak.

Isitish jarayonida uchta issiqlik va massa uzatish hodisalari sodir bo‘ladi:

– material orqali issiqlik harakati – issiqlik o‘tkazuvchanligi;

– material orqali namlik harakati – namlik o‘tkazuvchanligi;

– termik namlik o‘tkazuvchanligi.

Dastlabki ikkita hodisalarni o‘rganish natijalari turli manbaalarda keltirilgan. [3]

“Termik namlik o‘tkazuvchanligi” atamasi odatda yog‘ochning temperatura farqi (gradient) ta’siri ostida namlikni harakatga keltirish xususiyati sifatida tushuniladi.

Ushbu ishning maqsadi dastlabki isitish davrida vaqt o‘tishi bilan yog‘ochning harorati va namligini o‘zgarishini aniqlash va uni kinetikasini o‘rganishdan iborat edi. [4]

Zamonaviy quritish texnologiyalari boshlang‘ich isitish rejimlaridan foydalanishni o‘z ichiga oladi. Bunda ishlov berish o‘rtasining to‘yinganlik darajasi 1φ<Δ, psixrometrning o‘qilishidagi farq 5°C dan oshmaydi, isitish harorati esa quritish rejimining birinchi bosqichida quritish haroratidan oshmaydigan darajada belgilanadi. Odatda, u 70°C dan oshmaydi. Shuni ta’kidlash kerakki, bunday sharoitda, assortimentlar yuzasidan namlikning bug‘lanishi va uning ichki nam qatlamlaridan tashqi qatlamlarga ko‘chishi quritilgan yog‘ochni quritish jarayoniga qaraganda ancha past bo‘ladi. [5]

Yog‘ochning temperatura farqi (gradient) ta’siri ostida namlikni ko‘chirish xususiyati issiqlik namlik o‘tkazuvchanligi deb ataladi.

Yog‘ochning termal namlik o‘tkazuvchanligining xususiyati dastlabki isitish vaqtida hisobga olinishi kerak, chunki tashqi zonalardagi namlik ichki tomondan ko‘proq qizib boradi va bu uning tashqi tomondan ichkariga o‘tishiga olib keladi.

Shu nuqtai nazardan, vaqt o‘tishi bilan to‘yinmagan muhitda isitish vaqtida yog‘ochning termik va namlik o‘tkazuvchanligidagi o‘zgarishlarni o‘rganish alohida qiziqish uyg‘otmoqda.

Ma’lumki, izotermal bo‘lmagan sharoitlarda yog‘ochda namlik yuqori haroratga ega bo‘lgan joylardan past haroratga ega bo‘lgan joylarga o‘tkaziladi. Agar bir xil kesma namlik tarkibiga ega bo‘lgan yog‘och namunasi tengsiz harorat maydoniga joylashtirilsa, natijada namunaning qarama-qarshi tomonlarida harorat farqi yuzaga kelsa, sirt va ichkarida namlikni qayta taqsimlash boshlanadi.

Past haroratga ega bo‘lgan joylarda yog‘ochning namlik miqdori oshadi va harorati yuqori bo‘lgan joylarda u pasayadi. Shu bilan birga, namlik oqimining qarama-qarshi yo‘nalishida harakatlanadigan namlik ta’siri ostida namunada yaratilgan. Assortiment hajmidagi namlik har doim namlikning pasayishi yo‘nalishiga qarab harakat qiladi. Namlik va harorat gradientlari o‘rtasida ma’lum bir nisbat bilan namlik o‘tkazuvchanligi ta’siri termal namlik o‘tkazuvchanligi ta’sirini to‘liq qoplaydi va namunaning kesishgan qismi bo‘ylab harorat va namlikning statsionar maydoni o‘rnatiladi. [6]

Namlik gradientining bu barqaror holatda harorat gradiyentiga nisbati δ=ΔG/Δt termogradient koeffitsient deyiladi. Unda qanday namlik farqi 1°C harorat o‘zgarishiga teng ekanligi ko‘rsatilgan.

Ma’lumki, ishlov berish agentining harorati nam yog‘ochning termoradient koeffitsienti qiymatiga sezilarli ta’sir ko‘rsatishi (W>W.n.). G.S.Shubin tomonidan eksperimental asoslab berilgan bu ta’sirning mohiyati quyidagi tenglama bilan ifodalanadi:

$$q_{m.u} = -a_m \cdot \rho_0 \cdot \Delta u , \qquad (1)$$

bu erda qm.u namlik oqim zichligi (izopotensial yuzaning birlik maydoni orqali bir birlik vaqtiga o‘tayotgan namlik massasi–bir xil potensialning yuzasi), kg namlik/(s•m2); AT – namlik o‘tkazuvchanlik koeffitsienti (termik diffuzivlik koeffitsienti A ning analogi), m2/s; ρ0 – yog‘ochning mutlaqo quruq holatda zichligi, kg/m3; Δu namlik tarkibi gradienti bo‘lib, u namlik yo‘lining bir birlik uzunligi uchun namlik tarkibi farqidir. [7]

Shuni ta’kidlash lozimki, termik namlik o‘tkazuvchanlik koeffitsienti temperatura ta’siri ostida yog‘och ichidagi namlik oqimining harakat intensivligini xarakterlovchi asosiy ko‘rsatkichlardan biri hisoblanadi. Namlik harakati har doim haroratning pasayishi yo‘nalishida bo‘lib turadi.

Yuqorida ta’kidlab o‘tilganidek, issiqlik namlik o‘tkazuvchanligining fenomeni issiqlik oqimi yo‘nalishidagi namlik harakatining sababi hisoblanadi. Shuning uchun, konvektiv quritish namunaning kesishgan qismida, sirtdagi va yog‘och ichidagi namlik farqiga qarama-qarshi bo‘lgan harorat farqini keltirib chiqaradi, bu esa namlikning ichkaridan material yuzasiga ko‘chishiga to‘sqinlik qiladi. [8]

Yog‘ochning termik xossalarini o‘rganishning mavjud usullari issiqlik va massa uzatish hodisalarini faqat ma’lum statsionar sharoitlarda aniqlash imkonini beradi, ya’ni yog‘ochdan o‘tayotgan issiqlik oqimi vaqt o‘tishi bilan doimiy bo‘lib qolganda. [9]

Boshlang‘ich isitish davrida yog‘och δ termik namlik o‘tkazuvchanligi koeffitsientining o‘zgarishining mohiyatini aniqlash maqsadida, namunaning o‘zaro bo‘limi bo‘ylab Δt va namlik ΔW harorat farqlarini topish, shuningdek, boshlang‘ich isitish rejimi (namunaning ishlov berish o‘rta va boshlang‘ich namligining harorat va to‘yinganlik darajasi) parametrlarining δ qiymatiga ta’sirini aniqlash zarur. [10]

Δt va ΔW o‘rtasidagi farqlarning magnitudasi issiqlik oqimlari doimiy saqlanganda muntazam ravishda qayd etiladi.

Yog‘ochning ichkarisida va yuzasida haroratni aniqlash uchun o‘lchash tizimi qo‘llanildi. Bu tizimda harorat sensorlari modeli DS18S20 va namlik sensorlari modeli HCH-1000-001 ASAL mavjud. Yog‘och namunasi yuzasiga uchta harorat sensori T1-3 va W1-3 o‘rnatilgan. Yog‘och namunasining yarmi qalinligiga mos chuqurlikda harorat sensori T4-6, W4-6 joylashtiriladi. Barcha sensorlar o‘lchash natijalariga qayta ishlash agenti ta’siri oldini olish uchun KPT-8 pastasi bilan izolyatsiya qilingan. [11]

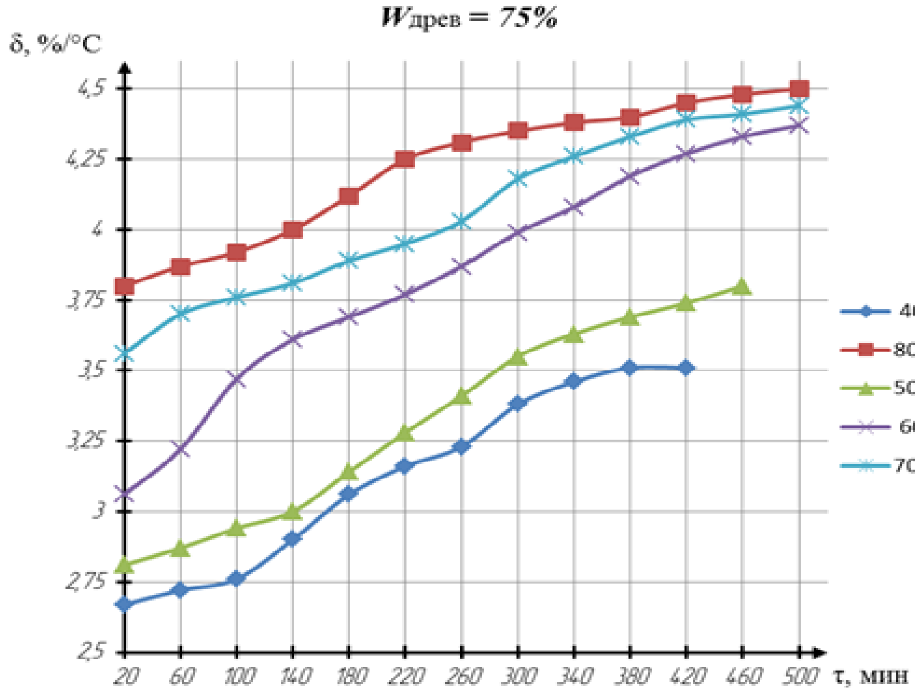
Yog‘och namunasini isitishni ta’minlash uchun yuqoridagi plitalar tizimi iqlim xonasiga joylashtirildi. Ishlov berish havosining harorati va to‘yinganligi avtomatik boshqaruv tizimi orqali o‘rnatildi va saqlanib qoldi. Barcha sensorlarning o‘qilishi 20 daqiqalik davriylik bilan 0,5°C aniqlik bilan qayd etildi. Isitish yuzasi va yog‘ochning ichidagi harorat farqi 0,5°C bo‘lmaguncha amalga oshirildi. Namunalarning namlik tarkibi GANN HT 85 namlik metri yordamida aniqlandi. Tajriba plakatlarini o‘tkazish shartlari jadvalda keltirilgan. [12]

Namuna qalinligi uchun eksperimental sharoitlar 32, 40,50

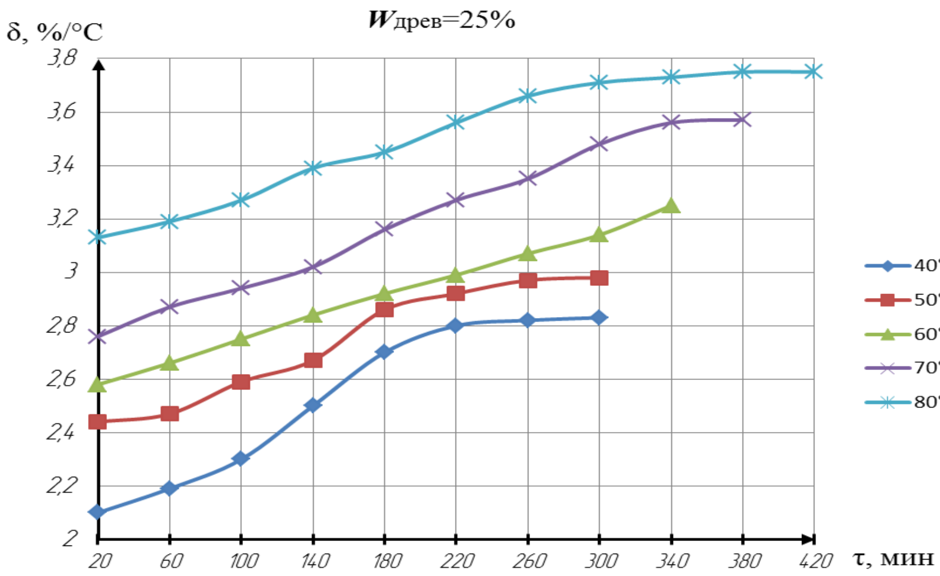
Daraja to‘yinganlik φ	Boshlang‘ich namlik, %	Harorat isitish, °S	Daraja to‘yinganlik φ	Boshlang‘ich namlik, %	Harorat isitish, °S
φ = 0,73	25	40	φ = 0,87	25	40
		50			50
		60			60
		70			70
		80			80
	50	40		50	40
		50			50
		60			60
		70			70
		80			80
	75	40		75	40
		50			50
		60			60
		70			70
		80			80

Yog‘ochning dastlabki harorati butun hajmda bir xil deb hisoblangan, materialning butun yuzasida va vaqt o‘tishi bilan o‘rta harorat doimiy bo‘lgan. Issiqlik cheksiz plastinka shakliga ega bo‘lgan materialning qalinligi bo‘ylab faqat yo‘nalishda tarqaladi, deb taxmin qilingan. [13]

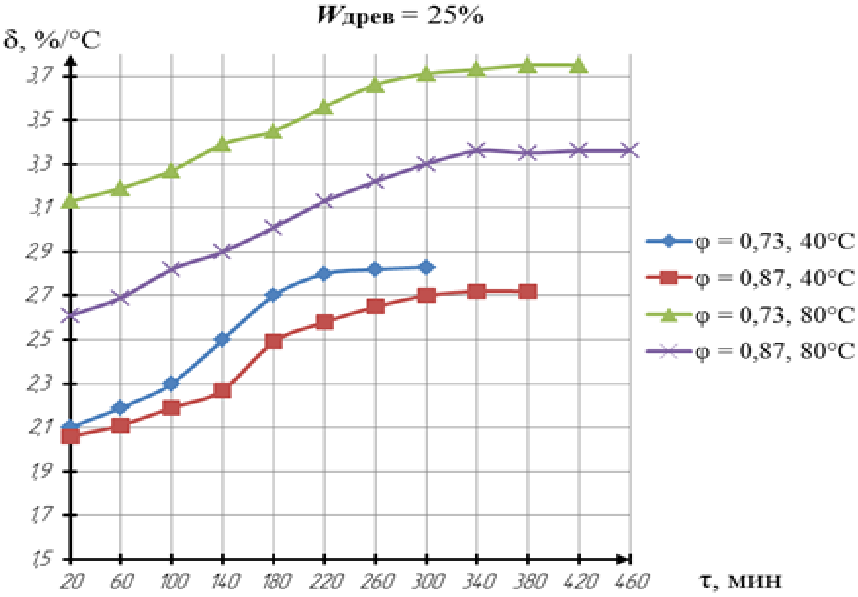
Jadvalning shartlari bo‘yicha tadqiqotlar natijalari grafik bog‘liqliklar ko‘rinishida keltirilgan. 1–4.



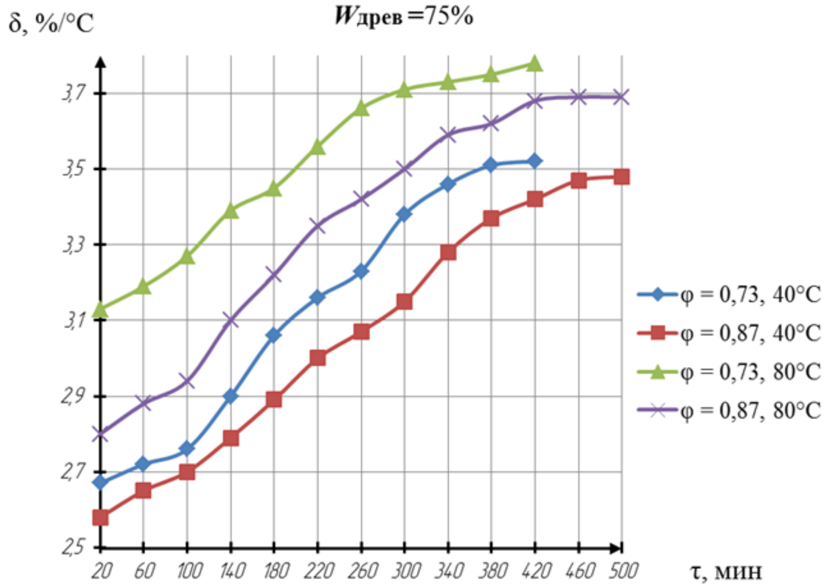
Rasm.1. Issiqlik namlik-suv tarkibining issiqlik temperaturasiga o‘z vaqtida bog‘liqligi φ = 0,73 va W = 75%



ga



Rasm.3. W = 25% da boshlang‘ich isitishning turli rejimlari bo‘yicha issiqlik namlik-suv tarkibining o‘z vaqtida isitish haroratiga bog‘liqligi



Rasm.4. W = 75% da boshlang‘ich isitishning turli rejimlarida issiqlik namlik-suv tarkibining o‘z vaqtida isitish haroratiga bog‘liqligi

Iqlim kamerasidagi havo harorati isitish boshlanganidan keyin 3-10 daqiqa ichida kerakli darajada (40-80ºC) o‘rnatiladi. Shundan so‘ng, tajriba davomida o‘zgarishsiz qoladi. Shunday qilib, yog‘ochni qayta ishlash muhitining doimiy haroratida isitiladi deb hisoblash mumkin. [14]

Yog‘och namunalarining sirt qatlamlarini isitish darhol boshlanadi va ichki qatlamlar biroz kechikadi. Jarayon boshlanganidan 60-80 daqiqa o‘tgach, namunalarning sirti va ichki qismi orasidagi harorat farqi maksimal darajaga yetadi.

Olingan tajribaviy ma’lumotlarning tahlili shuni ko‘rsatdiki, issiqlik harorati termik namlik o‘tkazuvchanlik koeffitsienti qiymatiga sezilarli ta’sir ko‘rsatadi. Shunday qilib, 1 va 2-dan 40-50°C haroratda va namunaning namligida W_{drev}=75%

bo‘lsa, teng vaqt oralig‘ida δ qiymati biroz farq qiladi. 70-80°C haroratda δ qiymati 25% oshadi.[15]

Qizig‘i shundaki, W=25% da δ qiymatining o‘zgarishi bir xilda sodir bo‘ladi, va W=75% da biz 50 va 60°C harorat o‘rtasidagi ma’lum bir farqni sezishimiz mumkin. Ushbu faktni ishlov berish havosining namlik tarkibi va issiqlik miqdori 50 va 60°C haroratda va φ=0,73 (Id sxemasiga ko‘ra) haroratda sezilarli o‘zgarishi bilan izohlash mumkin.

Termik namlik tarkibining turli tajriba sharoitlari uchun koeffitsienti qiymati 1,9 dan 4,5 %/C gacha o‘zgaradi. Olingan qiymatlar adabiyotda mavjud bo‘lgan ma’lumotlarga zid kelmaydi.

Analizdagi ma’lumotlar tahlili. 3 va 4 shakllar muntazam intervallarda δ miqdori bo‘yicha belgilangan haroratda qayta ishlash agentining to‘yinganlik darajasiga ta’sirini ko‘rsatadi. Namuna W_{drev}ning namligi = 25%, δ koeffitsientining 40°C haroratdagi qiymati va 0,73 va 0,87 φ qiymatlar o‘rtacha 8% farq qiladi va to‘yinganlik darajasi qancha yuqori bo‘lsa, δ koeffitsienti ham past bo‘ladi. Isitish harorati t=80°C da δ koeffitsiyentining φ=0,73 ga teng bo‘lgan qiymati φ=0,87 ga nisbatan 20% ga ko‘pdir.

Shunday qilib, termoradient koeffitsienti qiymatining oshishining intensivligi, shuningdek, ishlov berish vositasining to‘yinganlik darajasi va namunaning boshlang‘ich namlik miqdori bilan ta’sirlanadi.

Olingan ma’lumotlar to‘yinmagan sharoitda yog‘ochni dastlabki isitish rejimlarini ishlab chiqishda qo‘llaniladi. Namlik bug‘lanishi uchun yog‘ochning namlik o‘tkazuvchanligi tizimini optimal tayyorlash uchun yog‘ochni 50-60°C va φ=0,75-0,85 dan yuqori haroratda isitish tavsiya etiladi.

Xulosa. Yog‘och isitish davrida sirt va namunaning ichida sezilarli harorat farqi mavjud, bu yog‘ochning kesishgan qismida tengsiz harorat maydonining shakllanishiga sabab bo‘ladi.

O‘z navbatida, harorat farqining yuzaga kelishi namlikning issiqlik oqimi yo‘nalishida harakatlanishiga sabab bo‘ladi.

Tadqiqotlar natijasida quyidagi natijalarga erishildi:

– ishlov berish vositasining turli sharoitlarida vaqt o‘tishi bilan yog‘ochning yuza va ichki qatlamlari haroratining o‘zgarishi aniqlangan;

– ishlov berish muhitining turli sharoitlarida vaqt o‘tishi bilan yog‘ochning yuza va ichki qatlamlarining namlik tarkibining o‘zgarishi aniqlangan;

– termik namlik o‘tkazuvchanlik koeffitsientining o‘z vaqtida ishlov berish muhiti sharoitlariga bog‘liqligi mohiyati aniqlandi;

– yog‘och namlik ta’siri, namuna qalinligi, to‘yinganligi darajasi va issiqlik namlik o‘tkazuvchanlik koeffitsient qiymati va vaqt davomida uning o‘zgarishi tabiatiga qayta ishlash o‘rta darajasi va harorat baholandi.

Olingan tajribaviy ma’lumotlar shuni ko‘rsatadiki, barcha o‘zgaruvchan omillar termik namlik o‘tkazuvchanlik koeffitsienti qiymatiga ta’sir ko‘rsatadi, bu esa ularning barchasini hisobga olgan issiqlik rejimini ishlab chiqish zarurligini tasdiqlaydi.

Tadqiqot natijalari boshlang‘ich isitishning resurs tejaydigan rejimlarini ishlab chiqishda qo‘llaniladi.

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WAYS OF TRANSMISSION OF PHYTOPATHOGENIC VIRUSES

Annotation. *This article reflects the study of the methods of virus transmission in plants, which is becoming increasingly widespread nowadays. Phytopathogenic viruses spread in nature depending on the type of plant and virus. One of the most common modes of virus transmission is through the propagation of vegetative organs. During research, it was found that more than 90 plant viruses can be transmitted through seeds. In addition, viruses can also spread widely without vectors, i.e., through contact, and with the help of various insects. Examples of viruses that spread without vectors in nature include BMV, TMV, CMV, cucumber yellow mosaic virus, and turnip mosaic virus.*

Keywords: *BMV, TMV, CMV virus, aphids, leafhoppers, thrips, whiteflies, mites, P. Necrovirus, P. Tombusvirus, grapevine A virus, P. Vitivirus, P. Nepovirus, P. Tritimovirus.*

Introduction.

The degree of spread of phytopathogenic viruses in nature varies depending on the host plant species and the type of virus. The presence of a rigid cellulose-based cell wall in the cells of flowering plants prevents the direct spread of viral infection. Therefore, virus infections in higher plants are referred to as "wound infections." The virus can only infect the plant cell through some kind of wound, entering the cytoplasm where it multiplies. A virus-infected plant becomes a permanent reservoir of the virus. Annual plants retain the infection only for one growing season, which explains the temporary persistence and renewal of the virus [4].

The most common mode of virus spread is propagation through vegetative organs. In this way, viruses are preserved in tubers, bulbs, root crops, etc. For example, several viruses of potatoes, lilies, onions, beets, carrots, and others. Viruses can also be transmitted through seeds. To date, more than 90 plant viruses have been identified to spread via seeds. In many cases, viruses of legumes and cucurbits, certain viruses of cereals, grapevine, and citrus fruits have been found to spread through seeds. Viruses may be located in the seed coat, endosperm, embryo, and some resistant viruses on the external surface of the seed. Chemical control is effective against external infection, while thermal methods are more effective against internal infection [1].

Virus transmission by contact has also been observed in nature. This mechanism is based on the fact that virus-containing sap released from an infected plant cell enters a wounded cell of a healthy plant and infects it. Such viruses spread without vectors. Examples include BMV, TMV, CMV, cucumber yellow mosaic virus, and turnip mosaic virus.

Many viruses spread from one plant to another with the help of insects. Currently, there are about 350 species of such insect vectors. Some viruses are transmitted by insects with chewing mouthparts. For example, BMV and CMV are transmitted by the walking legs and chewing mouthparts of insects; the S and M viruses in the Far East are transmitted by the potato tuber moth, and the cucurbit mosaic virus is transmitted by beetles of the Diabrotica genus. Insect vectors with piercing-sucking mouthparts, such as aphids, leafhoppers, thrips, whiteflies, and scale insects, play a significant role in the transmission of viruses. Depending on how these viruses are transmitted by insects, they are classified into three groups: nonpersistent, persistent, and semi-persistent. Leafhoppers (Homoptera: Cicadellidae) can also be considered active vectors of phytopathogenic viruses. Leafhoppers transmit viruses that accumulate in the phloem by persistent transmission [3,7].

Analysis of relevant literature:

The initial understanding of viruses was related to viral diseases in humans, such as smallpox. In the Netherlands in 1886 (some sources say 1882) [5], the German scientist Adolf Mayer observed mosaic symptoms in plants. His experiments were later confirmed in Crimea by the Russian scientist D.I. Ivanovsky in 1892, which laid the foundation for the science of virology [2,7].

The transmission of viruses through fungi of the genus *Olpidium* was discovered in 1960 by D. Teakle during studies of tobacco necrosis virus (P. Necrovirus). Zoospores of the fungus *Olpidium brassicae* attach to root hairs and grow inside root cells, introducing the virus into the plant cell. Viruses can survive for some time in their cysts, protecting them from adverse conditions. The virus does not reproduce in the fungal vegetative body. Through zoospores of *Olpidium*, tomato bushy stunt virus (P. Tombrusvirus), and through zoospores of *Polymyxa* and *Spongospora* genera, soil-borne wheat mosaic virus is transmitted. There is also information about the transmission of potato X and S viruses through *Synchitrium endobioticum* and *Spongospora solani* [4].

In special experiments by M.I. Goldin, it was shown that soil-borne viruses are released from infected organisms. A certain amount of virus passes into the solution from the roots of plants infected with TMV.

Several other factors affect virus spread in nature, including the pathogenicity of the virus, the susceptibility of the host plant to infection, and agrotechnical factors [8,4].

I.A. Kartashova, in her book *"Agricultural Phytovirology,"* briefly summarizes Vlasov's ideas on "natural foci" and classifies viruses into four groups by family, providing short descriptions of viruses in each group. The first group includes cucumber mosaic virus, shining head mosaic virus, chickpea mosaic virus, physalis virus, etc. The second group includes potato Y virus, cauliflower mosaic virus, and tomato yellow leaf curl virus. The third group includes TMV and potato X virus, noting their occurrence in cultivated plants (tobacco, tomato, pepper, potato) and wild plants (nettle, physalis, chicory). The seed transmission of TMV and tuber transmission of potato X virus demonstrate their stable circulation in agricultural plants [9,4].

The fourth group includes tobamoviruses such as cucumber mosaic virus (a strain called "xol-xolli") and potyviruses such as soybean mosaic virus. These viruses infect a narrow range of plants and spread through seeds, planting material, contact, or vectors [2].

Research Methodology.

It has been established that viruses in nature can also spread through whiteflies and nematodes. For example, the yellow mosaic virus of bean (R. Begamovirus) is transmitted by the whitefly *Bemisia tabaci* (Homoptera: Aleyrodidae), and the grapevine A-virus (P. Vitivirus) spreads through soil nematodes. Free-living nematodes are also among the vectors of phytoviruses. Viruses transmitted by nematodes include, for example, the ring spot virus of tobacco growing points (P. Nepovirus) [4, 10].

Spiders also play an important role in the spread of phytoviruses. It has been found that they transmit more than 10 types of viruses. For instance, wheat streak mosaic virus (P. Tritimovirus) is transmitted by mites and eriophyid mites such as *Aceria tulipae* and *Aceria tritici*. Mites localize in different parts of the plant at various stages of its development. For example, during the heading phase, mites are found on all leaves [6,10].

Discussion and conclusion.

We know that plants are important both for air purification and for providing food to the population in agriculture. Therefore, it is essential to study more deeply any factor causing changes in plants. Viruses are considered dangerous for humans, animals, and plants. They multiply inside cells and have the ability to completely control the hereditary characteristics of the cell. Based on the presented data and observations of the effect of viruses on the physiological state of plants, it has become clear that each plant requires individual study. This is of great importance in developing measures to combat the spread of phytopathogenic viruses.

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INTERCULTURAL COMMUNICATION IN THE PROCESS OF STUDYING RUSSIAN AS A FOREIGN LANGUAGE

Annotation: *This article explores the role of intercultural communication in the process of teaching Russian as a foreign language (RFL), with a specific focus on higher pedagogical education in Uzbekistan. Intercultural competence is an essential component of successful language acquisition, especially in the context of globalization and multicultural student groups. The paper investigates the interrelation between language and culture, highlighting how cultural awareness enhances linguistic competence. The study draws attention to the challenges that learners of Russian face when encountering culturally specific elements such as etiquette, verbal norms, and sociocultural references embedded in language structures. Practical recommendations for integrating intercultural content into the RFL curriculum are presented, aiming to improve learners' communicative efficiency and sociocultural adaptability. By analyzing theoretical perspectives and pedagogical approaches, the article underlines the necessity of incorporating intercultural competence as a core element of RFL instruction in contemporary pedagogical settings.*

Keywords: *intercultural communication, Russian as a foreign language, cultural competence, language teaching, pedagogical education, linguistic adaptation, sociocultural awareness.*

The process of learning Russian as a foreign language (RFL) extends far beyond mastering grammar rules and vocabulary. In today's globalized educational environment, students studying RFL are increasingly confronted with the need to understand not only linguistic structures but also the cultural codes that underpin effective communication. Intercultural communication, therefore, emerges as a central component in language acquisition, particularly within the pedagogical context of Uzbekistan, where the Russian language remains a significant medium of intercultural and academic exchange.

Intercultural communication refers to the interaction between people from different cultural backgrounds, and it involves more than language proficiency—it encompasses understanding values, norms, behaviors, and communication styles. For learners of RFL, this means navigating the cultural intricacies of Russian-speaking societies, which may significantly differ from their own native contexts. Misunderstandings may arise not due to linguistic errors but because of cultural misperceptions, nonverbal communication differences, or a lack of awareness of local social etiquette.

In pedagogical institutions in Uzbekistan, where Russian is often taught to students from diverse ethnic and linguistic backgrounds, the role of intercultural competence becomes especially prominent. Educators must equip learners not only with linguistic tools but also with cultural insights that promote successful communication in real-world settings. This involves a pedagogical shift from traditional grammar-centered instruction to integrative models that include cultural discourse, media analysis, cross-cultural dialogue, and reflective learning practices.

This article aims to examine how intercultural communication can be effectively integrated into the RFL learning process, the challenges that may arise in this context, and the methodologies that can facilitate the development of students' intercultural competence. The goal is to enhance the effectiveness of RFL instruction and support learners in becoming linguistically and culturally competent communicators.

The teaching of Russian as a foreign language (RFL) increasingly demands an interdisciplinary approach that combines linguistic instruction with elements of cultural education. Intercultural communication plays a vital role in shaping learners' understanding of how language functions within various sociocultural frameworks. In the context of Uzbekistan's pedagogical universities, where students often come from multilingual and multicultural backgrounds, this integrated approach becomes especially relevant.

Language is not only a means of conveying information but also a carrier of cultural meaning. Every language reflects the worldview, traditions, historical experience, and social behavior of its speakers. For students learning Russian, this means encountering not only new words and grammatical patterns but also a different way of thinking and interacting. For example, the use of formal and informal speech in Russian, governed by the distinction between "ты" and "вы," is deeply rooted in cultural perceptions of hierarchy, respect, and familiarity. Students unfamiliar with such norms may unintentionally violate social conventions, leading to communicative discomfort or misunderstanding.

One of the main challenges in teaching intercultural communication in RFL is overcoming ethnocentrism—the tendency to view one's own culture as the standard. Teachers must create an environment where students feel encouraged to explore cultural differences without judgment. This includes discussing topics such as national identity, values, rituals, body language, humor, and taboos, all of which influence communication in Russian-speaking societies.

Practical methods for incorporating intercultural content into RFL instruction include the use of authentic materials (films, news articles, interviews), role-playing exercises, cultural comparison tasks, and project-based learning. For instance, students can analyze dialogues from Russian films to observe how communication styles vary by region or social class. They may also be asked to compare how politeness is expressed in Russian and their native languages, thus developing critical awareness of cultural norms.

Another effective approach is to invite native speakers or culturally experienced guests to conduct seminars or conversation clubs. These sessions allow students to engage directly with different cultural perspectives, ask questions, and clarify misunderstandings in a supportive setting. Moreover, reflection journals can be used to help students internalize cultural insights and relate them to their personal experiences of language learning.

Teacher training programs must also evolve to include modules on intercultural competence. Instructors of RFL should be well-versed in both linguistic pedagogy and cultural mediation. They need tools to help students navigate sensitive topics, decode implicit cultural meanings, and foster respectful cross-cultural dialogue.

Assessment of intercultural competence in RFL can be conducted through oral presentations, discussions, and written reflections where students demonstrate their understanding of cultural contexts. Such evaluations should emphasize not only accuracy but also depth of cultural insight and openness to diverse viewpoints.

In sum, the development of intercultural communication skills is indispensable for learners of RFL. By understanding how culture influences language use, students can become more effective communicators and bridge cultural divides. For educators, this means designing courses that are not just about teaching a language but about preparing students for meaningful participation in a multilingual and multicultural world.

The integration of intercultural communication into the teaching of Russian as a foreign language is no longer optional—it is essential for ensuring the success of language learners in a globalized world. In the context of pedagogical universities in Uzbekistan, where students often come from diverse ethnic and linguistic backgrounds, the development of intercultural competence must be considered a fundamental educational goal alongside linguistic proficiency.

Through the study of cultural values, social norms, and communicative behaviors characteristic of Russian-speaking societies, students gain deeper insight into the practical use of the language. This knowledge enables them not only to avoid common communicative misunderstandings but also to participate more effectively in academic, professional, and informal interactions with native speakers. Moreover, intercultural communication fosters critical thinking, empathy, and the ability to navigate complex social contexts—all of which are vital for future educators and professionals.

The role of the teacher in this process is crucial. Language instructors must act as cultural mediators, guiding students through the nuances of cultural meaning and encouraging openness to difference. This requires appropriate methodological training, the use of diverse educational materials, and an emphasis on reflective and interactive learning. By embedding intercultural content into all stages of RFL instruction—from beginner to advanced levels—educators can promote a holistic learning experience that prepares students not just to speak Russian, but to live and interact meaningfully in a Russian-speaking environment.

Ultimately, intercultural communication enriches the language learning experience, deepens mutual understanding among cultures, and equips students with the tools to become confident and competent global citizens.

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ADVANCES IN MODERN METHODS OF TEACHING ENGLISH

Abstract. *This article examines the latest developments in foreign language teaching and linguistic research. Innovative teaching methods such as task-based learning, technology-assisted instruction, and intercultural communication training are revolutionizing language classrooms. Meanwhile, linguistic research is embracing interdisciplinary, data-driven, and socially conscious approaches. Fields like corpus linguistics, neurolinguistics, and computational linguistics are leading the way in uncovering the complexities of human language. Together, these trends point to a future where language education and research are more inclusive, interactive, and impactful.*

Keywords*: Foreign language teaching, linguistic research, technology integration, task-based learning, intercultural competence.*

The modern world has witnessed significant transformation in how languages are taught and researched. Globalization, rapid technological advancements, and evolving learner needs have all contributed to the shift in pedagogical and research paradigms in foreign language education and linguistics. Teaching methods that were once static and teacher-centered have now evolved into dynamic, student-oriented approaches that emphasize communication, cultural understanding, and technological integration. Simultaneously, linguistic research has moved beyond traditional theoretical models to embrace interdisciplinary, data-driven, and socially relevant inquiries. This article delves into the innovative teaching methodologies reshaping foreign language education and the cutting-edge approaches in linguistic research that reflect our ever-changing world.

Historically, the grammar-translation method dominated foreign language instruction. This approach emphasized rote memorization, syntactic rules, and direct translation between the target language and the native tongue. Although this method played a foundational role, it often neglected real-life communication and engagement. The communicative language teaching (CLT) approach emerged as a reaction to this limitation, prioritizing interaction and functional language use. In CLT, learners engage in authentic tasks such as role-playing, debates, and collaborative projects that mirror real-life communication. This method significantly boosts learners’ confidence and fluency by placing language in a contextual and meaningful framework.

Another breakthrough in language pedagogy is **task-based language teaching (TBLT)**, which focuses on using language as a tool to accomplish specific goals. Instead of teaching discrete grammar rules or vocabulary lists, TBLT uses real-world tasks such as planning a trip, writing an email, or creating a video presentation to develop linguistic competence. This learner-centered strategy fosters problem-solving, collaboration, and critical thinking skills while simultaneously improving language proficiency. One of the most impactful innovations in recent decades is **technology-assisted language learning (TALL)**. The integration of multimedia, mobile applications, virtual reality (VR), and artificial intelligence (AI) into the classroom has expanded access to immersive and personalized learning experiences. Language learners can now interact with native speakers through video conferencing, use language learning apps such as Duolingo or Babbel, and explore 3D environments using VR to practice conversations in simulated real-world settings. Furthermore, AI-powered chatbots and platforms like ChatGPT offer interactive conversations that mimic natural dialogues, allowing students to practice grammar, pronunciation, and vocabulary in a low-pressure, engaging environment.

Modern foreign language education emphasizes the importance of learner autonomy. Autonomy is cultivated when learners are encouraged to set their own goals, select learning resources, reflect on their progress, and take ownership of their learning process. Techniques such as flipped classrooms, project-based learning, and portfolio assessments allow students to be active participants rather than passive recipients of knowledge. Moreover, motivation plays a central role in the acquisition of a foreign language. The **Self-Determination Theory (SDT)**, introduced by Deci and Ryan, posits that intrinsic motivation—fueled by autonomy, competence, and relatedness—is critical to successful learning. Modern classrooms nurture this motivation by making learning meaningful, relevant, and socially connected. Teachers are no longer merely knowledge dispensers but facilitators who guide learners through engaging and context-rich activities. Gamification is another tool that has proven effective in boosting motivation. Language games, leaderboards, digital badges, and interactive quizzes introduce fun into the learning process while encouraging perseverance and active participation. These methods not only motivate learners but also improve memory retention and reduce anxiety, especially in oral communication tasks.

The contemporary approach to language instruction extends beyond grammar and vocabulary to encompass **intercultural competence**—the ability to understand, appreciate, and interact effectively with people from different cultures. In our globalized society, communicative competence is incomplete without cultural sensitivity and awareness. Educators now incorporate authentic materials such as films, news articles, songs, and podcasts to expose students to diverse cultural contexts. Cross-cultural projects, virtual exchanges, and collaborative online international learning (COIL) initiatives connect classrooms from different countries, promoting mutual understanding and collaborative learning. By engaging in these experiences, learners develop empathy, open-mindedness, and a deeper appreciation for linguistic and cultural diversity.

Linguistic research has undergone a paradigm shift from traditional theoretical frameworks, such as structuralism and generative grammar, toward more **empirical, interdisciplinary, and technology-driven methodologies**. Corpus linguistics is one of the most significant developments in this regard. Using large digital databases of authentic texts, researchers can now analyze language patterns, collocations, and discourse structures on a massive scale. These corpora provide invaluable insights into real language use, informing both pedagogical practices and theoretical models. Sociolinguistics and discourse analysis have gained prominence in recent decades. These fields explore how language varies and functions in social contexts, highlighting issues of identity, power, gender, and ideology. For example, critical discourse analysis (CDA) uncovers hidden power dynamics in political speeches, media discourse, and educational settings. These perspectives broaden our understanding of how language reflects and shapes society.

Neurolinguistics and **psycholinguistics** are other flourishing areas that intersect language with cognitive science and neuroscience. Using neuroimaging technologies like fMRI and EEG, researchers study how the brain processes language, acquires second languages, and recovers from language-related disorders. These findings not only enrich theoretical models but also inform language teaching strategies, especially for learners with specific needs. With the advent of AI and machine learning, computational linguistics has experienced unprecedented growth. From natural language processing (NLP) and machine translation to sentiment analysis and speech recognition, computational tools are transforming both linguistic research and practical applications. For instance, speech recognition technologies used in virtual assistants like Siri and Alexa rely on sophisticated linguistic algorithms that analyze phonetics, syntax, and semantics in real-time.

The future of language education and linguistic research is inherently tied to **technological innovation, global collaboration, and inclusivity**. Hybrid and online learning environments are expected to expand, especially after the COVID-19 pandemic revealed the potential and necessity of remote instruction. Teachers and institutions must invest in digital literacy, content creation, and pedagogical training to ensure quality education across diverse platforms. At the same time, linguistic research is increasingly concerned with **multilingualism, language preservation, and social justice**. Minority and endangered languages are now receiving attention, thanks to community-based participatory research and digital documentation initiatives. The intersection of language with issues such as gender equality, immigration, digital identity, and globalization underscores the relevance of linguistics in addressing contemporary social challenges. To maximize impact, scholars and educators must embrace **collaboration across disciplines**, leveraging insights from psychology, sociology, computer science, education, and anthropology. Integrating diverse perspectives will lead to a more holistic understanding of language as a dynamic, adaptive, and powerful human faculty.

The landscape of foreign language teaching and linguistic research has transformed dramatically in recent years, shaped by technological innovation, evolving learner needs, and the increasing interconnectedness of our global society. The shift from traditional, teacher-centered methods to dynamic, learner-driven approaches reflects a broader understanding of how language is best acquired—through meaningful interaction, real-world tasks, cultural immersion, and the strategic use of digital tools. Methods such as task-based learning, gamification, and AI-assisted platforms have made language learning more engaging, accessible, and effective. Simultaneously, modern linguistic research is embracing interdisciplinary methods and advanced technologies to explore language from cognitive, social, and computational perspectives. Fields such as corpus linguistics, neurolinguistics, and sociolinguistics are contributing valuable insights into how language functions, evolves, and reflects societal structures. These insights are not only advancing theoretical knowledge but also enriching classroom practices and language policy decisions.

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IMPLEMENTATION OF SOCIO-ECONOMIC REFORMS IN THE TURKESTAN ASSR UNDER THE LEADERSHIP OF NAZIR TURAQULOV

Abstract: *This article examines the contributions of Nazir Turaqulov, a prominent statesman and one of the key reformers of socio-economic and agrarian policies in Central Asia, during the early years of Soviet rule in the Turkestan Autonomous Soviet Socialist Republic. The study analyzes the role of N. Turaqulov in the implementation of land and water reforms, the transformation of rural social life, and the broader agrarian policies of the Soviet regime in Central Asia.*

Key words: *agriculture, agrarian policy, reform, Turkestan, land policy, socio-economic conditions, Turkestan Autonomous Republic.*

Introduction

Today, New Uzbekistan has secured its rightful place in the global community, and within the country, the foundations of a democratic system are being established alongside the formation of a civil society. Since gaining independence and sovereignty, Uzbekistan has undergone profound transformations, revealing the complex and multifaceted nature of building a new, democratic, and humanistic society. A glance at world history shows that every nation has advanced primarily through spiritual unity and a strong national ideology. In our country, which is currently on the path toward constructing a new life and joining the ranks of developed nations, the issue of national ideology holds paramount importance. It is evident that today the world is witnessing intense competition and confrontation of interests. The processes of globalization bring humanity unprecedented opportunities, yet they also generate unforeseen challenges. Threats to national identity and spiritual values are increasing. Attitudes of self-centeredness, a superficial approach to labor and family, and consumerist mindsets are being subtly imposed on people, particularly on the youth. As President of the Republic of Uzbekistan Shavkat Mirziyoyev rightly emphasized: “National history must be created with a national spirit. Otherwise, it will not have an educational impact”.

Literature review and methodology. The authors of works produced in the 1920s - N. Turaqulov, T. Ryskulov, and G. Safarov—were direct witnesses and participants in the historical events that took place between 1917 and 1924. In the second issue of the Voennaya Mysl journal, published in 1921, a piece titled “The Fergana Problem” (Ferganskaya problema) was published under the pseudonym “Darvish” by Nazir Turaqulov. In this article, the author analyzes the dire conditions in Fergana at the time, highlighting the harsh mistakes made by Soviet authorities in implementing food policies and exposing the tragic situation faced by the local population[1, 108–118].

In a pamphlet authored by G.I. Safarov, who was a member of the Turkestan Bureau (Turkbyuro) during this period, significant information is provided about the economic and political state of Turkestan, the establishment of Soviet power in the region, and its violent policies. The pamphlet also covers the overthrow of the Turkestan Autonomy government formed in Kokand and the subsequent armed resistance movement that arose in the valley. G.I. Safarov emphasized that the October Revolution in Turkestan was primarily carried out by the Russian population, while the local population remained largely uninvolved in these events [2, 184].

A report on the economic life of the Turkestan Republic, prepared by a group of specialists, holds significant importance in highlighting the economic issues of the Turkestan region [3]. This report presents crucial statistical and official data concerning various sectors of the national economy and living conditions of the population in the Turkestan region, particularly in the districts and cities of the Fergana Province.

Discussion and results. The transformations that took place in society during the 1920s were closely tied to the broader changes occurring in the social, economic, political, and cultural spheres of the time. Political developments during this period had a direct impact on various aspects of socio-economic life. Following the establishment of Soviet power in Turkestan [4, 334–340], the Bolshevik agrarian policy aimed to abolish private ownership of land and replace small peasant farms with collective agricultural enterprises [5, 278–287]. The Decree on Land, issued on October 26, 1917, stated: “In carrying out the great agrarian transformation, until a final decision is made by the Constituent Assembly, the following peasant mandates must serve as a guideline everywhere” [6, 35]. The peasant mandate declared: “The right to private ownership of land is permanently abolished; the sale, purchase, lease, mortgage, or any other form of transfer of land is strictly prohibited” [7, 114]. Following the nationalization of land, the economic conditions that enabled the expansion of large landholdings were eliminated. This measure aimed to reconstruct agriculture on a socialist basis. It involved restricting and eventually eliminating the rights of wealthy peasant households—referred to as “quloq”—and promoting the collectivization of individual peasant farms.

From the earliest days of the October Revolution in Uzbekistan, agrarian reforms began to be implemented. On November 8, 1917, the Decree on Land was published in “Nasha Gazeta”, the official organ of the Central Committee of the Turkestan Communist Party. Subsequently, on December 9, 1917, the People's Commissariat for Land Affairs in the Turkestan region issued a decision prohibiting land transactions, which was then put into practice. In the early years of Soviet rule, institutional reform of the agrarian sector was of decisive importance for the development and stabilization of Central Asia's economy and the social life of its population. In fact, in the initial period of reforms, as the influence of the landowning class grew, the Soviet authorities faced a critical challenge: strengthening the agricultural sector. As part of this effort, and under the leadership of Nazir Turaqulov—who held key positions in 1921–1922—a process was initiated by the Turkestan Communist Party to establish the "Qo'shchi" ("Olzorlar") Union, based on the participation of peasants. The goal of this organization was to socialize the countryside by uniting all working peasants into a single political and socio-economic body aimed at solving pressing rural issues. During his tenure in these positions, Nazir Turaqulov demonstrated loyalty to the Soviet government and the Bolshevik Party. However, he failed to adequately recognize the legitimacy of the Turkestan Autonomy Government and the independence movement in the Fergana Valley, ultimately supporting their suppression [8, 334–340]. Nazir Turaqulov frequently traveled to various provinces of the republic in an effort to understand the nature of the emerging challenges facing the new government. He actively participated in congresses, spoke at meetings, and held discussions with workers, Red Army soldiers, and peasants.

In the 1920s, with the establishment of Soviet power in Turkestan, Nazir Turaqulov stood at the forefront of socio-economic, cultural, and political reforms. During this period, large-scale land and water reforms were implemented in the region. The essence of these reforms lay in the nationalization of land and the organization of communal and state land users based on the redistribution of large private landholdings.

The process of land nationalization began in present-day Turkestan. The agrarian reforms implemented between 1917 and 1920 constituted the first stage of agrarian transformation in the region. The second stage commenced with the land and water reform of 1920–1922, which aimed to eliminate the consequences of the colonial land policies enforced by the Russian imperial government. For instance, in March 1919, two state farms (sovkhozes) were established in the Fergana Valley based on the expropriated estates of large landowners. In April of the same year, the first agricultural commune was formed. In total, 10 state farms were established in the region [9, 91].

Alongside large-scale changes in land use, the Soviet government also implemented water reform. Private irrigation enterprises in areas such as Khujand, Nau, and Digmay were nationalized. Water pumps and other irrigation infrastructure were primarily brought under state ownership. From that point forward, the distribution of water resources was managed by the rural poor. The regulation and oversight of water supply systems were carried out by the Councils of Workersand Soldiers Deputies as well as the Councils of National Economy.

From July 19 to October 22, 1920, Nazir Turaqulov served as Chairman of the Turkestan ASSR. During this period, he was closely involved in matters related to land and water reforms. Under his leadership, particular attention was given to issues concerning nomadic populations and their resettlement. At the plenary session of the Turkestan Regional Committee of the Communist Party held on February 23, 1920, the issue of land and water was comprehensively discussed. The resolution adopted at the session recommended that the Turkestan Central Executive Committee establish special commissions for each district where lands had been confiscated from nomads before the October Revolution. These commissions were tasked with defining land allotment norms for the resettled population, specifically for productive use. The Regional Committee regarded the primary objective of the next phase of land and water reform as equalizing land and water use rights between the Russian settlers and the indigenous local population by reallocating land exceeding the standard from the resettled populations to the native inhabitants. This principle became the legal foundation for all subsequent legislation related to land and water reform. Underlying this Communist policy was the intent to restrict the economic influence of the Russian "quloq" households and to bring the native population closer to the Soviet regime, thereby reinforcing Soviet authority at the local level.

In September 1920, the 5th Congress of the Turkestan Communist Party and the 9th Congress of Soviets of the Turkestan ASSR adopted specific resolutions regarding the implementation of land and water reform. Consequently, on December 14, 1920, the Turkestan Central Executive Committee approved the "Regulation on Land Management of Nomads, Settled Population Settlements, and Cossack Villages in the Turkestan ASSR." This document defined the procedures for land use and allocation. To determine the directions of the land reform, preparatory work was carried out at the end of 1920 and the beginning of 1921. Following this, provincial, district, and volost-level soviet congresses were held, where concrete tasks for implementing the reform were outlined. Additionally, numerous conferences, rallies, and meetings of working people were organized to address the upcoming reforms. Furthermore, territories for implementation were identified, "non-working" farming households were registered, and the fundamental principles for land redistribution were developed.

From May 1921 to June 1922, when Nazir Turaqulov served as Chairman of the Central Executive Committee of the Turkestan ASSR, he gave significant attention to issues related to peasant cooperatives alongside other matters concerning the structure of the state. He was directly involved in drafting legal documents regulating agrarian relations. Under his leadership, on March 15, 1922, the Central Executive Committee of the Turkestan ASSR adopted the "Regulation on the Peasants' Union (Qo'shchi)." Upon its ratification, the union was declared a professional-political organization representing the rural proletariat and semi-proletariat masses in villages and settlements [11, 90]. According to the regulation, the primary political goal of the "Qo'shchi" was to mobilize the poor for the construction of Soviet power and to combat all forms of oppression. Its immediate economic objectives included the unconditional implementation of the food and agricultural programs and the improvement of living standards for the working people. Notably, in a short period, the "Qo'shchi" union became the most widespread organization in Northern Turkestan. On June 20, 1923, the first district congress of the "Qo'shchi" was held in Khujand, attended by 100 delegates from all primary branches. The congress played a significant role in strengthening the union. Particular attention was paid to the development of cotton growing, as it contributed to increasing the market orientation of peasant farms. At the initiative of the union, wheat was supplied to every cotton farmer under preferential credit terms [4, 354] One of the key tools employed by the union to strengthen its position in the economy was private trade, which expanded significantly during the early years of the New Economic Policy. In the Samarkand region, nearly 10,000 permits were issued for trading agricultural and handicraft products. The freedom of trade allowed the more affluent strata of the population to exploit market conditions for their benefit. They took advantage of the food crisis by raising prices for bread and other goods, and by establishing or leasing trading enterprises.

Nazir Turaqulov understood the necessity of accounting for the lack of a working class in Turkestan during the development of agrarian reform mechanisms. The issue was that, at the outset of the reforms, not only had feudal relations remained intact in rural areas, but also the influence of local beys (landowners) and Muslim clergy over the peasant masses was still significant. Therefore, it was essential to pursue a more flexible and cautious policy regarding the peasantry in rural areas compared to the central regions of the country. A portion of the Turkestan party and Soviet workforce did not fully grasp the essence of the New Economic Policy (NEP). Turaqulov, on the other hand, was a professional economist for his time and consistently advocated for new ideas and initiatives. Moreover, he was very close to the people and possessed a deep understanding of the social problems between the wealthy and impoverished strata, the stratification of society, and the many subtle causes underlying these divisions.

Thus, taking into account numerous socio-economic factors, the region's post-war development was carried out primarily through small-scale peasant farming, despite the persistence of semi-feudal land relations and primitive agricultural technology. However, as the political situation in the region stabilized, the Soviet government began to exert more active influence on social processes. They pursued two main directions: 1) strengthening labor-based peasant farms while minimizing, as much as possible, the exploitation of workers by wealthy landowners; 2) gradually introducing new forms of agricultural organization. For instance, according to reforms implemented in the Konibodom district, 847 peasant households received land totaling approximately 979 desyatinas, while an additional 557 farming households were granted small land "supplements" from the remaining land fund. In total, 1,404 farming households were allocated land [12]. During the implementation of the land and water reform, large landowners—including Russian settlers and local beys—were dispossessed, and many were expelled from the district. As a result of the reform, both feudal and capitalist forms of landholding were abolished, and the land rights of local and Russian peasants were equalized, which carried significant political importance.

Between 1918 and 1920, the number of collective farms steadily increased due to state support. Starting from 1924, the Soviet government began preparatory work for implementing land and water reforms in Uzbek villages of Turkestan. From this period onward, the fragmentation of Turkestan began.

Conclusion. In conclusion, the initial experience of implementing the land and water reform was not without serious mistakes and significant costs. Nevertheless, it represented an important stage in dismantling the old land relations.

The reform held major political significance, as it equalized the land rights of the Russian and local populations, thereby eliminating another remnant of the colonial past. From the earliest days of Soviet rule in Turkestan, the struggle against the landowning class in the countryside began. From 1918 onward, the large landowners—primarily Russian colonialists—and wealthy elites had their lands and equipment confiscated. However, under the conditions of widespread armed resistance to the Soviet regime, this process could not be implemented on a wide scale. Overall, historical experience shows that the socio-economic consequences of the reforms carried out in the Central Asian regions during the early Soviet period were profound. These socio-economic reforms in Turkestan, particularly the land and water reform, were directly led by Nazir Turaqulov. His role as a reformer and initiator in establishing new governance and economic administration institutions during the most complex period of transition remains an invaluable legacy for the present and future generations of the peoples of Central Asia.

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POVERTY REDUCTION MEASURES IN TASHKENT REGION AND ISSUES OF THEIR IMPLEMENTATION

Abstract. *In this article, the problem of poverty in Tashkent region and its specific features are studied and analyzed. The article also elaborates priority directions for reducing poverty in the Tashkent region.*

Key words: *Poverty, government program, drip irrigation, geographical factors, socio-economic geographical factors, inflation, climate change, women's employment, entrepreneurship.*

Introduction.

According to the Decree of the President of the Republic of Uzbekistan on the Strategy "Uzbekistan - 2030" on the poverty reduction plan in the country, it is planned to reduce poverty by 2 times by 2026 compared to 2022, and by 2030 - by a significant amount. It is also planned to increase the income of 4.5 million people at risk of poverty. and to implement measures to train 500 thousand qualified specialists on the basis of social partnership. In accordance with the plan of the Strategy "Uzbekistan - 2030", measures to reduce poverty have been developed and are being implemented in the Tashkent region.

It is known that nowadays the problem of poverty is one of the most urgent problems not only in Uzbekistan, but also in the countries of the world. Because the better the economic and financial condition of the population of any country, the higher their ability to work and productivity. This, in turn, has a positive effect on the country's development. In particular, in recent years, serious attention has been paid to the issue of poverty in the Tashkent region. Reducing poverty in the region is closely related to the construction and development of infrastructure facilities in the cities and districts of the region.

Main part. In the structure of poverty, child poverty is singled out, and this is one of the main urgent problems today. In 2021-2023, the Center for Economic research and reforms together with UNICEF estimated the level of monetary poverty of children in Uzbekistan. In the research it was analyzed the impact of the social protection system on the level of poverty. According to studies, it was found that without social benefits, the level of child poverty in the country would increase 1.6 times.

The Center for Economic Research and Reforms, together with the United Nations Children's Fund office in Uzbekistan, assessed the level of poverty among children, as well as analyzed the effectiveness of the social protection system.

In 2021, 10,000 households participated in the survey, and in 2023, more than 16,000 families across the country were surveyed. In Uzbekistan, child poverty decreased by 7.8% in three years. According to the results, the child poverty rate decreased from 21.5 percent in 2021 to 13.7 percent in 2023. The trends in poverty reduction differ significantly between urban and rural areas. In particular, the poverty level of children in rural areas decreased from 24.6% to 14.5%, and in urban areas from 18% to 13%.

The research showed that the regions with the lowest level of child poverty are the Navoi region and Tashkent city, while the Syrdarya and Jizzakh regions have relatively high levels of child poverty. In Tashkent region, it has an average level. The observations show that in recent years, the level of child poverty has also been observed in the Tashkent region. The reforms carried out in the region have a positive effect on this.

In general, this analysis makes it possible to assess the effectiveness and feasibility of the social protection system, to identify its advantages and disadvantages, as well as to propose measures for its improvement in order to ensure equal use of social benefits and reduce the level of poverty in society.

Thus, Uzbekistan is trying to eliminate poverty in all its forms by 2030, the first goal of sustainable development. In this regard, active and continuous work is being carried out in all districts of Tashkent region based on a predetermined plan.

The Decree of the President of the Republic of Uzbekistan № 4804 dated 11.08.2020 aimed at attracting poor and unemployed citizens to entrepreneurship, increasing their labor activity and vocational training, and additional measures to ensure employment of the population. The effective work on reducing poverty is being carried out in Tashkent region on the basis of the tasks and measures defined. In order to reduce poverty in the Tashkent region and improve the living conditions of the population by providing employment, it is necessary to pay special attention to the following issues:

According to the natural-geographic direction:

- Implementation of work to prevent its negative consequences in the region under the conditions of global climate change. It should be approached with the feeling that it is the most serious problem facing humanity. According to the results of scientific research, we know that climate change affects all areas of human life and requires immediate measures to prevent the negative consequences of climate change and adapt to new living conditions. Therefore, in order to combat climate warming in the region and its negative impact on poverty, it is necessary to organize scientific research, to study foreign experiences and to apply them effectively and in accordance with the natural geographical conditions of the region. Moreover, it is necessary to speed up work on adaptation to climate change in the region. In this regard, it is necessary to consider the integration into the national plan for adaptation to climate change in Uzbekistan.

- Introduction of drip irrigation technology in cultivated fields is being promoted based on the principle of drip irrigation savings factor. However, it can be said that the work in this regard is unsatisfactory. Taking into account the natural conditions of the region and the rapid development of the climate change process, it is required to increase the drip irrigation technology to 70-80%. In view of the depletion of water resources, to fully switch to drip irrigation and other innovative irrigation systems in agriculture to save water, and increase the use of mechanisms to encourage it;
- Soil degradation is a set of processes that lead to a change in the function of the soil, a deterioration of the quantitative and qualitative indicators of its properties, and a decrease in productivity, that is, under the influence of natural and anthropogenic factors, the elements are stable in the ecological system. Deterioration of the properties of flour, a decrease in its price from an economic point of view, and a decrease in efficiency. This can reduce the fertility of the land and reduce the yield of agricultural crops or not yield at all. For this reason, improving land reclamation conditions, providing local fertilizers, organizing irrigation. Implementation of measures to reduce and eliminate water erosion, which is one of the factors causing the process of soil degradation;
- As a result of long-term use in the region, as a result of the exhaustion of the land, the yield of crops is sharply reduced. It is necessary to carry out land restoration works and use advanced and new techniques and technologies. Otherwise, the area of such land in the region may increase from year to year. This, in turn, sharply lowers the standard of living of the villagers;

According to economic-geographic direction:

- To increase the employment of the population through the construction of new service facilities and the reconstruction of the existing ones, increasing the types of services in the social sphere in the settlements;
- Reducing the level of poverty in exchange for further increasing the level of urbanization in the region. For this purpose, by giving the city status to all district centers, building new cities and towns, improving the infrastructure of existing cities and towns, improving the living conditions of the population and improving their financial situation;
- To increase the employment and quality of life of the population based on the improvement of social and production infrastructure in settlements located far from the district center;

- By diversifying industry and agriculture, launching new industries and thereby providing employment to the unemployed population and increasing their income;
- The construction industry is one of the areas with great potential for maintaining economic stability, and the full implementation of foreign experience in the further development of this area;
- To increase the production of import-substituting products, to increase the number of new jobs and to develop a system of "economy without imports";
- The development of measures for effective use of farms and residential estates, systematic organization of crop planting, and increase in the volume of production, and increase the volume of preferential loans to them;
- Using all available opportunities to increase exports while fully satisfying domestic demand in the region and moving to the principle "Each enterprise must export its products"
- To increase the volume of production by 10 times, paying great attention to sectors such as beekeeping, ostrich breeding, and cocoon breeding, to fully utilize the opportunities in forestry
- The development of industries based on local opportunities in rural settlements;
- The development of the regional infrastructure - to speed up the delivery of goods from one place to another, to increase the mobility of people. At the same time, providing people with drinking water and electricity, with the wide use of green technologies. These, in turn, serve to get a high income for the population;
- To scientifically study the best practices of developed countries to reduce poverty in the region, including the experience of China, and to develop prospects for its application in the region;
- The creation of conditions for non-stop supply of regions with guaranteed electricity due to reconstruction of existing enterprises providing electricity, construction of new ones and gradual transition to the use of solar batteries;
- The improving the system of providing medical services to the population, increasing their medical culture;
- To further improve the quality and content of the educational system in educational organizations, to strengthen the material and technical base of local educational institutions. Accelerating vocational training of the population, especially young people, and allocating enough funds from the state for this every year. In this regard, if entrepreneurs operating in the region prepare a specialist for themselves, launch a mechanism of state support for such entrepreneurs.
- Further development of measures aimed at providing employment, education, vocational training, career orientation of women in the province and thereby increasing their financial capabilities;
- attracting unemployed citizens to temporary or permanent activities in areas of high demand during the crisis;

According to the economic direction:

- increasing the share of services in the gross domestic product by attracting foreign investments in the development of all service areas, including insurance, consulting, engineering, auditing, evaluation services;

- in improving the regional structure of the service networks of the region, taking into account the specific features of the historically established system in the regions, the specialization of services, ensuring the proximity of the service facilities to the places of residence of the population and increasing their types, as well as to the population to improve the provision of social and household services, to create favorable conditions for them to live happily and relax;

- revitalizing promotional activities and providing them with business consulting services for the purpose of forming entrepreneurial skills among the population;

- the development of a system of social security guarantees, including unemployment insurance and workers' compensation;

- to strengthen promotion and support of entrepreneurship among the population as the most effective way to reduce poverty in the region;

- increasing the production of exportable products based on the support of small business and private entrepreneurship through the allocation of preferential loans in foreign and national currency. Directing loans provided by the bank to the purchase of the most modern equipment and technologies that enable the production of high-quality and competitive products;

- speeding up the implementation of the "20 thousand entrepreneurs - 500 thousand qualified specialists" program in the region, developed at the initiative of President Sh.M. Mirziyoyev. Participation in the program is voluntary. A total of $1 billion will be allocated to the program in 2023-2024. Based on these funds, the entrepreneur will be given a loan at a lower interest rate and for a longer period of time, depending on the fact that he will train a member of a poor family in a profession and make him work. The entrepreneur's costs of organizing and equipping a "practical monocenter" and vocational training will be fully covered.

The entrepreneurs participating in the program are given special tax benefits. In particular, if at least 20 percent of poor family members are employed for a year, they will be exempt from property and land taxes. The social tax rate will be reduced by 2 times for entrepreneurs who pay up to 5 million soums. A poor family member is also exempted from income tax.

- the implementation of the Islamic financial system and thereby increasing business entities and new jobs;

- providing comprehensive support to small business entities and increasing their share in the gross domestic product from 54% to 65-70%;

- to increase the number of free economic zones in the region (currently 4 are operating) to 10 in order to increase economic stability.The effective use of existing economic opportunities and resources through the establishment of free economic zones, especially in the fields of education, medicine, logistics, service provision.

Conclusion. It should be noted that poverty reduction is one of the most important issues in the current world economic and financial problems. Among them, effective measures to reduce poverty in Tashkent region were implemented, priority directions aimed at reducing it were developed and its improvement was aimed at the goal.

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O‘ZBEKISTONDA BANK TIZIMI: RIVOJLANISH YO‘LI VA ISTIQBOLLARI

Annotatsiya: *O‘zbekistonda bank tizimi mamlakat iqtisodiyotining rivojlanishida muhim rol o‘ynaydi. So‘nggi yillarda amalga oshirilgan islohotlar banklar faoliyatini liberallashtirish, moliyaviy xizmatlar sifatini oshirish va investitsiya muhitini yaxshilashga qaratilgan. Ushbu maqolada O‘zbekistonda bank tizimining rivojlanish tarixi, hozirgi holati va istiqbollari tahlil qilinadi.*

Kalit so‘zlar:*O‘zbekiston, bank tizimi, moliyaviy islohotlar, investitsiya muhiti, tijorat banklari, Markaziy bank, kredit siyosati*

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BANKING SYSTEM IN UZBEKISTAN: DEVELOPMENT PATH AND PROSPECTS

Annotation: *the banking system in Uzbekistan plays an important role in the development of the country's economy. Reforms in recent years have focused on liberalizing banking, improving the quality of financial services, and improving the investment climate. This article analyzes the history, current state and prospects of the development of the banking system in Uzbekistan.*

Keywords: *Uzbekistan, banking system, financial reform, investment environment, commercial banks, central bank, credit policy*

O‘zbekistonda bank tizimi va uning tuzilishi. Bugungi kunda O‘zbekistonda ikki pog‘onali bank tizimi shakllangan:

Birinchi pog‘ona – O‘zbekiston Respublikasi Markaziy banki, pul-kredit siyosatini yurituvchi va bank sektorini tartibga soluvchi asosiy tashkilot.

Ikkinchi pog‘ona – tijorat banklari, ular jismoniy va yuridik shaxslar bilan to‘g‘ridan-to‘g‘ri moliyaviy operatsiyalarni amalga oshiradi.

O‘zbekistonda bank tizimi mamlakat mustaqillikka erishganidan so‘ng shakllana boshladi. 1991 yilda qabul qilingan “Banklar va bank faoliyati to‘g‘risida”gi qonun asosida milliy bank tizimi mustahkamlandi. Dastlab, davlat banklarining ustunligi kuzatilgan bo‘lsa, keyingi bosqichlarda xususiy va chet el kapitali ishtirokidagi banklar ham faoliyat yurita boshladi.

Bank tizimining tuzilmasi: O‘zbekistonda bank tizimi ikki darajali: birinchi daraja – O‘zbekiston Respublikasi Markaziy banki, ikkinchi daraja – tijorat banklari. Markaziy bank pul-kredit siyosatini amalga oshiradi, banklarning faoliyatini nazorat qiladi va tartibga soladi. Tijorat banklari esa mijozlarga kreditlar berish, depozitlarni qabul qilish va boshqa moliyaviy xizmatlarni ko‘rsatish bilan shug'ullanadi.

ISLOHOTLAR VA RIVOJLANISH:

2017 yildan boshlab, O‘zbekistonda moliyaviy sektorni isloh qilish bo‘yicha keng qamrovli dasturlar amalga oshirildi. Banklarning kapitallashuvi oshirildi, xorijiy investorlarga imkoniyatlar yaratildi, raqamli texnologiyalar joriy qilindi. Chet el banklarining O‘zbekistonda filiallari ochilishiga ruxsat berildi. Natijada, bank tizimining raqobatbardoshligi va xizmatlar sifati oshdi.

Tijorat banklari orasida Milliy bank, Ipoteka-bank, Asakabank, Agrobank, shuningdek, xususiy banklar – Hamkorbank, Kapitalbank, TBC Bank kabi muhim rol o‘ynovchi moliya institutlari faoliyat yuritmoqda. 2024-yil yakunlariga ko‘ra, mamlakatda 30 dan ortiq bank faoliyat olib bormoqda.

MUAMMOLAR VA ISTIQBOLLAR:

Hozirgi vaqtda bank tizimi hali ham ba’zi qiyinchiliklarga duch kelmoqda. Kredit portfelining sifatini yaxshilash, korporativ boshqaruvni kuchaytirish va moliyaviy savodxonlikni oshirish muhim vazifalar sifatida turibdi. Kelajakda, O‘zbekistonda bank tizimining barqarorligi va integratsiyasi xalqaro moliyaviy bozorga yanada kuchayishi kutilmoqda.

Xususiylashtirish dasturi doirasida bir qator davlat banklarini xususiy sektorga o‘tkazish ishlari boshlangan.

Xorijiy investitsiyalarni jalb qilish siyosati natijasida Vengriyaning OTP Group kompaniyasi Ipoteka-bankning nazorat paketini sotib oldi.

Fintech va raqamli xizmatlar sohasida ulkan yutuqlarga erishildi. Click, Payme, Apelsin kabi raqamli to‘lov tizimlari millionlab mijozlarga xizmat ko‘rsatmoqda.

Moliyaviy inklyuzivlikni oshirish va aholining moliyaviy savodxonligini rivojlantirish maqsadida banklar masofaviy xizmat turlarini keng joriy etmoqda. Onlayn hisob ochish, masofadan turib kredit rasmiylashtirish imkoniyatlari tobora kengaymoqda.

Shunga qaramay, O‘zbekistonda bank tizimi oldida bir qator muhim vazifalar turibdi:

Banklararo raqobat hali yetarlicha rivojlanmagan.

Kredit portfellarining sifati va kreditlash standartlarini yaxshilash zarur.

Aholining moliyaviy savodxonligi past darajada qolmoqda, bu esa bank xizmatlaridan samarali foydalanishga to‘sqinlik qilmoqda.

Kelgusida bank sektorini yanada raqamlashtirish, xalqaro standartlarga mos kredit siyosatini joriy qilish va kichik hamda o‘rta biznesni moliyalashtirish mexanizmlarini takomillashtirish ustuvor yo‘nalishlar sifatida belgilangan.

Xulosa:

O‘zbekistonda bank tizimi mustaqillik yillarida sezilarli darajada rivojlandi. Islohotlar natijasida tizim zamonaviy talab va ehtiyojlarga mos ravishda shakllanmoqda. Yaqin yillarda bank sektorining raqamlashtirilishi, ochiqligi va jahon moliyaviy bozorlariga integratsiyalashuvi asosiy yo‘nalishlar bo‘lib qoladi.

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MOVAROUNNAHRDA MARKAZLASHGAN DAVLAT QAROR TOPISH JARAYONIDA SIYOSIY ELITA TARKIBI NIZOMIDDIN SHOMIYNING "ZAFARNOMA" ASARI MISOLIDA

Annotatsiya: *Ushbu maqolada XIV asrning 70-yillaridagi Movarounnnahrning siyosiy siyosiy vaziyatga ta'sir ko'rsatgan siyosiy qatlam vakillari, ularning ushbu jarayonlarga munosabatlari hamda ushbu voqealarda ishtirok etgan elita qatlamning kelib chiqishiga qisman e'tibor qaratilgan.*

Kalit so'zlar: *barlos, qabila, yasavuriy, amir Xudoydod, amir Uljoytu, Tilonchi orlot, Shayx Muhammad sulduz, siyosiy elita, orlot.*

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THE COMPOSITION OF THE POLITICAL ELITE IN THE PROCESS OF FINDING A CENTRALIZED STATE DECISION IN MOVAROUNNAHR IS BASED ON THE EXAMPLE OF NIZAMIDDIN SHAMI'S WORK "VICTORY"

Abstract: *This article partially focuses on the representatives of the political class who influenced the political situation of Movarounnnahr in the 70s of the XIV century, their relationship to these processes, and the origin of the elite class that participated in these events.*

Key words: *Barlos, tribe, Yasavuri, Amir Khudoidad, Amir Uljoytu, Tilonchi orlot, Sheikh Muhammad sulduz, political elite, orlot.*

Amir Temur Movarounnahrda hokimiyatni qo'lga kiritish arafasida amir Husayn bilan o'rtasidagi munosabatlar yanada keskin tus ola boshlaydi. O'sha davr muarrixlarining asarlarida bayon qilinishicha, Amir Temurning amirlaridan Muayyid mast holatda Jovurchi bekning o'g'lini o'ldirib qo'yadi. Amir Husayn esa

Amir Temurdan amir Muayyidning haramini Balxga keltirilishni talab qiladi. Nizomiddin Shomiy Amir Temur amir Muso bilan kegashib, amir Husaynga qarshi yurishga qaror qilishgaligini, Amir Dovud va amir Choku kabi davlat amirlari va no‘yonlari Amir Temur bilan yakdil bo‘lishganligini, Husaynbek, Amir Hoji Sayfuddin, Abbos bahodir, O‘q Bug‘o bahodir, Shayx Ali bahodir, Davlatshoh baxshi va Elchi bahodirlar ularga bo‘ysunganligini qayd etgan **[1: 78]**.

Shuningdek, Nizomiddin Shomiy Amir Temur qo‘shin to‘plab Balxga yurishi arafasida Shayx Muhammadni Xo‘jand tomon qochganligini, daryodan o‘tib O‘trorga yetganda uni tutib keltirish uni tutib keltirish uchun amir Hinduni yuborganligi bayon etilgan **[1: 78]**. 1370-yil Amir Temur amir Husyanga qarshi yurish boshlaganda Movarounnahr va Xurosonning yirik amir hamda beklari uning qo‘shiniga kelib qo‘shila boshlaganligini ko‘rishimiz mumkin. Nizomiddin Shomiy Amir Temur Badaxshon shohiga elchi yuborib, lashkar so‘raganligi, Amir Husayn Uljoytuni Qunduzdan haydaganligi, bu davrda amir Uljoytu va Badaxshon shohi Shayx Muhammad barcha tobelari va lashkari bilan Xulm mavzeyida ekanligi, ular Amir Sohibqoronga kelib uchrashganligini bayon etgan **[1: 79]**. Amir Temurning amir Husaynga qarshi yurishida Suyurg‘atmish o‘g‘lon, Muayyidbek va Husayn barloslarni oldinroq yuborgan. Shuningdek, ushbu jangda Oqtemur bahodir, Xitoy bahodir, Shayx Ali bahodir, Abbos bahodirlar hamda Amir Temurning 16 yoshli o‘g‘li amirzoda Umarshayxlar amir Husaynga qarshi mislisiz jasoratlar ko‘rsatganliklarini o‘sha davr tarixchilari asarlarida batafsil bayon etilgan. Amir Temur asosiy raqibi amir Husaynga qarshi kurashi davrida hamda hokimiyatni qo‘lga kiritgan datlabki yillarda Chig‘atoy ulusining ko‘plab amirlari uni hukmdor sifatida tan olmaslikka va uning markazlashgan davlat tuzishga qaratilgan sa’y-harakatlarini yo‘qqa chiqarishga urinib ko‘rdilar. Bunday yirik amirlar qatoriga Amir Muso, Zinda Chashm va amir Kayxisrav va boshqalarni kiritish mumkin. Bu amirlar Amir Temur hokimiyatini nomigagina tan olib, imkon topilganda mustaqillikka erishishga intilganlar. Amir Temur Movarounnahrda markazlashgan davlat qaror toptirish jarayonida avvalo, ichki g‘animlarga qarshi keskin kurash olib borganligini ko‘rishimiz mumkin.

Amir Temur siyosiy faoliyati boshlanishi arafasida quyida nomlari zikr etilgan amirlar bir necha bor Sohibqironga qarshi fitnalarni tashkil etganligini yoki xiyonatlar qilganligini lekin har safar taqdiri ilohiy sabab ushbu xiyonat yoki fitnalar amalga oshmaganligini ko‘rishimiz mumkin. E’tiborli jihati shundaki, o‘sha davr muarrixlarining keltirgan ma’lumotlariga ko‘ra, Amir Temur keng fellik hamda oliyjanoblik bilan o‘ziga qarshi amalaga oshirilgan fitna va xiyonat ishtirokchilari bo‘lgan amir yoki beklarni ko‘p holatlarda avf etganligini, turli tortiq yoki hadyalar bilan ularni ko‘nglini olganligini govohi bo‘lishimiz mumkin. Ana shunday xiyonatkor amirlardan biri amir Muso hisoblanadi.

Amir Temur Balx shahrini egallagandan so‘ng amir Muso Turkistonga jo‘nab ketdi. Nizomiddin Shomiy asarida, “Amir Temur unga qarshi amir Jokuni yuborganligi, u amir Musoga yetib olib, jang qilganligini, shundan keyin, amir Muso yaylov va tog‘li hududlarda sargardon yurganligi, ikkinchi marta esa amir Qarlug‘oj uning ketidan yo‘lga tushganligi, ularni orasini ko‘rib, amir Muso ikki harami bilan Shiburg‘onga Zindachashm oldiga borganligi va uni dushman qilganligi” ketirilgan **[1: 85]**.

Shuningdek, Amir Temur markazlashgan davlat qaror toptirish jarayonida yuqorida ta’kidlanganidek, kelib chiqishi apardiylardan bo‘lgan, Muhammad Hoji apardiyning o‘g‘li Zindachashm ham bir necha bor xiyonatkororna harakatlarni amalga oshirganligini haqida o‘sha davr muarrixi hisoblangan Nizomiddin Shomiy asarida batafsil ma’lumotlarni ketirib o‘tishgan. Jumladan, Nizomiddin Shomiy esa amir Muhammadni Zindachashmning katta akasi ekanligi to‘g‘risida fikr bildirgan **[1: 85]**.

Nizomiddin Shomiy amir Zimdachashmni Termiz xonzodasi bilan xiyonatini o‘z asarida atroflicha bayon qilgan. Amir Temur Movarounnahrda o‘z hokimiyati ancha mustahkamlab, nisbatan barqarorlikni ta’minlagandan so‘ng, shimoli-sharqiy hududlarni mustahkamlash maqsadida 1371-yilda Mo‘g‘ulistonga o‘zining birinchi yurishini boshlaydi. Nizomiddin Shomiy o’z asarida ushbu yurishlar 1371-1372-yillarda bo‘lganligini, natijada O‘rung Temur itoat etganligini qayd etadi **[1: 88]**. Ushbu yurishlar davrida Amir Temur o‘zidan yordam so‘rab kelgan Kepak Temurni ushbu hududlarga qo‘yib, o‘zi ortga qaytadi. Tez orada Kepak Temur Amir Temurga qarshi isyon ko‘targanida amir Sohibqiron unga qarshi Xo‘jand hokimi amir Bahrom jaloyirni, Abbos Bahodir, Shayx Ali Bahodir hamda Xitoy Bahodirlar bilan birga jo‘natadi. Ushbu yurishlarda jaloyir qavmi vakillari Tezakchi jaloyir boshchiligida isyon tashkil qilishadi hamda Kepak Temur tomonga o‘tib ketishga qaror qilishadi. Yakunda esa Xitoychi Bahodir va Shayx Ali Bahodirlar janglarda qahramonliklar ko‘rsarishgandan so‘ng, Kebek Temur ular bilan sulh tuzishga majbur bo‘ladi. Yuqoridagi voqealar haqida Nizomiddin Shomiy asarida batafsil ma’lumotlar ketirib o‘tilgan. Lekin ushbu yurishlar ko‘ngildagidek muvaffaqiyat keltirmaganidan keyin Amir Temur ikkinchi bor o‘zi yurish qilishga qaror qiladi. Aynan shu ikkinchi yurish davrida Qarosmon mavzeyiga yetganda Amir Temurning amirlaridan amir Muso, amir Ishoq, Shayx Abulays va amir Zindachashmlar fitna tayyorlaganliklari hamda ushbu harakat fosh bo‘lganligini ko‘rishimiz mumkin. Nizomiddin Shomiy fitna ishtirokchisi Xizr Yasavuriyning o‘g‘lini amir Sayfuddinbek Amir Temurdan gunohini so‘raganligini keltirib o‘tgan **[1: 89]**. XIV asrning 70-yillarida Amir Temur dastlab Movarounnahrda o‘zining siyosiy hokimiyatini mustahkamladi. Keyin esa, Movarounnahrning sharqiy chegaralari xavfsizligini mustahkamlash maqsadida Jeta qo‘shinlariga qarshi kurashni amalga oshiradi. Ushbu hududlarda nisbatan osoyishtalikni ta’minlagach, sohibqiron endigi e’tiborini Xorazmga qaratadi. Bizga tarixdan ma’lumki, chingizxon Urganch qamalini dastlab o‘g‘li Chig‘atoyga topshirgan. Lekin u yetarli darajada movafaqqiyatga erisha olmagach, to‘ng‘ich o‘g‘li Jo‘jini ham ushbu ishga safarbar etadi. Xorazm davlati Chingizxon tomonidan egallangandan keyin, o‘z mamlakati hududlarini uluslarga taqsimlashda Xorazm yerlarini ikki qismga ajratib, uning bir qismini Jo‘ji ulusiga, ikkinchi qismini esa Chig‘atoy ulusiga in’om etadi. Jo‘ji hamda Chig‘atoy uluslarida boshqaruv zaiflashib, siyosiy parokandalik hukm surgan davrlarda Xorazmni qo‘ng‘irot urug‘idan bo‘lgan Husayn So‘fi o‘z hokimiyati ostida birlashtirib, Chig‘atoy ulusi tarkibida bo‘lgan Xiva hamda Kat shaharlari ustidan nazorat o‘rnatishga muvaffaq bo‘ladi. Amir Temur Movorounnhrda siyosiy barqarorlikni ta’minlagadan so‘ng hamda sharqiy hududlarda nisbatan osoyishtalikni qaror toptirganidan keyin, Xiva va Kat shaharlariga da’vo qilib, dastlab Xorazmga bir necha bor o‘z elchilarini yuboradi.

Yuqorida ta’kidlangan voqealar sabab Amir Temur Xorazmga yurish qilishga qaror qiladi. Amir Temurning Xorazmga birinchi bor hujumini Nizomiddiy Shomiy 1372-1373-yillarda amalga oshirganligini bayon qilgan **[1: 90]**. Nizomiddin Shomiy asarida Amir Temurning Xorazmga birinchi yurishida Ko‘cha Malik, Xumori yasovul, Mubashshir, Toxoja, Shayx Ali Bahodir, amir G‘iyosiddin tarxon, Yusufshoh Xoja, amir Tumon, Kayxusrav Xatloniy, Abochi, Sori Bug‘o, Jig‘ortu, amir Muayyid, Xitoy Bahodir, Oq Temur, Elchi Bahodir, Shayx Muhammad kabi amir hamda beklar ishtiroki keltirib o‘tilgan. Xususan, Kat shahri hujumida Ko‘cha Malik, Xumori yasovul, Mubashshir, Toxoja, Shayx Ali Bahodirlar ishtirok etganligi, amir G‘iyosiddin tarxon, Yusufshoh Xoja, amir Tumonilar esa Jo‘yi Gurlonda Menglixoja va Keshik boshliq Xorazm qo‘shinlai bilan jang qilganligi keltirilgan. Shuningdek, Jo‘yi Qovun suvi yaqinida Abochi, Sori Bug‘o, Jig‘ortu kabi amirlar suvdan o‘tib dushman bilan kurashganliklari, amir Muayyid, Xitoy Bahodir, Oq Temur, Elchi Bahodir, Shayx Muhammad ham mardonavor kurashganliklari ta’kidlangan. Elchi Bahodir esa suvdan o‘ta olmay vafot etganligi bayon etilgan **[1: 89-92]**.

Shuningdek, o‘sha davr muarrixlari o‘z asarlarida Amir Temurning Xorazmga dastlabki yurishi davrida Kayxusrav Xuttaloniy sohibqironga xiyonat qilganligi haqida yetarli darajada ma’lumotlarni keltirib o‘tganlar. Nizomiddin Shomiy o‘z asarida yetarlicha ma’lumotlarni bayon etganlar.

Nizomiddin Shomiyning asarda “turk yo‘lbars yiliga to‘g‘ri kelgan 776 yilda (1374-1375) Amir sohibqiron amir Dovud, Yodgor barlos va Uzun Uljoytularni podshohona hadyalar, malikona nodir buyumlar bilan Xorazmga yuborgani hamda ularga oily nasabli Xonzodani Samarqandga olib kelish topshirilganligi” haiqda qayd etilgan **[1: 93]**.

XIV asrning 70-yillarida Amir Temur Movarounnahrda markazlashgan davlat qaror toptirish jarayonida Mo‘g‘uliston hukmdori Qamariddinga **[1: 421]** qarshi amalga oshirgan yurishlari hamda Oltin O‘rda taxti uchun To‘xtamishxonga bergan yordamlari va bu jarayonlarda ishtirok etgan siyosiy elita vakillari ham muhim ahamiyat kasb etadi. Nizomiddin Shomiy o‘z asarida Amir Temurning Mo‘g‘uliston hukmdori Qamariddin va Oltin O‘rda taxti uchun To‘xtamishxonga bergan yordami haqida batafsil ma’lumot keltirilgan. Nizomiddin Shomiy o‘z asarida ushbu yurish 1375-yil 26-dekabrda boshlanganligini, lekin qish qattiq kelganligi sababli Samarqandga qaytishga majbur bo‘lganligini, ikki oydan keyin 1376-yil fevralda yana qaytadan yurish tashkillaganligini bayon qilgan. Shuningdek, Nizomiddin Shomiy dastlabki yurishda Amir Temur qo‘shinga Amirzoda Jahongirni mang‘loy etib tayinlaganligi, Shayx Muhammad hamda Odilshohni birga jo‘natganligini ta’kidlagan. Shuningdek, Shomiy asarida amir Dovud, Uch Qaro Bahodir kabi amirlar ham ishtirok etganligi keltirib o‘tgan **[1: 94]**.

Amir Temurning Xorazmga uchinchi marta yurishini Nizomiddin Shomiy 1377-yil mart oyida boshlanganligini bayon etgan. Garchi Nizomiddin Shomiy Yazdiy singari Amir Temurning Xorazmga uchinchi yurishi haqida keng ma'lumotlarni keltirib o'tgan bo'lsa-da, Yazdiy asarida uchramaydigan faktik ma'umotlar mavjudlgini ko'rishimiz mumkin. Jumladan, Shomiy asarida Turkon arlotning birodarini Turmish ekanligini bayon etgan **[1: 97]**.

Yuqorida ta'kidlaganimizdek, 1375-yilda Xo'jand hokimi Odilshoh jaloyir hamda bir guruh amirlarning Amir Temurga qarshi amalga oshirgan suiqasdi amalga oshmagach, 1376-yil Xo'jand hokimi Odilshoh jaloyir, Andijon dorug'asi amir Hamid hamda Sari Bug'alar Amir Temurning Xorazmga qarshi yurishda ekanligidan foydalanib, Samarqandga hujum qiladilar. Natijada esa amir sohibqiron isyonni bostirib, ularning mulklarini tortib oladi. Isyonchilar dastlab Oq O'rdaga, keyin esa Mo'g'ulistonga qochib borib, Qamariddinni Farg'onaga hujum qilishga undaydilar. Bu holat Amir Temurni yana Mo'g'ulistonga qarshi yurish qilishga majbur qiladi. Nizomiddin Shomiy Amir Temurning ushbu yurishi haqida kengroq ma'lumotlarni keltirib o'tganlar. Xususan, Nizomiddin Shomiy o'z asarida Qamariddinning Andijonga bostirib kelishiga sabab keltirilmagan bo'lsa-da, lekin Amir Temur Qamariddinga qarshi yurishlarida amir Muayyid, Xitoy Bahodir, Oq Temur Bahodir, Shayx Ali Bahodir, Uchqaro Bahodir kabi amirlar ishtirok etganligini, janglardan birida esa Po'lod Bahodir vafot etganligini qayd etgan **[1: 98-99]**. Nizomiddin Shomiy amirzoda Jahongirning vafotidan keyin Amir Temur Qamariddinni izlab topish va iloji boricha uni tutish uchun amirzoda Umarshayx, Oq Bug'a va Xitoy Bahodirlarni yuborganligini ta'kidlagan.

Bizga tarixdan ma'lumki, Amir Temur davlatining shimoliy tomonida Oq O'rda davlati mavjud bo'lgan. Sohibqiron Movarounnahrda hokimiyatni egallab, Chig'atoy ulusida siyosiy barqarorlikni ta'minlagandan so'ng, Oq O'rdadagi siyosiy holatni diqqat bilan kuzatib turishga intilgan. Bu davrda esa Oq O'rdada O'rusxon nisbatan siyosiy barqarorlikni ta'minlagan edi. XIV asrning 70-yillari ikkinchi yarmida Dashti Qipchoqda siyosiy vaziyat keskinlashadi. Ana shunday vaziyatda Chingizxon naslidan bo'lgan To'xtamixon otasi To'yxo'ja O'rusxon tomonidan o'ldirilgandan keyin Amir Temurdan madad so'rab keladi. O'z davlatining shimoliy sarhadlari xavfsizligini ta'minlash maqsadida To'xtamishxonga O'rusxonga qarshi kurashda bir necha bor yordam berganligini ko'rishimiz mumkin. Nizmoniddin Shomiy Tumon Temur, Idiku Barlos shu bilan birga mang'it qabilasidan bo'lgan Idiku kabilar amir hamda beklarni keltirib o'tgan. O'rusxonga qarshi 1376-yilgi yurishda esa amirzoda Yoruq Temur, Muhammad Sultonshoh, Xitoy Bahodir, Mubashshir, Elchi Bug'o, Amir Allohdod, Oq Temur, Hindushoh, O'rung Temur kabi amirlar ishtirok etganligi, Yoruq Temur va Xitoy Bahodirlar vafot etganligi, 1378-1379-yillardagi yurishlarda esa Tumon Temur, amir O'rung Temur, G'iyosiddin Tarxon, Baxtiyorxo'ja va amir Bangilar ko'p lashkar bilan unga qo'shib yuborilganligi, keyinchalik esa O'rung Temur hamda Oq Bug'alar To'xtamishni xizmatida bo'laganligini Nizomiddin Shomiy o'z asarida keltirib o'tgan **[1: 102-105]**.

Xulosa shuki, Amir Temur Movarounnahrda markazlashgan davlat qaror toptirish jarayonida mamlakat siyosiy hamda harbiy hayotida barlos, dulg‘at, apardiy, arlot, jaloyir, uyg‘ur, sulduz, qipchoq va boshqa qavm vakillarining muhim ahamiyat kasb etganligini ko‘rishimiz mumkin. XIV asrning 70-yillari 2-yarmidan esa o‘zlarining xiyonatkorona hatti-harakatlari sabab jaloyir, sulduz va apardiy qavmlari vakillarini nufuzlari pasaya boshlaganligiga guvoh bo’lamiz. Yana shu narsa ahamiyatliki, bu davrda Amir Temurning o‘z farzandlari Jahongir Mirzo hamda Umarshayx Mirzolar ham mamlakatning siyosiy va harbiy hayotida, o‘zaro yurishlarda muhim o‘rinda turganligini ta'kidlashimiz mumkin.

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SOCIO ECONOMIC ASPECTS OF DIABETES MELLLITUS IN UZBEKISTAN

Abstract: *Diabetes mellitus is a rapidly growing public health concern in Uzbekistan, significantly impacting both individuals and society. This study explores the socio-economic aspects of diabetes in Uzbekistan, including its prevalence, risk factors, and consequences on the healthcare system and the national economy. Findings indicate that the actual number of diabetes cases far exceeds official records due to underdiagnosis and limited screening programs. The disease imposes substantial direct medical costs and indirect costs such as lost productivity and reduced quality of life. Socio-economic disparities, particularly between urban and rural populations, affect access to diabetes care and management. Despite governmental initiatives to improve prevention and treatment, challenges remain in ensuring equitable healthcare services and sustainable funding. The paper emphasizes the need for comprehensive strategies that integrate public health education, early diagnosis, affordable treatment, and community engagement to mitigate the socio-economic burden of diabetes. Strengthening primary healthcare infrastructure and international cooperation are vital to addressing this growing epidemic and improving the overall wellbeing of Uzbekistan's population.*

Keywords*: Diabetes Mellitus, Type 2 Diabetes Mellitus, Prevalence, Incidence, Socio-economic Status, Direct Medical Costs, Indirect Costs, Healthcare Access.*

Introduction

Diabetes mellitus is a chronic metabolic disorder that has become a major global public health concern, characterized by elevated blood glucose levels resulting from defects in insulin secretion, insulin action, or both. Over the past few decades, the incidence and prevalence of diabetes have increased dramatically worldwide, particularly in low- and middle-income countries, including Uzbekistan. The growing burden of diabetes is not only a medical issue but also a significant socio-economic challenge that affects individuals, families, communities, and national economies.

In Uzbekistan, the number of individuals diagnosed with diabetes mellitus especially Type 2 diabetes has risen steadily due to various factors such as changes in dietary patterns, increased urbanization, physical inactivity, obesity, and population aging. According to estimates from the International Diabetes Federation and local health authorities, the actual number of diabetic patients in Uzbekistan may be even higher than officially recorded due to underdiagnosis and limited access to early screening, particularly in rural regions. The socio-economic implications of diabetes are multi-faceted. On the one hand, the disease imposes a direct economic burden on the healthcare system through increased spending on diagnosis, treatment, hospitalization, and long-term management of complications such as cardiovascular diseases, nephropathy, retinopathy, and neuropathy. On the other hand, the indirect costs including loss of productivity, work absenteeism, disability, premature death, and the need for social support can surpass the direct costs and negatively impact national economic growth. For low-income families, diabetes can lead to financial hardship, forcing them to choose between healthcare and other basic needs.

Moreover, diabetes often exacerbates social inequalities. Those with limited access to healthcare services, lower education levels, and poor socio-economic status are more vulnerable to developing complications or being diagnosed too late. This creates a vicious cycle where poverty contributes to the disease, and the disease in turn reinforces poverty. In this context, addressing the socio-economic aspects of diabetes becomes essential for creating equitable and sustainable healthcare policies. This paper seeks to examine the socio-economic aspects of diabetes mellitus in the context of Uzbekistan by analyzing key indicators such as healthcare expenditure, employment outcomes for individuals with diabetes, accessibility and affordability of treatment, and the effectiveness of governmental strategies and public health initiatives. The aim is to highlight how diabetes affects the economic well-being of both individuals and society as a whole, and to identify policy recommendations that can alleviate its long-term impact. Understanding the intersection between health and socio-economic factors is critical for developing integrated approaches that can both prevent and manage diabetes more effectively.

Main part

Diabetes mellitus is steadily becoming one of the most prevalent chronic diseases in Uzbekistan. Epidemiological data reveal a noticeable increase in both type 1 and type 2 diabetes, with type 2 being more dominant due to lifestyle-related risk factors. Urbanization, aging population, obesity, and unhealthy diets are key contributors to the rising incidence. Many cases remain undiagnosed until complications occur, worsening outcomes and increasing treatment costs. The burden is particularly evident among older adults, although younger populations are increasingly affected. Lack of early screening and limited public awareness contribute to underreporting, making the real figures potentially higher than official statistics suggest. Understanding the epidemiology is crucial for designing effective interventions and allocating healthcare resources efficiently across the country.

The direct costs of diabetes in Uzbekistan include expenses related to diagnosis, treatment, medication, and management of complications. Insulin therapy, oral hypoglycemics, blood glucose monitoring tools, and regular medical consultations place a heavy financial burden on both the government and patients. Hospital admissions due to diabetes-related complications such as diabetic foot ulcers, nephropathy, and cardiovascular diseases significantly raise treatment costs. For low- and middle-income families, these expenses are often unaffordable without government subsidies. Public healthcare institutions also face pressure to allocate limited budgets toward chronic disease management, which limits investment in preventive care. As the prevalence continues to grow, the direct financial burden threatens the sustainability of Uzbekistan's healthcare system unless addressed through systematic policy reform and better cost-efficiency strategies.

Beyond direct medical expenditures, diabetes mellitus causes substantial indirect economic losses through reduced labor productivity, disability, absenteeism, and early retirement. Individuals suffering from poorly managed diabetes are more likely to experience fatigue, complications, and hospitalizations that interfere with their ability to work. In Uzbekistan's labor-dependent economy, this contributes to a loss of skilled workforce and overall economic output. Moreover, caregivers—often family members must also reduce their working hours or stop working to care for affected individuals, further amplifying economic strain. The long-term cost of premature mortality due to diabetes also has national implications. These hidden costs often exceed the direct medical expenses and represent a significant barrier to economic growth and household financial stability in Uzbekistan.

Diabetes has far-reaching social implications, affecting not only the physical health but also the psychological and emotional well-being of individuals. Many patients in Uzbekistan suffer from anxiety, depression, and reduced social engagement due to the chronic nature of the illness and the lifestyle restrictions it imposes. Stigma and lack of understanding in society may lead to isolation or discrimination, particularly in employment and education settings. Children and adolescents with diabetes often face difficulties in schools, including limited support for their health needs. The burden of disease management also affects family dynamics and causes emotional stress for both patients and caregivers. Overall, the disease undermines quality of life and imposes social challenges that go beyond physical symptoms.

Access to quality diabetes care in Uzbekistan is uneven, with significant disparities between urban and rural areas. While major cities like Tashkent may offer specialized endocrinology clinics and access to modern medications, rural regions often lack trained personnel, diagnostic tools, and affordable treatment options. These disparities result in delayed diagnoses, poorly controlled blood glucose levels, and higher rates of complications. Moreover, financial constraints, transportation difficulties, and limited health education further hinder access for low-income populations. This urban-rural gap not only exacerbates health inequities but also contributes to a higher overall disease burden. Addressing these access issues is critical for ensuring nationwide diabetes control and promoting equity in healthcare delivery.

The government of Uzbekistan has recognized the growing threat of non-communicable diseases (NCDs), including diabetes, and has begun implementing policy measures to address the issue. National programs have been launched to promote healthier lifestyles, improve access to primary care, and expand diabetes screening. However, funding remains limited and implementation is often inconsistent, especially in rural settings. Public health campaigns have helped raise awareness but are not always culturally tailored or sustained. A coordinated, multi-sectoral approach involving education, agriculture, and social welfare sectors is necessary to tackle the root causes of diabetes. Additionally, investment in digital health technologies and training of medical staff could enhance the reach and effectiveness of diabetes management programs.

To reduce the socio-economic burden of diabetes in Uzbekistan, a comprehensive and long-term strategy is needed. First, investments in early detection and preventive care must be prioritized to reduce costly complications. Subsidizing essential diabetes medications and ensuring equitable access to healthcare services across regions would alleviate financial strain on families. Education campaigns targeting both the general public and high-risk groups can promote healthier lifestyle choices. Integrating diabetes care into primary health services will improve continuity of care. Furthermore, data collection and epidemiological surveillance should be strengthened to inform evidence-based policies. Ultimately, the success of these interventions depends on political commitment, cross-sector collaboration, and active community involvement.

Uzbekistan has increasingly engaged in international partnerships to strengthen its healthcare system's response to the growing diabetes epidemic. Organizations such as the World Health Organization (WHO), the International Diabetes Federation (IDF), and various United Nations (UN) agencies have provided technical assistance, funding, and policy guidance aimed at improving diabetes prevention, diagnosis, and care.

These partnerships have played a critical role in shaping national strategies aligned with global standards, such as the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases. International collaboration has also facilitated the introduction of pilot projects focused on early screening, school-based diabetes education, and the training of healthcare professionals in evidence-based management protocols. Additionally, donor agencies and global health programs have supported Uzbekistan in improving access to essential medications, including insulin and diagnostic equipment, particularly in underserved areas. Moreover, Uzbekistan has participated in regional knowledge-sharing initiatives with neighboring Central Asian countries, allowing for the exchange of best practices and data. Despite these positive developments, challenges remain in ensuring the sustainability of externally funded programs and integrating them fully into the national health system. Strengthening long-term international cooperation remains vital for capacity building and achieving sustainable improvements in diabetes outcomes across the country.

Discussion

The socio-economic aspects of diabetes mellitus in Uzbekistan present a multifaceted challenge that encompasses medical, economic, and social dimensions, each intricately linked and contributing to the overall burden of the disease on individuals and society at large. Epidemiological data underscore a significant and escalating prevalence of diabetes, particularly type 2 diabetes mellitus, which aligns with global patterns yet is influenced by region-specific factors. Uzbekistan's rapid urbanization, demographic transitions characterized by an aging population, and lifestyle changes including increased sedentary behavior and dietary shifts toward high-calorie, processed foods are critical drivers of this increase. Moreover, underdiagnosis remains a persistent problem due to limited public awareness and inadequate screening programs, which results in late-stage diagnosis when complications are more severe and treatment more costly.

Economically, diabetes exerts both direct and indirect costs that substantially impact Uzbekistan's healthcare system and broader economy. Direct medical costs comprise expenditures on pharmaceuticals such as insulin and oral hypoglycemics, diagnostic testing, outpatient consultations, hospital admissions, and management of acute and chronic complications including cardiovascular disease, nephropathy, neuropathy, and diabetic foot ulcers. These direct costs represent a growing share of the national health budget, putting pressure on healthcare resources that are already constrained. For patients and their families, particularly those from lower socio-economic strata, out-of-pocket expenses can be prohibitive, leading to treatment non-adherence and poorer health outcomes.

Indirect costs, though less visible, are equally substantial. Diabetes leads to reduced workforce productivity through increased absenteeism, presenteeism, disability, and premature mortality. In Uzbekistan's labor-dependent economy, loss of productive working years has ripple effects on household income stability and national economic output. Caregivers, often family members, also face productivity losses as they allocate time and resources to support affected relatives. These indirect economic burdens amplify the financial strain imposed by the disease, highlighting the necessity of integrated socio-economic interventions.

The social consequences of diabetes extend beyond economic costs to profoundly affect quality of life. The chronic nature of the disease, combined with the demands of ongoing management and lifestyle modifications, contributes to psychological distress including anxiety and depression. Social stigma and misconceptions about diabetes can lead to discrimination in workplaces and schools, further isolating patients and undermining their social support networks. The burden on families is considerable, as they often bear emotional, financial, and caregiving responsibilities that can disrupt family dynamics and wellbeing.

A critical dimension exacerbating these challenges is the disparity in healthcare access across Uzbekistan. Urban centers, particularly Tashkent, tend to have better infrastructure, specialist availability, and access to essential medicines and technologies. In contrast, rural and remote areas face significant barriers including limited healthcare workforce, inadequate diagnostic facilities, and financial constraints. This inequity results in delayed diagnoses, suboptimal treatment, and higher rates of complications in underserved populations, perpetuating health inequalities and worsening overall disease burden.

Although the Uzbek government has initiated policies aimed at mitigating the diabetes epidemic such as health promotion campaigns, expansion of primary healthcare services, and collaboration with international organizations like WHO and the International Diabetes Federation implementation remains uneven. Many programs suffer from inadequate funding, lack of trained personnel, and insufficient integration into existing health systems, particularly in rural areas. While international cooperation has provided valuable technical assistance and resources, the sustainability of these initiatives depends on strengthened national commitment, improved health infrastructure, and enhanced community engagement.

Given the complex socio-economic implications, a holistic and multisectoral approach is essential. Early detection through nationwide screening programs, improved health literacy to promote preventive behaviors, and equitable access to affordable treatment are critical pillars. Additionally, integrating diabetes care into primary healthcare services and leveraging digital health technologies can enhance continuity of care and patient monitoring. Addressing social determinants of health such as poverty, education, and access to nutritious foods—will also be vital in reducing risk factors and improving outcomes. Cross-sector collaboration involving health, education, agriculture, and social protection sectors is required to effectively combat the socio-economic burden of diabetes.

Conclusion

Diabetes mellitus poses a significant and growing socio-economic challenge for Uzbekistan, affecting individuals, families, the healthcare system, and the national economy. The rising prevalence of diabetes, driven by urbanization, lifestyle changes, and demographic shifts, has led to increased healthcare costs and productivity losses. These economic burdens are compounded by social consequences, including reduced quality of life, psychological distress, and disparities in access to care, particularly between urban and rural populations. Despite ongoing governmental efforts and international collaborations aimed at improving diabetes management, substantial gaps remain in early diagnosis, equitable access to treatment, and sustainable healthcare financing. To effectively address these challenges, Uzbekistan requires a comprehensive, multisectoral strategy that integrates prevention, education, and treatment while targeting social determinants of health. Strengthening primary healthcare services, expanding screening programs, increasing public awareness, and ensuring affordability and availability of essential medicines are critical steps toward mitigating the socio-economic impact of diabetes. Additionally, fostering international cooperation and community engagement will enhance the sustainability of these interventions. Ultimately, addressing diabetes mellitus comprehensively will not only improve health outcomes but also contribute to Uzbekistan's socio-economic development and the wellbeing of its population. Prioritizing this issue within national health and social policies is imperative for achieving long-term, equitable improvements in public health.

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PREVENTION OF POST TRAUMATIC PNEUMONIA IN CASE OF CHEST INJURY

Abstract: *Post-traumatic pneumonia is a common and serious complication following chest injuries, significantly increasing morbidity and mortality rates among trauma patients. This paper explores the pathophysiology, risk factors, and clinical challenges associated with pneumonia development after chest trauma. It also reviews current preventive strategies, including early diagnosis, respiratory support techniques, infection control measures, and pharmacological interventions. The study emphasizes the importance of a multidisciplinary approach involving trauma surgeons, pulmonologists, and critical care specialists to reduce the incidence of post-traumatic pneumonia. Understanding these prevention methods is essential to improve patient outcomes and reduce healthcare costs. The findings highlight the need for continuous research and implementation of evidence-based protocols to enhance care quality in trauma settings.*

Keywords: *Post-traumatic pneumonia, Chest injury, Morbidity, Mortality, Pathophysiology, Risk factors, Clinical challenges, Prevention strategies.*

Introduction

Chest injury is one of the most common and serious types of physical trauma that affects the respiratory system and may lead to dangerous complications. Among these complications, post-traumatic pneumonia is one of the most frequent and potentially life-threatening conditions. When the chest is injured, lung tissue may be damaged, ventilation may be impaired, and the ability to clear secretions may decrease. These changes create a favorable environment for infections to develop in the lungs. Post-traumatic pneumonia often occurs in patients who have rib fractures, lung bruises, or internal bleeding in the chest area. It can also affect those who are not able to breathe deeply due to pain or immobility. This condition significantly increases the risk of long hospital stays, secondary infections, and even death if not managed properly. Elderly individuals and people with weakened immune systems are especially at risk.

To prevent pneumonia after chest injury, several medical strategies must be applied. These include controlling pain effectively, improving breathing exercises, ensuring proper hygiene of the lungs, using antibiotics when needed, and regularly monitoring the patient's condition. Early detection and proper care are very important in reducing the chance of pneumonia and improving patient outcomes. This research work focuses on understanding the causes of pneumonia that develop after chest trauma and explores the most effective prevention methods used in modern medical practice.

Main part

The development of pneumonia after chest trauma involves a combination of mechanical and immunological disruptions. When the chest wall is injured, pain and limited mobility reduce the patient's ability to take deep breaths or cough effectively. This leads to stagnation of secretions and inadequate clearance of mucus from the airways. The compromised ventilation impairs gas exchange and creates hypoxic zones that encourage bacterial growth. Additionally, pulmonary contusions damage the alveolar-capillary barrier, allowing fluid and inflammatory cells to flood the alveoli. This inflammatory response further disrupts lung function and promotes infection. In some cases, blood accumulation (hemothorax) or air leakage (pneumothorax) contributes to respiratory compromise. Moreover, stress and systemic inflammation from trauma can suppress immune defenses, making the lungs more susceptible to pathogens. Hospital-acquired organisms may also invade the respiratory tract, particularly in intubated or immobilized patients. Understanding this complex pathophysiology highlights the need for targeted interventions. It also underscores the importance of preventing pneumonia through early and proactive care.

Several factors elevate the risk of pneumonia after chest trauma, and identifying them early is key to prevention. Advanced age is one of the most significant risk factors, as elderly patients often have weaker respiratory muscles and diminished immune function. The severity of the chest injury itself also plays a crucial role—multiple rib fractures or flail chest severely impair ventilation. Comorbidities such as chronic obstructive pulmonary disease (COPD), diabetes, and cardiovascular diseases increase vulnerability. Prolonged immobility is another major contributor, leading to shallow breathing and secretion retention. Intubation and mechanical ventilation, while lifesaving, can introduce pathogens and increase infection risk. Inadequate pain control discourages deep breathing and coughing, further impairing lung function. Malnutrition and poor general condition can also lower resistance to infection. Environmental factors like hospital hygiene, overcrowding, and insufficient staff monitoring exacerbate the situation. Previous use of broad-spectrum antibiotics may promote resistant organisms. Finally, delayed medical attention or lack of standardized care protocols increases the chances of pneumonia development. Addressing these risks through comprehensive care is essential.

Timely diagnosis of post-traumatic pneumonia is critical to preventing serious complications and ensuring effective treatment. Early symptoms such as fever, shortness of breath, chest pain, and productive cough should raise clinical suspicion. Physical examination may reveal decreased breath sounds, crackles, or signs of respiratory distress. Imaging techniques like chest X-ray or computed tomography (CT) are essential to detect infiltrates, contusions, or effusions. Blood tests, including white blood cell count and inflammatory markers (e.g., CRP), support the diagnosis. Sputum cultures help identify the causative organism, guiding appropriate antibiotic therapy. In high-risk patients, continuous pulse oximetry and arterial blood gas analysis are recommended. Lung ultrasound is an emerging tool for bedside evaluation of pneumonia in trauma units. Daily clinical assessments allow tracking of respiratory function and early detection of deterioration. Multidisciplinary monitoring by physicians, nurses, and respiratory therapists improves patient safety. Structured scoring systems such as the pneumonia severity index (PSI) may help stratify risks. Overall, early diagnosis enables faster intervention, reduces hospital stay, and improves prognosis.

Preventing pneumonia in the acute phase of chest trauma care requires a proactive and multidisciplinary approach. Pain management is the cornerstone adequate analgesia allows effective coughing and deeper breathing, improving lung ventilation. Options include intravenous analgesics, regional nerve blocks, or epidural anesthesia. Pulmonary hygiene practices, such as chest physiotherapy and postural drainage, help in clearing airway secretions. Early mobilization is strongly encouraged, even in bed-bound patients, to stimulate lung function. Incentive spirometry is a simple yet effective tool to promote deep breathing and prevent atelectasis. Head elevation and proper patient positioning reduce aspiration risks. In selected cases, prophylactic antibiotics may be used, especially in contaminated wounds or high-risk individuals. Proper hydration supports mucus clearance and overall lung function. Oxygen therapy or non-invasive ventilation may be required to support gas exchange. Close monitoring of vital signs ensures timely response to clinical changes. Nutritional support and immune-boosting measures are also essential. Finally, clear clinical protocols and staff training improve the implementation of preventive care.

Rehabilitation and respiratory therapy play a crucial role in the long-term prevention of post-traumatic pneumonia. After the acute phase, patients often experience reduced pulmonary capacity and physical deconditioning. Structured rehabilitation programs aim to restore respiratory function and improve overall endurance. Respiratory therapists design personalized breathing exercises, including pursed-lip breathing and diaphragmatic techniques. Chest physiotherapy continues to assist in mucus clearance and lung expansion. Devices like positive expiratory pressure (PEP) masks enhance airway clearance. Aerobic exercises under supervision help improve cardiovascular health and oxygen utilization. Pulmonary rehabilitation also includes education on proper breathing posture and energy conservation. Psychological support reduces stress-related breathing difficulty and encourages compliance. Nutritional counseling ensures that patients receive adequate calories and proteins to aid healing. Gradual weaning from supplemental oxygen is planned based on progress. Family education about at-home respiratory care is important for continued recovery. These measures reduce the chance of recurrent infections and improve quality of life. Overall, rehabilitation bridges the gap between hospital care and full recovery.

Preventing post-traumatic pneumonia requires a combination of early identification, continuous monitoring, and evidence-based interventions. Chest trauma, though common, carries the potential for severe pulmonary complications if not managed thoroughly. Clinicians must adopt a holistic approach, integrating pain management, respiratory support, and infection control. It is crucial to tailor care based on individual risk factors such as age, comorbidities, and injury severity. Hospitals should implement standardized care protocols that emphasize early mobilization, physiotherapy, and respiratory hygiene. Investing in staff training, diagnostic equipment, and multidisciplinary collaboration ensures better patient outcomes. Antibiotic stewardship should be maintained to avoid resistance and ensure effective treatment when needed. Emphasis on nutrition, psychological well-being, and rehabilitation enhances recovery and reduces hospital readmissions. Education for patients and caregivers on post-discharge care is essential for long-term prevention. By adopting these comprehensive strategies, healthcare systems can significantly reduce the burden of post-traumatic pneumonia and improve survival rates among trauma patients.

Discussion

Chest injury is one of the most common causes of respiratory complications after trauma, with pneumonia being the most serious and frequent among them. The development of pneumonia after chest injury is influenced by multiple factors, including the severity of the trauma, the presence of rib fractures, pulmonary contusion, and compromised ventilation. These conditions contribute to inadequate clearance of secretions, reduced lung expansion, and stagnant airflow in the lower respiratory tract, all of which create a favorable environment for bacterial growth and infection.

Trauma also causes physiological stress that leads to a temporary weakening of the immune system. This immunosuppression increases the risk of infection, particularly in patients with multiple injuries, advanced age, or underlying chronic diseases. Furthermore, pain from fractured ribs limits deep breathing and coughing, which are essential for clearing secretions from the lungs. Early diagnosis and intervention are critical in preventing pneumonia in patients with chest injury. Regular monitoring of respiratory function, imaging studies like chest radiography and computed tomography, as well as blood investigations, help in identifying early signs of infection. Prompt pain control using medication allows patients to breathe more deeply and cough effectively. Respiratory physiotherapy, including breathing exercises and postural drainage, plays a vital role in maintaining lung function and preventing infection.

Hospital-based factors such as prolonged bed rest, use of mechanical ventilation, and poor hygiene can also contribute to pneumonia. Elevating the head of the bed, maintaining oral hygiene, and mobilizing the patient early are essential preventive strategies. Healthcare workers should be trained to recognize early signs of pneumonia and act quickly to initiate appropriate care. In addition, rational use of antibiotics is important to prevent resistance and ensure that infections are treated effectively when they do occur. A multidisciplinary approach involving trauma surgeons, respiratory specialists, nurses, and physiotherapists ensures comprehensive patient care and better outcomes.

Conclusion

The prevention of post-traumatic pneumonia in patients with chest injury is a critical aspect of trauma care and respiratory management. Pneumonia often develops due to compromised respiratory function, shallow breathing caused by pain, reduced cough reflex, and accumulation of fluids in the lungs. These conditions create an ideal environment for bacterial infections. The risk of pneumonia is further increased in elderly patients, those with chronic diseases, and individuals with multiple injuries, as their immune response is usually weakened. Therefore, early diagnosis, accurate assessment, and comprehensive preventive strategies are essential in managing these patients. Effective prevention involves proper pain control, respiratory physiotherapy, incentive spirometry, early mobilization, and maintaining a clean hospital environment. Rational use of antibiotics also plays a crucial role in preventing secondary infections. A multidisciplinary approach involving physicians, nurses, respiratory therapists, and physiotherapists ensures better patient outcomes. By implementing timely and targeted interventions, the incidence of post-traumatic pneumonia can be significantly reduced, leading to shorter hospital stays, faster recovery, and improved quality of care.

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INTEGRATION OF ARTIFICIAL INTELLIGENCE AND MODERN EDUCATIONAL TECHNOLOGIES IN ENHANCING MORAL EDUCATION BASED ON NATIONAL VALUES IN PRESCHOOL INSTITUTIONS

Abstract. *This study explores the potential for integrating artificial intelligence (AI) and modern educational technologies to enhance moral education based on national values in preschool institutions. A preliminary analysis of the current situation—conducted through institutional reviews, educator feedback, parental input, and policy examination—reveals significant opportunities and existing challenges. While digital tools and AI technologies hold great promise for personalizing learning and transmitting cultural values effectively, gaps in educator training, lack of culturally relevant content, and insufficient parental engagement pose obstacles to successful implementation. Experimental trials are planned to test AI-assisted educational models aimed at strengthening value-based learning in early childhood settings. The study highlights the importance of aligning technological innovation with cultural identity and pedagogical objectives.*

Keywords: *Artificial intelligence, moral education, national values, preschool, technology, early childhood*

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MAKTABGACHA TA'LIM MUASSASALARIDA MILLIY QADRIYATLARGA ASOSLANGAN AXLOQIY TARBIYANI OSHIRISHDA SUN'IY INTELLEKT VA ZAMONAVIY TA'LIM TEXNOLOGIYALARINING INTEGRATSIYASI

Annotatsiya: *Ushbu maqolada maktabgacha ta’lim muassasalarida axloqiy tarbiya jarayoniga sun’iy intellekt va zamonaviy ta’lim texnologiyalarini integratsiyalash masalasi ko‘rib chiqiladi. Tadqiqotning asosiy e’tibori bolalarning axloqiy-etik rivojlanishini milliy qadriyatlar asosida shakllantirishga qaratilgan. Maqolada madaniy asosga ega, sun’iy intellekt bilan qo‘llab-quvvatlangan o‘qitish*

modeli taklif qilinadi, bu esa maktabgacha yoshdagi bolalarda individual yondashuv, faollik va qadriyatlarning shakllanishini ta'minlashga xizmat qiladi.

Kalit so'zlar: *sun'iy intellekt, axloqiy tarbiya, milliy qadriyatlar, maktabgacha ta'lim, texnologiya, erta yoshdagi ta'lim*

Introduction

The global education landscape is undergoing a transformation driven by artificial intelligence and digital innovations. In Uzbekistan, where moral education and the promotion of national values are integral parts of early childhood development, there is a growing need to align these traditional goals with modern educational technologies. Preschool education serves as the foundation for shaping children's character, cultural awareness, and behavioral norms. Traditional pedagogical approaches, while effective, may not fully address the individualized and interactive learning needs of 21st-century learners.

Recent developments in AI-powered educational tools offer significant potential for personalizing learning experiences, adapting content delivery, and fostering ethical understanding from an early age. The integration of such technologies in moral education can enrich content presentation, enhance engagement, and ensure alignment with national values. However, the practical implementation and pedagogical design of AI-supported moral education models remain underexplored in the context of preschool education in Uzbekistan.

Literature Review

The integration of national values into preschool education has been a subject of extensive research, emphasizing the importance of combining cultural heritage with modern pedagogical techniques. Scholars have highlighted various strategies and approaches to enhance the effectiveness of value-based education in early childhood settings.

Eshpulatov addresses the need for a comprehensive system aimed at improving the delivery of national values in educational settings. His research, "Umuminsoniy qadriyatlarga yo'naltirilgan milliy tizimni takomillashtirish," discusses the significance of universal human values while emphasizing the necessity of integrating innovative educational practices to reinforce cultural identity. Eshpulatov's findings provide a foundation for understanding how value-based education can be aligned with broader pedagogical goals, particularly in the context of preschool institutions. Kadirova in her work "Maktabgacha ta'lim tashkilotlarida milliy g'urur hissini shakllantirishning ahamiyati," focuses on the critical role of fostering a sense of national pride among preschool children. She emphasizes that educators play a pivotal role in shaping children's identity and self-esteem. Kadirova's study, conducted at Termiz State Pedagogical Institute, provides practical insights into how national values can be integrated into daily teaching practices through storytelling, cultural events, and interactive activities. Her research underscores the importance of culturally relevant pedagogy as a tool for emotional and moral development. Zakirova explores the practical application of national values in her paper "Maktabgacha ta'lim tashkilotlarida bolalarga milliy qadriyatlarni singdirish." Presented at the International Conference on Advance Research in Humanities, Applied Sciences, and Education, Zakirova's work emphasizes the importance of combining traditional teaching methods with modern technologies. Her research highlights the use of interactive tools such as digital storytelling and multimedia resources to enhance children's understanding and appreciation of their heritage. Zakirova's findings advocate for a balanced approach that respects traditional values while leveraging contemporary educational tools. Yakubova in her article "National values of Preschool Children basically forming educational and moral qualities," discusses the foundational role of preschool education in developing moral qualities among young learners. Her research, published in Volume 03, Issue 01 of an academic journal, highlights the potential of digital tools to support value-based education. Yakubova argues that the integration of culturally specific content into educational software and applications can significantly enhance children's moral and cognitive development. Her study serves as a critical resource for understanding the role of technology in shaping national values. Adilova examines the use of national spiritual values in organizing educational events in preschool settings. Her paper, "Use of national spiritual values in organizing educational events in Pre-School Education," published in the *Science and Innovation International Scientific Journal*, discusses how cultural narratives and modern technology can coexist to foster holistic development. Adilova's work highlights the role of teachers in creating an immersive learning environment that bridges traditional values with modern pedagogical techniques. Her findings emphasize the importance of educator training and parental involvement in reinforcing national values.

Collectively, these studies provide a comprehensive understanding of how modern educational technologies can be integrated into preschool education to foster national values. The literature underscores the importance of a multifaceted approach that includes educator training, culturally relevant curricula, and the active involvement of parents and communities

Research Methodology

This study is planned to be carried out within the framework of a mixed-methods research approach, combining both qualitative and quantitative elements to comprehensively investigate the integration of artificial intelligence (AI) and modern educational technologies in the moral education of preschool children. The research is being developed in response to the growing demand for innovative, culturally grounded pedagogical strategies that are both developmentally appropriate and technologically enriched.

The methodological framework will follow an exploratory and design-based model. Initially, an in-depth theoretical and contextual analysis will be conducted to identify the current state of moral education in preschool institutions and the extent to which digital and AI-based tools are already being utilized. This diagnostic stage will inform the design of an AI-supported pedagogical model tailored to foster national values and moral development in young learners.

The study will involve preschool-aged children (6–7 years old), as well as their educators and parents, from selected preschool institutions in urban and semi-urban settings in Uzbekistan. Purposeful sampling will be employed to select institutions with varying levels of technological infrastructure. It is anticipated that approximately 60 to 80 children, along with their respective teachers and parents, will participate in different stages of the study.

To gain a comprehensive understanding of the research problem, several data collection instruments will be used:

- Document analysis of current preschool curricula and state educational standards regarding moral and national values;
- Semi-structured interviews with teachers and administrators to gather insights into existing practices and expectations for technology use;
- Parent surveys to understand family perspectives on value education and digital learning;
- Classroom observations during the experimental implementation phase to monitor engagement, behavior, and teacher-child interactions;
- Pre- and post-intervention assessments to evaluate the impact of AI-based activities on children's moral reasoning and behavior;
- System logs from the AI platform (e.g., time spent, task completion, response types) to measure learning engagement.

The central component of the study will be the design and pilot implementation of a digital learning module supported by AI technologies. This model will include interactive storytelling, national folklore, ethical dilemmas, and voice-assisted feedback. The content will be designed in collaboration with educators and cultural experts to ensure that it reflects Uzbekistan's moral and cultural heritage.

Quantitative data from the assessments and usage statistics will be analyzed using basic descriptive and inferential statistical methods to determine the effectiveness of the intervention. Qualitative data from interviews, observations, and open-ended survey responses will be thematically analyzed to identify patterns, perceptions, and experiences related to the use of AI in early moral education.

The study will be conducted in accordance with ethical research standards. Informed consent will be obtained from all participants' guardians. The privacy and confidentiality of children and families will be respected, and all data will be anonymized. Necessary approvals will be sought from relevant educational institutions and ethics review boards prior to the intervention.

Analysis and Results

The current stage of the study involved a comprehensive analysis of the existing situation in preschool education institutions. Observations, educator feedback, parent input, and a review of policy documents revealed several key issues related to the integration of artificial intelligence (AI) and modern digital technologies into value-based moral education. The following findings reflect the early stage of research, with experimental trials yet to be conducted.

1. Untapped potential of digital technologies in moral education

Preliminary observations indicate that modern digital tools—such as mobile applications, interactive games, and augmented reality platforms—offer significant potential for teaching national values in engaging and understandable ways. However, their practical and systematic use in this domain remains limited. AI-based personalized learning approaches are not yet being utilized in preschool settings.

2. Low level of technological and methodological preparedness among educators

The study found that many preschool educators lack sufficient knowledge and skills to effectively integrate AI and digital tools into moral and value-based education. Most educators view digital resources as entertainment or storytelling tools rather than as structured methods for transmitting cultural and ethical values.

3. Lack of culturally relevant digital content

Existing educational applications and digital materials rarely include content related to national customs, folklore, historical figures, or ethical principles. Much of the digital content used in preschool settings is based on foreign models, lacking local cultural relevance and national context.

4. Limited parental involvement through digital means

Family involvement in moral education remains largely disconnected from technological integration. There are currently no structured digital platforms or mobile applications designed to guide parents in reinforcing national values at home. As a result, children may not receive consistent value-based support outside the classroom.

5. Underexplored applications of artificial intelligence

AI-based tools for personalized instruction, speech recognition, and real-time interactive support hold great potential for preschool education. However, these technologies have not yet been explored or piloted in practice. This highlights the need for experimental research to evaluate their pedagogical effectiveness in moral education.

6. Weakness in policy and methodological frameworks

Existing educational policies and curricula do not specifically address the integration of AI in moral and values-based preschool education. Moreover, there are no comprehensive methodological guidelines to assist educators in aligning digital technologies with national cultural content and moral development goals.

Conclusions

This study highlights both the promise and the complexity of using artificial intelligence and modern educational technologies in preschool moral education. While the initial analysis reveals structural and methodological challenges, it also confirms a strong rationale for intervention. The upcoming experimental phase will aim to develop and test innovative, culturally grounded, AI-enhanced teaching models that support the development of ethical reasoning and national identity in early learners. Findings from this research could inform policy development and best practices for integrating AI in early childhood education globally.

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SEMANTIC POLYSEMY IN DERIVATIONAL MORPHEMES: A COMPARATIVE ANALYSIS OF ENGLISH AND UZBEK

Abstract *:Languages possess immense emotive and cognitive potential, and one of the most crucial tools enabling this expressiveness is polysemy — the capacity of a single word to carry multiple related meanings. This article explores the types of polysemy, the structural and functional properties of polysemous expressions in translation, and contrasts their usage and classification in English and Uzbek. Through a comparative linguistic analysis and close observation, the study uncovers key challenges and strategies for translating polysemous words and phrases. It also discusses how metaphor and metonymy contribute to the expansion of semantic fields in both languages.*
Keywords*: semantic structure, lexical meaning, translation equivalence, metaphor and metonymy, contextual disambiguation, contrastive linguistics.*

Introduction

Polysemy — the phenomenon wherein a single lexical item possesses multiple related meanings — is a hallmark of natural language and plays a vital role in linguistic flexibility, expressivity, and cognitive economy. It allows speakers to use existing vocabulary creatively to accommodate new concepts without generating entirely new terms. In English and Uzbek, polysemy manifests differently due to the languages' distinct historical development, cultural nuances, and syntactic structures. This paper aims to delve into the semantic, structural, and functional aspects of polysemous words in both languages, with special attention to their usage in metaphorical and metonymic contexts. The translation of such lexemes presents unique challenges, especially when cultural or contextual interpretations diverge. Therefore, a thorough understanding of polysemy is essential not only for linguists but also for translators and educators [1].

Methods

This study adopts a **comparative-descriptive linguistic approach**, integrating both **qualitative and contrastive methods** to investigate the phenomenon of polysemy in English and Uzbek. The research focuses on identifying, analyzing, and interpreting polysemous expressions from both structural and semantic perspectives, with particular attention to their figurative meanings and translation nuances.

Data for the study were gathered from a variety of **primary and secondary sources**, including:

- Modern and classical literary texts in English and Uzbek,
- Monolingual and bilingual dictionaries,
- Linguistic corpora and databases,

• Translations of selected works (notably from authors such as O. Henry and A. Qahhor),

• Academic articles and theoretical works in semantics, pragmatics, and translation studies [2].

This multi-layered methodological design allowed for a comprehensive and nuanced analysis of polysemy, providing insights into how it functions within and across English and Uzbek. The methodology also lays the foundation for practical applications in translation studies, language teaching, and computational linguistics [5].

Results

The results of the study revealed several significant patterns and tendencies in the formation, structure, and translation of polysemous words in English and Uzbek. Through a comparative linguistic analysis, it became evident that while polysemy is a universal feature of language, its expression and functional realization differ according to cultural, morphological, and cognitive factors.

First and foremost, the analysis showed that **polysemy in both English and Uzbek is predominantly based on metaphorical and metonymic extensions**, but the degree and direction of these extensions vary across the two languages. For instance, in English, metaphor plays a dominant role in the development of abstract meanings from concrete origins. A word like *"branch"*, originally denoting a part of a tree, extends metaphorically to signify a division of an organization or science (e.g., "branch of government"). In Uzbek, while similar metaphorical shifts are present (e.g., *"ildiz"* meaning both "root of a plant" and "origin"), the number of abstract extensions tends to be more limited, often requiring context-specific interpretation or additional lexical markers for clarity [6].

Secondly, the study found that **structural-functional features of polysemy are more rigidly codified in English due to its analytical nature**, which allows for clear differentiation of meanings through syntactic placement and collocation. In contrast, Uzbek, being an agglutinative language, often relies on suffixes and contextual usage to signal shifts in meaning. For example, the English word *"run"* can convey numerous meanings depending on collocational partners ("run a business," "run a marathon," "run a program"), whereas the Uzbek equivalent *"yugurmoq"* tends to remain in the physical motion domain unless modified by additional context or morphological elements.

A key result from the translation analysis indicates that **polysemous words frequently pose challenges for translators**, especially when one word in the source language corresponds to multiple words or expressions in the target language. This was evident in the translation of figurative language, idiomatic expressions, and culturally bound terms. For example, the English polysemous verb *"take"* has many senses—"take a photo," "take responsibility," "take time"—which may require different verbs in Uzbek (e.g., *suratga tushirmoq*, *javobgarlikni olish*, *vaqt talab qilmoq*). Literal translation of such units often led to semantic distortion, loss of idiomaticity, or misinterpretation of the original tone and meaning [7].

Lastly, the research confirmed that **polysemy contributes significantly to language economy, expressiveness, and flexibility** [8]. Speakers of both English and Uzbek intuitively exploit polysemy to achieve communicative efficiency, often embedding multiple layers of meaning in a single lexical item. This creative use of language, while enriching discourse, also introduces ambiguity that must be resolved through pragmatic awareness.

Analysis

Polysemy in both languages often arises through metaphorical extension, cognitive association, and social usage. Conceptual Metaphor Theory, proposed by Lakoff and Johnson, provides a theoretical framework explaining how abstract ideas are understood through concrete experiences. In Uzbek, metaphors such as “shirin tush” (sweet dream) parallel English expressions like “happy dream,” where adjectives shift the semantic frame.

Additionally, Cruse’s classification of systematic metonymy (e.g., “container” for “contents” — “I drank the whole bottle”) is mirrored in Uzbek usage: “butilka ichdim” (literally “I drank the bottle”). Such examples highlight universal cognitive mechanisms underlying polysemy while also revealing cultural and syntactic divergences [9].

The distinction between polysemy and homonymy is essential: polysemous senses share a semantic core, while homonyms are unrelated despite phonological identity. For example, “bet” in Uzbek (“face of a person,” “page,” “surface”) illustrates polysemy, whereas English “bank” (financial institution vs. riverbank) shows homonymy.

Discussion

The comparative study of polysemous words in English and Uzbek provides valuable insights into how meaning is structured, interpreted, and transformed across languages and cultures. The findings reinforce the notion that polysemy is not a random or chaotic phenomenon but rather a systematic and motivated process deeply rooted in human cognition, communicative needs, and cultural experience.

One of the most significant points emerging from this research is the **interplay between linguistic structure and semantic evolution**. In English, an analytical language with a fixed word order and relatively simple morphology, polysemous meanings are often disambiguated through collocations, syntactic patterns, and phrasal constructions. For example, the verb "run" changes meaning depending on its context—"run a machine," "run for office," "run a fever"—with surrounding words guiding the reader or listener to the correct interpretation. This structural flexibility allows English to exploit polysemy as a means of lexical economy and expressiveness.

Conversely, Uzbek’s **agglutinative structure** and morphologically rich system give rise to a different strategy of polysemy management. Meaning extensions in Uzbek are frequently marked through affixation or semantic shifts embedded in cultural idioms and proverbs. This sometimes results in more context-dependent usage, where meaning may not always be immediately apparent without deeper cultural or situational knowledge. This illustrates that while the phenomenon of polysemy is shared, the **linguistic tools for managing polysemy differ significantly** between the two languages [8].

In terms of translation, the discussion highlights **the practical implications of polysemy for interlingual equivalence**. Translators face the dual challenge of preserving both the literal and figurative meanings of polysemous words, especially when direct equivalents are lacking. The findings underscore the importance of context-sensitive translation strategies that go beyond dictionary definitions. For example, while the English word "light" can mean "illumination" or "not heavy," Uzbek uses different words (*yorug'lik* for illumination, *yengil* for weight), requiring translators to carefully assess the communicative intent. Literal translation in such cases can lead to misunderstanding or stylistic awkwardness.

From a theoretical perspective, this research adds to the growing body of literature emphasizing the **need for functional and cognitive approaches in semantic analysis**. Traditional models that categorize meanings as discrete and hierarchical fail to capture the fluidity and interaction of senses in actual usage. Instead, a prototype-based model—where one central meaning gives rise to peripheral but related senses—better reflects the way speakers intuitively navigate meaning.

Conclusion. Finally, the findings point to the broader cultural and philosophical dimension of polysemy. The way languages categorize and associate meanings reflects how speakers **perceive and organize the world around them**. Thus, the study of polysemy is not only a linguistic endeavor but also a window into human thought, creativity, and intercultural communication. Differences in how polysemy is formed and used reveal underlying conceptual metaphors, social values, and historical influences unique to each language community.

Polysemy is a dynamic and essential characteristic of natural languages, contributing to their flexibility, depth, and expressiveness. Its manifestation in English and Uzbek demonstrates both universal cognitive tendencies and language-specific features. Understanding polysemy — particularly in metaphorical and metonymic contexts — is vital for effective communication, language learning, and accurate translation. Further interdisciplinary research combining cognitive linguistics, computational tools, and cross-cultural studies will deepen our grasp of this phenomenon and its practical applications.

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PEDAGOGICAL BASIS OF FORMING PROFESSIONAL COMPETENCES OF FUTURE TEACHERS

Abstract: *The training of teachers is the main task of the educational process, and the importance of such abilities as the formation of social competence, an integral part of the professional and pedagogical preparation of a future teacher, and interest in a particular field of knowledge, part of which is adaptation to the quality of education, and mastery of the subject, is highlighted.*
Keywords: *Future teachers, professional, competence, innovation, modernization, technology, standard competence, personal skills, pedagogical foundations.*

The integration of general and specialized disciplines and the introduction of profession-oriented education in higher education institutions is of great importance in the training of future personnel. The teaching of all disciplines should be systematic, aimed at the sole goal - the training of specialized specialists who can adapt professionally in accordance with the requirements of the time. Improving the quality of education is one of the most urgent problems of the entire world community today. To solve it, it is necessary to modernize the content of education, revise the technologies of the educational process and, of course, the ultimate goal of education. In this context, it is necessary to develop the professional competence and professional adaptability of specialists, their ability to apply the acquired knowledge in their professional activities and adapt to the requirements of the employer.

Currently, increasing the effectiveness of education, developing the level of professional competence of specialists, directing pedagogical personnel to innovative activities, introducing innovative educational and information and communication technologies into the educational process in higher educational institutions, mastering advanced foreign experiences and directing them to specific goals have been identified as urgent tasks in the modernization of the higher education system. Reforms in the field of education are of great importance in reforming society and transforming it into a society more open to the outside world and oriented towards new technologies and knowledge. Reforms in the field of education determine the development prospects of society. In order to withstand the strong competition that is currently taking a leading place in the labor market, each specialist, based on the requirements of the present time, must have professional competence and consistently improve it. A necessary part of a person's professional skills is professional competence. A competency is a characteristic that indicates the level of acquisition of the relevant competence by an individual, the characteristics set for training a specialist, which constitute the potential qualities of a graduate aimed at carrying out future professional activities.

Thus, the competences of a person's professionalism can be divided into the following groups: - Competencies related to himself as a person and a subject of life activity; - Competencies related to communication with other people. Competencies can initially be divided into the following types: First: Standard competence - the ability to perform constant and routine situations (getting acquainted with the news of the world in the morning through the Internet, the media, news related to his profession, arming himself - ideological and political competence). Second: Basic competence - the ability to perform innovative tasks related to the position held (solving problems within a specific position with an individual approach). Third: Leadership competence - the ability to create new types of professional activity (possession of mature knowledge from a professional point of view, ability to see problems, show activity in creating new types and be a leader).

Therefore, to acquire the initial competencies, it is necessary to know the following competencies. They are: 1. Linguistic competence (the ability to communicate effectively). 2. Social competence (the ability to understand certain social groups and cultures).

3. Pragmatic competence (the ability to skillfully get out of certain situations). From a psychological point of view, competence means “how a specialist behaves in unconventional and unexpected situations, enters into dialogue, takes a new approach in interactions with opponents, performs ambiguous tasks, uses conflicting information, and has a plan of action in consistently developing and complex processes.” Professional competence is the acquisition by a specialist of the knowledge, skills, and abilities necessary for the implementation of professional activities and their high-level application in practice.

Professional competence does not imply the acquisition of separate knowledge and skills by a specialist, but rather the mastery of integrative knowledge and actions in each independent area. Competence also requires the constant enrichment of specialist knowledge, the ability to learn new information, understand important social requirements, search for new information, process it and apply it in one's activities. Professional competence is manifested in the ability to perform complex processes, perform ambiguous tasks, use contradictory information, and have a plan of action in unexpected situations. At the same time, specialists with professional competence consistently enrich their knowledge, absorb new information, deeply understand the requirements of the era, search for new knowledge, process it and effectively apply it in their practical activities.

The specific features of the development of professional competence of future teachers based on an integrative approach are inextricably linked to the formation of a high level of professional competence. Therefore, one of the specific features is the creation of theoretical and practical foundations for the process of developing professional competence of future teachers based on the effective use of the capabilities of modern educational technologies. Accordingly, the scientific substantiation of new approaches to the development of professional competence of future teachers based on an integrative approach to their activities in higher education institutions, which provides the required level of professional competence, is an urgent task today.

In scientific circles, various attitudes are put forward to the concept of professional competence. It is used as a characteristic characterizing the specific requirements of activity for the subject of labor or, more precisely, the subject's attitude to specific aspects of activity. For example, according to the research scientist E.F. Zeer, the study of the functional development of professional competence shows that during the process of professional maturity, various manifestations of competence are integrated and their connection with professionally important personal qualities is strengthened. Factors influencing the stages of development of competence, the periods of their forms in relation to the human mind, are considered separate objects of research and require study on an integrative basis.

In particular, the main levels of development of professional competence of future teachers based on an integrative approach include professional training and experience, self-awareness, self-confidence, correct acceptance of shortcomings indicated by other people, and other pedagogical features that determine professional maturity. The formation of professional competence of future teachers based on an integrative approach is characterized by the following features: - the ability to correctly and quickly apply knowledge in any specific situation, taking into account its various aspects; - the ability and readiness to make decisions, as well as the ability to choose the most optimal decision option for this situation; - the ability to organize social actions and use all opportunities for this; - communicative skills that allow you to establish relationships with other people within the framework of your activities, with specific goals in mind and in a purposeful and acceptable manner; – possession of certain spiritual values, worldview, general cultural and moral qualities, the presence of a sense of aspiration for activity; – striving to develop one's creative potential, mastering new methods of activity.

These qualities are reflected in the basis of professional competence. Although the goal of the formation of professional competence is to develop such components of the learner as self-awareness, assessment and management in the process of professional and personal development, and to prepare them for work in educational institutions, along with this, the tasks of studying the basics of general and specialized disciplines should include the following: - achieving a positive attitude towards the acquisition of pedagogical, general and specialized knowledge in the professional activities of a teacher; - developing pedagogical and technical-technological thinking as a method of identifying and solving problems in problematic situations inherent in pedagogical and production processes;

In our opinion, the manifestation of competence requires the implementation of a specific action in a specific area, including highly specialized knowledge, skills and qualifications, ways of thinking and the correct direction of one's actions: - personal competence is characterized by the manifestation of professional motivation and knowledge of the cognitive sphere; - effective activity - depends on the interaction of several factors and depends not only on the individual ability or level of ability manifested in a particular situation, but also on a number of independent and additional competencies that cover various situations in the process of striving for a goal.

The integration of disciplines is an effective method for forming the professional competence of future specialists, which requires the interdependence of subject subjects and inter-disciplinary connections. When applied to the education system, the concept of "integration" has two meanings: firstly, it creates a holistic view of the world around students (here integration is considered the goal of education), and secondly, it finds a common platform for the convergence of subject knowledge (here integration is a learning tool).

In practice, the integration of knowledge is used more often when it is not purposeful. Long-term observations show that students have difficulties in applying knowledge, skills and competencies in learning subjects. They lack independent thinking, the ability to apply the acquired knowledge to similar problems or transfer it to other situations, etc.

In educational activities, students have a clear attitude to various topics based on general motivation. The orientation of the topic to professional education is determined by the interest in a particular field of knowledge and, in part, by the importance of such abilities as adaptation to the quality of education, mastering the object. Methods of teaching mathematics and natural sciences should provide for: connection with professional and practical significance; integration of mathematics and natural sciences with general and specialized disciplines; cognitive work of students using mathematical programs; stimulation.

The practice of integrating laboratory work and computer programs in order to develop the professional competence of future specialists allows for the following: consolidation of knowledge and practical analysis of the theoretical course; strengthening interest in the lesson and motivation for the lesson; expanding the possibilities of presenting information (color, animation, music, voice speech); creating individualized education, taking into account the specific characteristics of students' memory, perception, thinking, etc.

Combining forms of teaching based on the integration of mathematics and natural sciences with general and specialized disciplines, and the use of integration at different levels and directions helps to develop the professional competence of future specialists. Based on the above information, it can be said that it is important to organize the general educational processes of students studying in an educational institution on a scientific basis. In turn, in this process, it is important to have professional and personal qualities, to be able to control themselves in voluntary situations, based on integrative approaches.

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BOSHLANG'ICH SINFLARDA INGLIZ TILI ORQALI TANQIDIY FIKRLASHNI SHAKLLANTIRISH

Anotatsiya: *Ushbu maqola boshlang'ich sinflarda ingliz tili darslari orqali o'quvchilarda tanqidiy fikrlash ko'nikmalarini shakllantirish masalalarini o'rganadi. Tanqidiy fikrlashning nazariy asoslari, ingliz tili o'quv jarayonidagi o'rni va amaliy yondashuvlar tahlil qilinadi. Maqolada interfaol metodlar, loyiha asosidagi ta'lim va madaniy kompetensiyalarni rivojlantirish kabi strategiyalar orqali o'quvchilarning analitik va ijodiy fikrlash qobiliyatlarini oshirish yo'llari ko'rib chiqiladi. Shuningdek, o'qituvchining fasilitator sifatidagi roli va ta'lim jarayonida ochiq savollarning ahamiyati ta'kidlanadi. Ushbu yondashuvlar o'quvchilarni nafaqat til o'rganishda, balki global fuqarolik va shaxsiy rivojlanishda muvaffaqiyatga tayyorlashga xizmat qiladi.*

Kalit so'zlar: *Tanqidiy fikrlash, boshlang'ich sinflar, ingliz tili, interfaol metodlar, loyiha asosidagi ta'lim, madaniy kompetensiya, o'qituvchi roli, analitik fikrlash, ijodiy fikrlash.*

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FOSTERING CRITICAL THINKING IN PRIMARY SCHOOL THROUGH ENGLISH LANGUAGE LEARNING

Abstract: *This article explores the formation of critical thinking skills in primary school students through English language lessons. It analyzes the theoretical foundations of critical thinking, its role in the English learning process, and practical approaches. The article examines strategies for enhancing students' analytical and creative thinking abilities through interactive methods, project-based learning, and the development of cultural competence. Additionally, the role of the teacher as a facilitator and the importance of open-ended questions in the educational process are emphasized. These approaches not only support language acquisition but also prepare students for success in global citizenship and personal development.*

Keywords: *Critical thinking, primary school, English language, interactive methods, project-based learning, cultural competence, teacher's role, analytical thinking, creative thinking.*

Zamonaviy ta'lim tizimida boshlang'ich sinf o'quvchilarida tanqidiy fikrlash ko'nikmalarini shakllantirish muhim pedagogik vazifalardan biriga aylandi. Tanqidiy fikrlash – bu ma'lumotni tahlil qilish, baholash va asosli xulosalar chiqarish qobiliyatini anglatadi, bu esa o'quvchilarga nafaqat akademik muvaffaqiyat, balki hayotning turli jabhalarida muammolarni ijodiy yechish imkonini beradi. Ingliz tili o'quv predmeti sifatida boshlang'ich sinflarda ushbu ko'nikmalarni rivojlantirish uchun keng imkoniyatlar taqdim etadi, chunki chet tili o'rganish jarayoni o'quvchilarni yangi lingvistik va madaniy kontekstda fikrlashga undaydi. Ushbu maqola boshlang'ich sinflarda ingliz tili darslari orqali tanqidiy fikrlashni shakllantirishning nazariy asoslari, amaliy yondashuvlari va ushbu jarayonning ta'limdagi ahamiyatini o'rganadi.

Tanqidiy fikrlashning ta'limdagi o'rni ko'plab olimlar, jumladan, Bloom (1956) va Anderson va Krathwohl (2001) tomonidan o'rganilgan. Bloom taksonomiyasiga ko'ra, tanqidiy fikrlash bilimlarni eslab qolish va tushunishdan tashqari, tahlil qilish, baholash va yaratish kabi yuqori darajadagi kognitiv jarayonlarni o'z ichiga oladi. Boshlang'ich sinf o'quvchilari uchun bu jarayonlar oddiy, ammo maqsadli faoliyatlar orqali rivojlantirilishi mumkin. Ingliz tili darslari bu jarayon uchun qulay muhit yaratadi, chunki til o'rganish o'quvchilarni yangi tushunchalarni o'zlashtirishga, ularni o'z tajribalari bilan solishtirishga va ijodiy fikr yuritishga undaydi. Masalan, oddiy so'z boyligini o'rganish jarayonida o'quvchilar so'zlarning ma'nolarini turli kontekstlarda tahlil qilishlari, sinonim va antonimlarni aniqlashlari yoki so'zlarni o'zlarining shaxsiy tajribalariga bog'lab ishlatishlari mumkin.

Ingliz tili o'quv dasturlari boshlang'ich sinflarda ko'pincha o'yin asosidagi va interfaol metodologiyalarga tayanadi, bu esa tanqidiy fikrlashni rivojlantirish uchun qulay zamin yaratadi. Masalan, "Think-Pair-Share" usuli o'quvchilarni avval mustaqil ravishda fikr yuritishga, so'ngra juftlikda muhokama qilishga va yakunda umumiy guruhda o'z mulohazalarini baham ko'rishga undaydi. Bunday faoliyatlar nafaqat til ko'nikmalarini, balki muammolarni tahlil qilish va hamkorlikda yechim topish qobiliyatini ham rivojlantiradi. Shu bilan birga, ingliz tili darslarida hikoya yoki dialog asosidagi vazifalar o'quvchilarni qahramonlarning xatti-harakatlarini baholashga, muqobil yakunlar taklif qilishga yoki voqealarni turli nuqtai nazardan sharhlashga jalb qiladi. Bu jarayon o'quvchilarda empatik va reflektiv fikrlashni shakllantirishga xizmat qiladi.

Tanqidiy fikrlashni rivojlantirishda o'qituvchining roli muhim ahamiyatga ega. O'qituvchi faqat bilim uzatuvchi sifatida emas, balki o'quvchilarni savol berishga, shubhalanishga va o'z fikrlarini asoslashga undovchi fasilitator sifatida harakat qilishi lozim. Masalan, "Why do you think so?" yoki "What if…?" kabi ochiq savollar o'quvchilarni chuqurroq fikrlashga va o'z mulohazalarini dalillar bilan mustahkamlashga yordam beradi. Ingliz tili darslarida bunday savollar til o'rganish jarayoniga integratsiyalashganda, o'quvchilar nafaqat lingvistik bilimlarni, balki mantiqiy va ijodiy fikrlash ko'nikmalarini ham egallaydilar. Bundan tashqari, o'qituvchilar turli xil ta'lim resurslaridan, masalan, multimedia materiallari, interaktiv doskalar yoki onlayn platformalardan foydalanish orqali o'quvchilarni qiziqtirishi va ularning analitik qobiliyatlarini rivojlantirishi mumkin.

Boshlang'ich sinflarda ingliz tili orqali tanqidiy fikrlashni shakllantirishning muhim jihatlaridan biri madaniy kompetensiyalarni rivojlantirishdir. Chet tili o'rganish o'quvchilarni yangi madaniyatlar, qadriyatlar va dunyoqarashlar bilan tanishtiradi, bu esa ularning dunyoni kengroq ko'rishga va turli nuqtai nazarlarni hurmat qilishga yordam beradi. Masalan, ingliz tilidagi bayramlar, an'analar yoki adabiyot haqidagi muhokamalar o'quvchilarni o'z madaniyati bilan taqqoslashga, farq va o'xshashliklarni aniqlashga va bu jarayonda tanqidiy mulohaza yuritishga undaydi. Bu nafaqat til o'rganishni mazmunli qiladi, balki o'quvchilarda global fuqarolik ongini shakllantirishga xizmat qiladi.

Amaliy yondashuvlarda loyiha asosidagi ta'lim (Project-Based Learning) usuli alohida o'rin tutadi. O'quvchilar guruhlarda kichik loyihalar, masalan, "Mening orzuimdagi shahar" yoki "Hayvonlarni himoya qilish" kabi mavzularda ishlaydilar, bu jarayonda ingliz tilida o'z g'oyalarini ifodalashadi, ma'lumot to'playdilar, tahlil qiladilar va taqdimot tayyorlaydilar. Bunday loyihalar o'quvchilarni mustaqil ravishda fikr yuritishga, muammolarni ijodiy yechishga va guruhda ishlashga o'rgatadi. Shu bilan birga, loyihalar o'quvchilarda o'z ishlarini baholash va refleksiya qilish ko'nikmalarini rivojlantiradi, bu tanqidiy fikrlashning muhim komponentidir.

Ushbu yondashuvlarning samaradorligi ko'plab tadqiqotlar, jumladan, Halpern (1998) va Facione (2000) ishlarida tasdiqlangan. Ularning fikricha, tanqidiy fikrlash ko'nikmalari maqsadli ta'lim strategiyalari orqali erta yoshda shakllantirilganda, o'quvchilarning uzoq muddatli akademik va shaxsiy muvaffaqiyatiga sezilarli ta'sir ko'rsatadi. Ingliz tili darslari bunda o'ziga xos platforma bo'lib xizmat qiladi, chunki til o'rganish jarayoni tabiiy ravishda o'quvchilarni muammolarni tahlil qilishga, ijodiy fikrlashga va o'z pozitsiyalarini himoya qilishga undaydi.

Xulosa qilib aytganda, boshlang'ich sinflarda ingliz tili orqali tanqidiy fikrlashni shakllantirish nafaqat til ko'nikmalarini rivojlantirish, balki o'quvchilarni 21-asrning murakkab dunyosiga tayyorlash uchun muhim strategiyadir. O'qituvchilar tomonidan qo'llaniladigan interfaol metodlar, ochiq savollar, loyiha asosidagi ta'lim va madaniy kompetensiyalarni rivojlantirish kabi yondashuvlar o'quvchilarda analitik, reflektiv va ijodiy fikrlashni rivojlantirishga xizmat qiladi. Ushbu jarayon nafaqat akademik muvaffaqiyatga, balki o'quvchilarning shaxs sifatida rivojlanishiga va global jamiyatning faol a'zolariga aylanishiga yordam beradi. Kelgusida bu sohada qo'shimcha tadqiqotlar va amaliy ishlanmalar ta'lim tizimini yanada takomillashtirishga xizmat qiladi.

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INGLIZ TILIDA "HUGE" MA'NOSINI IFODALOVCHI SIFATLAR VA ULARNING O'ZBEK TILIGA TARJIMASI

***Annotatsiya**:Ushbu maqolada ingliz tilidagi "huge" so'zining sinonimik sifatlari tahlil qilinadi va ularning o'zbek tilidagi tarjimalari o'rganiladi. "Huge" sifati ingliz tilida kattalik, miqyos yoki ahamiyatni ifodalash uchun keng qo'llaniladi. Maqolada ushbu so'zning sinonimlari – masalan, "enormous", "gigantic", "massive", "tremendous", "immense" va boshqalar – kontekstda qanday ishlatilishi, ularning ohangdagi farqlari hamda tarjimada qanday aks etishi ko'rib chiqiladi. Bundan tashqari, maqolada tarjima jarayonida yuzaga keladigan noziklíklar, konnotatsiyalar farqlari ham tahlil qilinadi, muammolarni yechish va ularni bartaraf etish usullari ko'rib chiqiladi. Tadqiqot natijalari tarjimonlar, til o'rganuvchilar va lingvistlar uchun foydali bo'lishi mumkin.*

***Kalit so'zlar:** sifatlar, sinonimlar, huge, lingvestika, leksik tahlil, semantika, sifatlovchi konnotatsiya.*

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ADJECTIVES THAT EXPRESS THE MEANING OF "HUGE" IN ENGLISH AND THEIR TRANSLATION INTO UZBEK

***Abstract:**This article analyzes the synonyms of the English word "huge" and their Uzbek translations. The adjective "huge" is widely used in English to express size, magnitude, or significance. The article examines how the synonyms of this word - for example, "enormous", "gigantic", "massive", "tremendous", "immense" and others - are used in context, their differences in tone, and how they are reflected in translation. In addition, the article analyzes the subtleties and differences in connotation that arise during the translation process, and considers methods for solving problems and eliminating them. The results of the study may be useful for translators, language learners, and linguists.*

***Keywords:** adjectives, synonyms, hughe, linguistics, lexical analysis, semantics, adjective connotation.*

Kirish

Til o'rganish jarayonida so'z boyligini kengaytirish va sinonim so'zlarning nozik ma'nodagi farqlarini anglash muhim ahamiyatga ega. Zamonaviy lingvistika va tarjimashunoslikda leksik birliklarning sinonimik qatlamini tahlil qilish dolzarb masalalardan biri hisoblanadi. Ayniqsa, ingliz tilidagi sifatlar tizimi o'zining boy sinonimlariga ega bo'lib, har bir sinonim so'z o'ziga xos semantik, stilistik va konnotativ xususiyatlarga ega. Ingliz tilidagi “huge” sifati — “katta”, “ulkan”, “g‘oyat katta” degan ma’nolarni bildiruvchi keng qo‘llaniladigan so‘zlardan biri sanaladi. Bu sifat, ayniqsa, matnlarda narsalarning o‘lchami, miqyosi yoki ahamiyatini ifodalashda faol ishlatiladi. Biroq ingliz tilida bu so‘zning o‘rnini bosuvchi boshqa ko‘plab sinonim sifatlar mavjud: “enormous”, “gigantic”, “massive”, “immense”, “tremendous” va boshqalar. Har bir so‘z semantik jihatdan “huge” so‘ziga yaqin bo‘lsa-da, ularning qo‘llanilish konteksti va hissiy ifoda kuchi bilan bir-biridan farq qiladi.

Mazkur maqola aynan shu jihatlarni yoritishga qaratilgan bo‘lib, “huge” sifatining sinonimlari qanday holatlarda ishlatilishi, ularning o‘zbek tiliga qanday tarjima qilinishi va tarjima jarayonida yuzaga keladigan semantik va stilistik noaniqliklar tahlil qilinadi. Tadqiqotda ingliz tilidagi zamonaviy lug‘at manbalari, korpus ma’lumotlari, tarjima matnlari va o‘zbek tilidagi izohli lug‘atlar asos sifatida tanlab olingan.

Bugungi kunda ingliz tilidan o‘zbek tiliga tarjimalar sonining ortib borayotganligi, ilmiy, texnik va badiiy matnlar hajmining kengaygani sababli, sinonim sifatlar bilan ishlashda aniqlikni ta’minlash dolzarb masalaga aylanmoqda. Ayniqsa, “huge” kabi keng qo‘llaniladigan sifatlar va ularning sinonimlarini to‘g‘ri tarjima qilish matn mazmunining to‘g‘ri yetkazilishida muhim ahamiyat kasb etadi. Shu sababli, bu mavzuni ilmiy asosda o‘rganish, leksik-semantik tahlil qilish va tarjima strategiyalarini ishlab chiqish tarjimonlar, til o‘rganuvchilar va lingvistlar uchun katta foyda keltiradi.

Shuningdek, ushbu mavzu doirasidagi tadqiqotlar tilning stilistik boyligini anglash, tarjima madaniyatini oshirish va ikki tilli tilshunoslikda kontrastiv yondashuvlarni chuqurlashtirishga xizmat qiladi. Maqolaning asosiy maqsadi — ingliz tilidagi “huge” so‘zining sinonimlarini aniqlash, ularning o‘zbek tilidagi tarjima variantlarini tahlil qilish va har bir sinonimning kontekstdagi o‘rnini ilmiy asosda izohlashdan iborat.

Mavzuga oid adabiyotlarning tahlili: Ingliz tilidagi sifat so‘zlarning tarjima jarayonida semantik aniqligini ta’minlash bo‘yicha ko‘plab tilshunoslar tadqiqotlar olib borgan. Xususan, Nida (E. Nida, 1964) tarjima nazariyasida sinonimlarning semantik yuklamalari va konnotatsiyalarini hisobga olish zarurligini urg‘ulaydi. U tarjimada ekvivalentlik faqat lug‘aviy moslik bilan emas, balki kontekstual va stilistik moslik bilan ham ta’minlanishini ta’kidlaydi. Bu yondashuv “huge” so‘zining sinonimlarini tarjima qilishda ham bevosita ahamiyatga ega.

Larson (M. L. Larson, 1998) esa tarjima nazariyasida sinonimik o‘zgaruvchanlik va ma’no darajalari haqida fikr yuritib, tarjimon matnning stilistik va madaniy kontekstiga mos ravishda so‘z tanlashi kerakligini ko‘rsatadi. Uning fikricha, “enormous”, “gigantic”, “tremendous” kabi so‘zlar o‘xshash lug‘aviy ma’noga ega bo‘lsa-da, ularning emotsional ohangi va qo‘llanilish doirasi farqli bo‘lishi mumkin.

Ingliz tilidagi zamonaviy lug‘atlar, jumladan Oxford English Dictionary, Cambridge Dictionary va Merriam-Webster Dictionarylarda “huge” so‘zining sinonimlari aniqlik bilan yoritilgan. Bu lug‘atlardagi tavsiflarda har bir sinonimning ishlatilish doirasi, ohangi, ijobiy yoki salbiy konnotatsiyasi va misollar bilan qo‘llanilishi ko‘rsatilgan. Masalan, Cambridge Dictionary “gigantic” so‘zini jismoniy hajmda juda katta bo‘lgan narsalar uchun ishlatilishini belgilaydi, “tremendous” esa odatda kuchli ta’sir yoki hayrat ifodasi uchun ishlatiladi.

O‘zbek tilidagi tarjimalar esa ko‘pincha “katta”, “ulkan”, “juda katta” kabi umumiy sifatlar bilan ifodalanadi. Bu holat O‘zbek tilining izohli lug‘ati (O‘zRFA, 2006) va ikki tilli tarjima lug‘atlarida kuzatiladi. Ammo tarjima jarayonida ba’zi noaniqliklar va semantik yo‘qotishlar aniqlanadi. Shu sababli, ba’zi tadqiqotchilar, jumladan, Sobitova Z. (2019) o‘z maqolalarida tarjima jarayonida sinonimlarni kontekst asosida aniqlik bilan tanlash zarurligini ta’kidlaydilar.

Shuningdek, ingliz tilidagi sinonimik tizimni o‘rganishda Cruse (D. A. Cruse, 1986) ning “Lexical Semantics” asari muhim manba hisoblanadi. U sinonim so‘zlar o‘rtasidagi semantik o‘xshashlik va farqlarni aniqlashda paradigmatik va sintagmatik munosabatlarga e’tibor qaratadi. Bu yondashuv “huge” va uning sinonimlarini ilmiy asosda taqqoslash imkonini beradi.

Tahlillardan ko‘rinadiki, adabiyotlarda “huge” sinonimlarining farqlari faqat grammatik emas, balki madaniy va stilistik jihatlardan ham yondashilgan. Ayniqsa, ingliz tilida sinonimlar boyligi tarjima jarayonida muayyan murakkabliklarni keltirib chiqaradi. O‘zbek tilida esa ularning aksariyati bir xil “katta” so‘zi orqali ifodalanadi, bu esa tarjimada semantik aniqlikni kamaytiradi.

Shu sababli, zamonaviy tarjima nazariyasida kontekstual yondashuv asosida sinonim tanlash muhim ekani ta’kidlanadi. Bu jihat “huge” so‘zining sinonimlari – “enormous”, “massive”, “immense”, “gigantic”, “tremendous” so‘zlarini to‘g‘ri tarjima qilishda ham muhim ahamiyat kasb etadi.

Tahlil va natijalar: Ushbu tadqiqot davomida ingliz tilidagi “huge” sifatining asosiy sinonimlari —“enormous”, “gigantic”, “massive”, “immense”, “tremendous” — semantik, stilistik va konnotativ jihatdan chuqur tahlil qilindi. Har bir sinonim o‘zbek tilida “katta”, “ulkan”, “juda katta” kabi umumiy so‘zlar bilan tarjima qilinsa-da, aslida ular turlicha semantik yuklamaga ega. Tahlil shuni ko‘rsatdiki, bu sinonimlar bir-biridan nafaqat ma’no darajasida, balki hissiy ohang, kontekstual qo‘llanish va stilistik ifoda bo‘yicha ham farq qiladi. Masalan: “A huge building” — “Katta bino” – neytral ma’noga ega; “A tremendous success” — “Hayratlanarli muvaffaqiyat” – ijobiy hissiy yuklama bilan;

Bundan ko‘rinadiki, tarjima paytida sinonimlarning kontekstdagi rolini inobatga olmaslik semantik xatoliklarga olib kelishi mumkin. Tarjima qilinayotgan matnda aynan qaysi aspekt (miqdor, hajm, hissiy ta’sir, muhimlik va boshqalar) ta’kidlanayotganini aniqlash zarur. Bu kontekstual yondashuv sinonimlarning o‘zbek tilidagi mos ekvivalentini to‘g‘ri tanlashga xizmat qiladi.

Shuningdek, sinchkovlik bilan olib borilgan lingvistik tahlil shuni ko‘rsatdiki, o‘zbek tilida “huge” sinonimlariga to‘la-to‘kis muqobil sifatlar mavjud emas. Shuning uchun tarjima paytida bir so‘z bilan emas, balki birikmalar orqali to‘liq ma’no ifodalash kerak bo‘ladi. Masalan, “immense knowledge” atamasi o‘zbekchada “behisob bilim”, “cheksiz bilim” tarzida tafsiliy ifoda etiladi.

Natijalar quyidagicha umumlashtiriladi: “Huge” sinonimlari lug‘aviy jihatdan bir-biriga yaqin bo‘lsa-da, semantik va konnotativ farqlarga ega. O‘zbek tilida bu farqlar ko‘pincha tarjimada yo‘qolib ketadi, bu esa matnning to‘g‘ri talqin qilinmasligiga olib kelishi mumkin.

Ingliz tilidagi so‘z boyligi o‘zbek tarjimasida ko‘proq izohlovchi so‘zlar yoki iboralar orqali ifodalanishi kerak. Ushbu tahlil ingliz tilidan o‘zbek tiliga tarjima qilinadigan matnlar sifati va aniqligini oshirishda amaliy yordam beradi. Ayniqsa, ilmiy-texnik, badiiy hamda publitsistik matnlarni tarjima qilishda sinonimlarning konnotatsion tafovutlarini hisobga olish muhim ahamiyatga ega.

Ingliz tilida “huge” sifati kattalik, ulug‘lik va salmoqlilikni ifodalash uchun keng ishlatiladi. Bu sifatning o‘rnini bosuvchi ko‘plab sinonimlar mavjud. Ushbu sinonimlar o‘zbek tiliga tarjima qilinayotganda ularning semantik, konnotativ va stilistik jihatlari inobatga olinishi lozim. Sinonim sifatlar o‘zaro yaqin bo‘lsa-da, ularning ishlatilish konteksti farqli bo‘lishi mumkin. Masalan, “enormous” sifati ko‘pincha miqdor yoki daraja jihatdan haddan tashqari kattalikni bildiradi. “Enormous” so‘zi o‘zbekchada “juda katta”, “nihoyatda ulkan” deb tarjima qilinadi. “Gigantic” esa shakl jihatdan g‘oyat katta va yirik narsalarni ifodalashda qo‘llanadi. Bu so‘z “g‘oyat katta”, “gullab-yashnagan” kabi tarjima qilinishi mumkin. “Immense” so‘zi esa ko‘pincha abstrakt tushunchalarga nisbatan ishlatiladi. Masalan, “immense power” – “ulkan kuch” degan ma’noni bildiradi. “Massive” sifati esa hajm va og‘irlik jihatidan katta narsa haqida so‘z yuritadi. U “salmoqli”, “og‘ir” tarzida tarjima qilinadi. “Tremendous” sifati ijobiy hissiyot yoki hayratni ifodalovchi ma’no yuklaydi. Bu so‘z “aql bovar qilmas”, “hayratlanarli” deb tarjima qilinadi.

Shu o‘rinda, har bir sinonimni o‘z joyida qo‘llash tilshunos va tarjimonlar uchun muhim masala hisoblanadi. Ingliz tilida sinonimlar juda boy bo‘lgani uchun ularni noto‘g‘ri ishlatish matnning umumiy ma’nosiga salbiy ta’sir ko‘rsatishi mumkin. Masalan, “a huge problem” va “a massive problem” iboralari o‘xshash tuyulsa-da, semantik rang jihatidan farqlidir. “Huge” bu yerda umumiy kattalikni bildirsa, “massive” muammoning murakkablik darajasini ta’kidlaydi. Shuningdek, “a tremendous opportunity” iborasida “tremendous” imkoniyatning hayratlanarli darajada katta ekanligini bildiradi. O‘zbek tiliga tarjimada esa “katta imkoniyat” iborasi orqali asosiy ma’no beriladi, ammo hissiy yuklama ko‘pincha yo‘qolib qoladi. Bu esa tarjimaning to‘liqligiga ta’sir etadi. Tarjimonlar ushbu konnotatsion farqlarni hisobga olgan holda ishlashi lozim. Sinonimlarning ma’no soyalarini tushunish tarjimada aniqlikni ta’minlaydi.

“Gigantic” so‘zining ishlatilishi ko‘pincha yirik, fizik jihatdan ulkan narsalarga nisbatan bo‘ladi. Masalan, “a gigantic statue” – “ulkan haykal” tarzida tarjima qilinadi. “Enormous” esa ba’zan salbiy konnotatsiyaga ham ega bo‘lishi mumkin, masalan: “an enormous debt” – “katta qarz”. Shuning uchun, sinonimlarning ijobiy yoki salbiy ohangi tarjimada to‘g‘ri aks ettirilishi kerak. “Immense” esa ko‘proq ijobiy ma’noda ishlatiladi: “immense talent” – “buyuk iste’dod”. Bu yerda “buyuk” so‘zi orqali ulkanlik va qadrlilik bir vaqtda ifodalanadi. “Massive” ba’zan tashqi shakl, ba’zan ichki og‘irlikni bildiradi. “Massive wall” –

“salmoqli devor”, “massive data” – “kattakon ma’lumotlar” degan ma’noni bildiradi.

Ingliz tilida sinonimlar kontekstga bog‘liq holda turlicha tarjima qilinadi. Bu holat o‘zbek tilida sinonimlar unchalik ko‘p bo‘lmagani uchun tarjimada muammolarni keltirib chiqarishi mumkin. Tarjima vaqtida sinonimlarning kontekstual ishlatilishini chuqur tahlil qilish zarur. So‘zning qanday matnda ishlatilgani tarjimani aniqlashtiradi. Masalan, “a huge responsibility” iborasida “katta mas’uliyat” ma’nosi yotadi, ammo bu oddiy “mas’uliyat”dan ko‘ra chuqurroq yuklamaga ega.

Tarjimada ohang, stilistika, semantik daraja va konnotatsiyalar muhim rol o‘ynaydi. Har bir sifat so‘z o‘zining muayyan hissiy yukiga ega bo‘lishi mumkin. Shu bois tarjimon matnning maqsadini chuqur tushungan holda tarjima qilishi kerak. “Huge” va uning sinonimlari orqali ifodalangan ulkanlik darajasi har doim ham bir xil emas. Ularning ba’zilari umumiy kattalikni, boshqalari esa hissiy ta’sir yoki muhimlikni bildiradi. “Tremendous” bu jihatdan juda ifodali so‘z bo‘lib, o‘zbek tilida to‘liq ekvivalentga ega emas. U tarjimada kontekst asosida mos so‘zlar bilan berilishi lozim. “A tremendous effort” – “hayratlanarli mehnat”, “nihoyatda katta sa’y-harakat” kabi talqin qilinadi.

“Enormous”, “gigantic”, “immense”, “massive”, “tremendous” so‘zlari tarjimada ko‘pincha “katta” yoki “ulkan” degan umumiy so‘z bilan cheklanib qoladi. Bu esa ma’no noaniqligiga olib kelishi mumkin. Shu sababli, sinonimlar tanlashda ehtiyotkorlik zarur. Tarjimada konnotatsiyali sinonimlarni aniq farqlash bilim va tajribani talab qiladi. Har bir sinonim o‘zbek tilida o‘ziga xos ekvivalentlar bilan ifodalanishi kerak. Tilshunoslar bu borada qo‘shimcha izlanishlar olib borishlari zarur. Shuningdek, bu so‘zlar o‘rganuvchilar uchun yangi so‘z boyligini shakllantirishda ham muhim rol o‘ynaydi.

Sinonimlarning nozik ma’nolarini anglash ingliz tilini chuqur o‘rganishda ham muhimdir. Ularni matnlarda to‘g‘ri ishlatish yoki tarjima qilish orqali til sezgirligi ortadi. “Huge” so‘zining o‘zi oddiy tuyulsa-da, uni ifodalovchi sinonimlar til boyligining asosiy ko‘rsatkichlaridan biridir. O‘zbek tilida har bir konnotatsiyani to‘liq berish imkoni bo‘lmasa-da, o‘rinli sinonim tanlash orqali semantik aniqlikni saqlash mumkin.

Yuqoridagi misollar shuni ko‘rsatadiki, tarjimada “huge” sinonimlarini noto‘g‘ri talqin qilish matnning umumiy mazmunini o‘zgartirib yuborishi mumkin. Shu bois tarjimada nafaqat so‘zning lug‘aviy ma’nosi, balki uning kontekstdagi vazifasi, hissiy ta’siri va stilistik o‘rni ham hisobga olinishi shart. Bu esa tarjima sifatini oshirishda va til o‘rgatishda muhim ahamiyat kasb etadi.

Sifat-narsa va buyum belgisini bildiradigan so‘zlar bo‘lib qanday? qanaqa? so‘roqlariga javob bo‘ladi va gapda asosan aniqlovchi (sifatlovchi) kesim, ba’zan hol vazifasida keladi. Ingliz tilida sifatlar otni yoki olmoshni aniqlab keladi va shaxs, narsa, joy yoki fikr haqida ma’lumot beradi.Ingliz tilida sifatlarni aniqlash uchun quyidagi savollardan foydalaniladi: 1) What kind? 2) How many? 3) Which one?

Sifatlarni ma’no xususiyatlariga ko‘ra quyidagicha guruhlashimiz mumkin;

1) Rang -tus bildiruvchi sifatlar (Color indicating adjectives).

Example: Oq (white), qora (black)

2) Shakl - hajm, o‘lchov bildiruvchi sifatlar (shape-so‘z, volume indicating adjectives).

Example: katta (big), kichik (small), keng (wide), ulkan (huge), uzun (long)

3) Maza - tam bildiruvchi sifatlar: (Taste-smell indicating adjectives) shirin (sweet), sho‘r (salty), nordon (sour), bemaza (tasteless).

4) Character and personal quality indicating adjectives. (Xarakter va xususiyat bildiruvchi sifatlar).

Example: yaxshi (good), yomon (bad), qo‘pol (rude), kamtar (modest), odobli (polite).

Bundan tashqari kishilarning belgi xususiyatlarini bildiruvchi sifatlarga kar (deaf), kal (bald), shahloko‘z (uoss-eyed) kabi ma’no turlariga tasniflashimiz mumkin.

Ushbu maqolada ingliz tilidagi “Huge” sifati va unga yaqin sinonimlar, ingliz va o‘zbek tilidagi ekvivalentlari ko‘rib chiqiladi. Ikkala tilda ham hajm, o‘lcham va ko‘lamni ifodalovchi “Huge” sifati hajm, o‘lchov va ko‘lamni ifodalovchi sifatlar (katta-big), (ulkan-vast), (nihoyatda katta -enormous), (bahaybat -gigantic) kabi obrazlikni kuchaytiradi va shu bilan birga gapning semantik yukini belgilaydi.

Ingliz tilida “Huge” ma’nosini ifodalovchi sifatlarning sinonimik qatoriga quyidagi sifatlarni kiritish mumkin: colossal, elephantine, enormous, gigant, gigantic, grand, immense, mountainous, tremendous.

Ushbu sifatlarning barchasi “huge” ma’nosiga yaqin bo‘lsada ularning emotsional qiymati va qo‘llanishi doirasi va konnatatsiyasi farqlanadi.

Masalan: 1) huge buildings, a huge deficit. 2) Chormous house enormous costs.

O‘zbek tilida “katta” ma’nosini ifodalovchi sifatlarga quyidagilarni misol keltirishimiz mumkin: G‘oyat katta – (poetik ifoda), Ulkan -keng, buyuk-(neytral) bahaybat - hajman katta, kuchli ta’sirni beqiyos - taqqoslab bo‘lmaydigan kabi ma’nolarni ifodalaydi.

Ushbu sifatlar ingliz tilidagi “Huge” va uning sinonimlariga muqobil bo‘la oladi.

Xulosa: Tadqiqot davomida ingliz tilidagi “huge” sifatining sinonimlari — “enormous”, “gigantic”, “massive”, “immense”, “tremendous” — leksik-semantik, konnotativ va stilistik jihatdan tahlil qilindi. Tahlillar shuni ko‘rsatdiki, bu sifatlar o‘zaro ma’nodosh bo‘lsa-da, ularning qo‘llanish konteksti, emotsional rang-barangligi va tarjima uslubi bir-biridan sezilarli darajada farq qiladi.

O‘zbek tiliga tarjima jarayonida ushbu sinonimlar ko‘pincha umumiy so‘zlar — “katta”, “ulkan”, “juda katta” kabi atamalar bilan beriladi. Ammo bu yondashuv semantik noaniqlik, hissiy ohang yo‘qolishi va matn mazmunining to‘liq ifodalanmasligi kabi muammolarga olib keladi. Shuning uchun tarjimonlar har bir so‘zning kontekstdagi funksiyasini, semantik yuklamasini va stilistik ohangini chuqur tahlil qilgan holda mos tarjima variantini tanlashlari zarur. Ushbu maqola natijalari ingliz tilidan o‘zbek tiliga tarjima qilinayotgan matnlarda sifat so‘zlarning chuqur tahliliga asoslangan tarjimasini yo‘lga qo‘yish, til o‘rganuvchilar uchun sinonimlarni to‘g‘ri qo‘llashda yordam berish va tarjimonlar malakasini oshirishda amaliy ahamiyatga ega. Kelgusida sinonim sifatlarning boshqa til juftliklaridagi tarjimasi va ularning pragmatik funksiyalarini o‘rganishga qaratilgan keng qamrovli tadqiqotlar olib borilishi maqsadga muvofiqdir.

Xulosa qilib aytadigan bo‘lsak ingliz tilidagi “Huge” va uning ma’nosini ifodalovchi sifatlarni o‘zbek tiliga tarjima qilish jarayonida to‘g‘ri ekvivalent tanlash, emotsional yuklamani hisobga olish, konteksga moslashtirishni inobatga olish zarurdir.

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BOSHLANG‘ICH TA’LIM TALABALARIDA EKO-STEAM YONDASHUVNI TIME-LAPSE TEXNOLOGIYASI YORDAMIDA TAKOMILLASHTIRISH

Аннотатсия: *Ushbu tadqiqotda bo‘lajak boshlang‘ich ta’lim o‘qituvchilarining ekologik kompetensiyasini shakllantirishda STEAM yondashuvi va Time-lapse texnologiyasidan foydalanish metodikasi yoritiladi. Time-lapse texnologiyasi orqali ekologik jarayonlarni dinamik ifodalash va talabalarning kuzatuv hamda tahlil qilish ko‘nikmalarini rivojlantirish imkoniyatlari o‘rganiladi. Shuningdek, pedagogik jarayonda innovatsion metodlardan foydalanish samaradorligi tahlil qilinadi.*
Калит сўзлар: *STEAM ta’lim, ekologik kompetentlik, time-lapse texnologiyasi, innovatsion, ko‘nikma, raqamli texnologiyal, креатив педагогика.*

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IMPROVING THE ECO-STEAM APPROACH IN ELEMENTARY EDUCATION STUDENTS USING TIME-LAPSE TECHNOLOGY

Abstract: *This study explores the methodology of employing the STEAM approach and time-lapse technology in developing the environmental competence of future primary school teachers. The use of time-lapse technology enables dynamic representation of ecological processes and fosters students’ observational and analytical skills. Furthermore, the study analyzes the effectiveness of integrating innovative methods into the educational process.*
Keywords: *STEAM education, ecological competence, time-lapse technology, innovative, skills, digital technology, creative pedagogy*

Kirish. Zamonaviy ta’lim tizimi ekologik ong va barqaror rivojlanish tamoyillarini shakllantirishga yo‘naltirilgan innovatsion yondashuvlarni talab qiladi. Xususan, boshlang‘ich ta’lim bosqichida ekologik kompetensiyani shakllantirish kelajak avlodning atrof-muhitga nisbatan ongli va mas’uliyatli munosabatini rivojlantirishda muhim ahamiyat kasb etadi. Ushbu jarayonda STEAM yondashuvi va zamonaviy axborot texnologiyalari muhim rol o‘ynaydi.

O‘zbekiston Respublikasi Prezidenti tomonidan imzolangan qator farmon va qarorlar ekologik ta’limni rivojlantirish hamda ta’lim jarayonlariga innovatsion yondashuvlarni joriy etish zarurligini ta’kidlaydi. Jumladan, O‘zbekiston Respublikasi Konstitutsiyasi 40-modda [1]. O‘zbekiston Respublikasi

Prezidentining 2018-yil 5-sentyabrdagi “Xalq ta’limi tizimiga boshqaruvning yangi tamoyillarini joriy etish chora-tadbirlari to‘g‘risida”gi PQ-3931-son qarori [2], shuningdek, “2030-yilgacha bo‘lgan davrda O‘zbekiston Respublikasining atrof-muhitni muhofaza qilish konsepsiyasini tasdiqlash to‘g‘risida”gi PF-5863-son farmoni [3] va 2022-yildagi PF-134-son farmonida [4] ekologik ta’limni rivojlantirish muhimligi qayd etilgan.

STEAM yondashuvi – fan (Science), texnologiya (Technology), muhandislik (Engineering), san’at (Arts) va matematika (Mathematics) integratsiyasiga asoslangan bo‘lib, talabalarning kreativ tafakkurini rivojlantirish, muammolarni hal qilish qobiliyatini oshirish va tadqiqotga yo‘naltirilgan faoliyatni rag‘batlantirishga xizmat qiladi. Ayniqsa, ekologik ta’lim jarayonida ushbu yondashuvdan samarali foydalanish real hayotiy jarayonlarni ilmiy tahlil qilish imkoniyatlarini kengaytiradi.

Time-lapse texnologiyasi ekologik jarayonlarning dinamikasini aniqlash va kuzatish uchun qulay vosita hisoblanadi. Ushbu texnologiya yordamida o‘quvchilar ekologik o‘zgarishlarni tezlashtirilgan formatda kuzatish, ularni tahlil qilish hamda ekologik xabardorlikni oshirish imkoniyatiga ega bo‘ladilar. Bundan tashqari, Time-lapse texnologiyasidan foydalanish ta’lim jarayonida kuzatuvchanlikni rivojlantirish, eksperimental tahlil qilish va ilmiy tadqiqot olib borish ko‘nikmalarini shakllantirishga yordam beradi.

Ushbu tadqiqot bo‘lajak boshlang‘ich ta’lim o‘qituvchilarining ekologik kompetensiyasini rivojlantirishda STEAM yondashuvi va Time-lapse texnologiyasidan foydalanish metodikasini ishlab chiqishga qaratilgan. Tadqiqot natijalari boshlang‘ich ta’limda ekologik tarbiya samaradorligini oshirishga hamda o‘qituvchilarning kasbiy tayyorgarlik jarayonida innovatsion yondashuvlarni keng joriy etishga xizmat qiladi.

Adabiyotlar tahlili va metodologiya. Boshqa sohalar singari ekologik ta’limda ham innovatsion pedagogik yondashuvlar, jumladan, STEAM (Science, Technology, Engineering, Arts, and Mathematics) yondashuvi keng qo‘llanilmoqda. STEAM yondashuvi ekologik ta’limda ham samarali natijalar bermoqda, chunki u o‘quvchilarga ijodkorliklarini rivojlantirish va ekologik muammolarni yechishda kompleks yondashuvlarni qo‘llash sharoitini yaratadi. Bundan tashqari, time-lapse texnologiyasining ekologik ta’limga qo‘shgan hissasi katta ahamiyatga ega. Bu texnologiya, ayniqsa, ekologik jarayonlarning tezlashtirilgan tasvirlari yordamida o‘quvchilarga tabiatdagi o‘zgarishlarni ko‘rsatish va ularni tahlil qilishda samarali vosita sifatida ishlatiladi. Time-lapse texnologiyasi o‘quvchilarga ekologik jarayon va hodisalarni bevosita kuzatish imkonini yaratib, ularni yanada chuqurroq tushunishga va ko‘proq o‘rganishga undaydi.

Adabiyotlarda ekologik ta’lim va STEAM yondashuvining integratsiyasi bo‘yicha bir nechta tadqiqotlar mavjud. Tilavova S.B. o‘z tadqiqotlarida ekologik ta’limni ilm-fan va texnologiya bilan birlashtirishning samaradorligini ta’kidlagan. Shuningdek, u STEAM yondashuvining ekologik muammolarni hal qilishdagi ahamiyatini yoritib bergan [5].

Time-lapse texnologiyasining ekologik ta’limga ta’siri bo‘yicha ham bir qator tadqiqotlar olib borilgan. Elliott va Pedersen [6] time-lapse texnologiyasining o‘quvchilarning ekologik ongini rivojlantirishdagi rolini o‘rganganlar. Ushbu texnologiyaning o‘quv jarayoniga integratsiyasi ekologik jarayonlarni vizual kuzatish va tahlil qilishda samarali vosita bo‘lib, o‘quvchilarning ekologik tafakkurini shakllantirishga yordam beradi.

Tadqiqot metodologiyasi ekologik ta’lim jarayonida STEAM yondashuvining o‘ziga xos xususiyatlarini hisobga olgan holda, time-lapse texnologiyasining samaradorligini baholashga yo‘naltirilgan. Bu metodologiya o‘quvchilarning ekologik tafakkurini rivojlantirish va amaliy ko‘nikmalarini oshirishda samarali hisoblanadi.

Natijalar. Olib borilgan tadqiqot natijalariga ko‘ra, bo‘lajak boshlang‘ich ta’lim o‘qituvchilarining ekologik kompetensiyasini shakllantirishda STEAM yondashuvi va Time-lapse texnologiyasidan foydalanish samarali ekani aniqlandi. Ushbu yondashuv orqali talabalarning ekologik jarayonlarni chuqur tushunishi, kuzatuv va tahlil qilish qobiliyatlari sezilarli darajada rivojlanishi kuzatildi. Time-lapse texnologiyasi yordamida o‘quvchilar atrof-muhitdagi o‘zgarishlarni vizual tarzda kuzatib, ularning sabab-oqibat aloqalarini tahlil qilish imkoniga ega bo‘ldilar. Bu esa ekologik muammolar bo‘yicha ilmiy fikrlash va muammolarni hal qilish kompetensiyasini shakllantirishga xizmat qildi.

Shuningdek, STEAM yondashuvi orqali o‘quvchilarning ilmiy-tadqiqot faoliyatiga bo‘lgan qiziqishi ortdi, ekologik loyihalarni ishlab chiqish va innovatsion yechimlarni taklif etish malakalari rivojlandi. Olingan natijalar ko‘rsatdiki, ushbu metodika pedagogik jarayon samaradorligini oshirishga hamda o‘qituvchilarning kasbiy tayyorgarligini yangi bosqichga olib chiqishga xizmat qiladi.

Muhokama Zamonaviy ta’lim tizimida ekologik kompetensiyani shakllantirish muhim vazifalardan biri bo‘lib, bu jarayonda innovatsion texnologiyalar va integratsiyalashgan yondashuvlar katta ahamiyat kasb etadi. Ayniqsa, STEAM yondashuvi orqali ekologik ta’limni rivojlantirish va uni Time-lapse texnologiyasi bilan uyg‘unlashtirish pedagogik jarayonning samaradorligini oshirishga xizmat qiladi.

Time-lapse texnologiyasi ekologik jarayonlarning dinamikasi va vaqt bo‘yicha o‘zgarishini aniq va tushunarli shaklda aks ettirish imkonini beradi. Ushbu texnologiya yordamida talabalar o‘z kuzatuvlarini ilmiy asosda olib borish, tabiiy hodisalar va ekologik o‘zgarishlarni batafsil tahlil qilish imkoniyatiga ega bo‘ladilar. Masalan, o‘simliklarning o‘sish jarayoni, iqlim o‘zgarishlarining ta’siri yoki atrof-muhitning degradatsiyasi kabi jarayonlarni vizual kuzatish orqali talabalar ekologik tafakkurni chuqurroq rivojlantirishi mumkin.

Shuningdek, STEAM yondashuvi bilan bog‘liq holda Time-lapse texnologiyasidan foydalanish o‘quvchilarning ilmiy-tadqiqot va ijodiy faoliyatini faollashtiradi. STEAM integratsiyasi orqali ekologik muammolarni o‘rganish jarayoni nafaqat tabiiy fanlar doirasida, balki muhandislik, san’at va texnologiya kabi yo‘nalishlar bilan ham uyg‘unlashadi. Bu esa o‘quvchilarning keng qamrovli tahlil yuritish va muammolarni kompleks hal qilish qobiliyatini shakllantiradi.

Muhokamalar shuni ko‘rsatadiki, bo‘lajak boshlang‘ich ta’lim o‘qituvchilari uchun ushbu metodikaning ahamiyati beqiyos bo‘lib, ularning pedagogik faoliyatida ekologik ong va mas’uliyatni oshirishga xizmat qiladi. Kelgusida ushbu metodikani yanada takomillashtirish va keng ko‘lamda tatbiq etish ta’lim jarayonining innovatsion jihatlarini kuchaytirishi mumkin.

Xulosa. Olib borilgan tadqiqot natijalari shuni ko‘rsatdiki, bo‘lajak boshlang‘ich ta’lim o‘qituvchilarining ekologik kompetensiyasini shakllantirishda STEAM yondashuvi va Time-lapse texnologiyasidan foydalanish samarali metod hisoblanadi. Ushbu yondashuv ekologik jarayonlarning dinamikasini tushunishga, kuzatuv va tahlil qilish ko‘nikmalarini rivojlantirishga yordam beradi. Time-lapse texnologiyasi ekologik hodisalarni vizual ifodalash orqali talabalarning ekologik tafakkurini rivojlantirishga xizmat qiladi. Shu bilan birga, STEAM yondashuvi muhandislik, texnologiya va san’at elementlarini birlashtirib, ekologik ta’limning integratsiyalashgan modelini yaratishga imkon beradi. Tadqiqot natijalariga ko‘ra, ushbu metodika boshlang‘ich ta’lim o‘qituvchilarining ilmiy-tadqiqot faoliyatini faollashtirish, innovatsion pedagogik texnologiyalarni samarali qo‘llash va ekologik madaniyatni shakllantirishda muhim ahamiyat kasb etadi. Bu esa ekologik ta’lim sifatini oshirish va o‘qituvchilarning kasbiy tayyorgarligini kuchaytirishga xizmat qiladi.

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MAKTABGACHA TA`LIM TASHKILOTLARIDA BOLALARNI UY VA YOVVIOYI HAYVONLAR BILAN TANISHTIRISH USULLARI

Annatotsiya: *Bolalarni jonli va jonsiz tabiat haqidagi tushunchalarini rivojlantirish, ularda tabiatga to`g`ri muosabatni shakllantirish, ona vatanga muhabbat ruhida tarbiyalash maktabgacha ta`lim tashkilotining asosiy maqsadining bir qismidir.*
***Kalit so`zlar:*** *uy va yovvoyi hayvonlar, usullar, hayvonlarning yashash tarzi, o`ynlar, sezgilar orqali o`rganish, ertak va hikoyalar, amaliy mashg`ulotlar.*

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METHODS OF INTRODUCING CHILDREN WITH DOMESTIC AND WILD ANIMALS IN PRESCHOOL EDUCATIONAL ORGANIZATIONS

Abstract: *Developing children's understanding of animate and inanimate nature, forming in them a correct attitude towards nature, and educating them in the spirit of love for the motherland are part of the main goals of the preschool educational organization.*
Keywords: *domestic and wild animals, methods, animal lifestyles, games, learning through the senses, fairy tales and stories, practical exercises.*

Maktabgacha yoshdagi bolalarning dunyoqarashi va tushunchalari juda tez shakllanadi. Ular uchun hayvonlar, ularning yashash joylari va xulq-atvori haqida bilim olish qiziqarli, shuning bilan birga bolalarning aqliy, axloqiy rivojlanishining muhim qismi hamdir. Bolalarning har bir yosh davrida turlicha rivojlanish xususiyatlariga ega ekanliklarini hisobga olib ular uchun hayvonlar haqida ma’lumotlarni yetkazishning turli yosh guruhlariga mos usullarini tanlay bilish muhimdir. Bolalarni hayvonlar bilan tanishtishda, ularning o‘ziga xos qiziqishlari, kognitiv va hissiy rivojlanishi, yurtimizda kengaygan metodologiyalarga asoslanadi. Har bir yosh bosqichida bolalar o‘zlarining rivojlanish darajasiga mos tarzda hayvonlar bilan tanishtirilishi kerak.

Jumladan, 2-3 yoshdagi bolalar uchun uy va yovvoyi hayvonlar bilan tanishtirar ekanmiz, bu yoshdagi bolalarda sezgilarning rivojlanishini e`tiborga olish lozim bo`ladi. Bu davrda bolalar rivojlanish sezgilar orqali o‘rganishga asoslangan, ya’ni ular ko‘rgan, eshitgan, his qilgan narsalarni tezda o‘zlashtiradilar. Bu yoshda bolalar uchun hayvonlar haqida bilimlar oddiy, aniq va sezilarli bo‘lishi kerak. Uy va yovvoyi hayvonlarning xarakteristikalari va tovushlari ularning rivojlanishiga mos ravishda taqdim etilishi zarur, bo`lib quyidagi usullardan foydalanish maqsadga muvofiqdir:

Hayvonlarning tovushlarini takrorlash: Bu yoshdagi bolalar ko‘p hollarda tovushlar-ga e’tibor beradilar. Ular hayvonlarning tovushlarini, masalan, itning “vov-vov” de-

gan ovozini yoki mushukning “miyov” lagan tovushini eshitib, eslab qoladilar, ular bilan o‘ynashni yaxshi ko‘radilar. Bu usul orqali bola hayvonlarning xususiyatlarini o‘rganadi.

Hayvonlarni tasvirlash: Rasmlar yoki videolavhalar yordamida hayvonlarni tanishtirish. Masalan, it va mushukning rasmiga qarash va ularga bog‘liq turli harakatlarni videoda ko‘rsatish orqali bola ular haqida tasavvurga ega bo‘ladi.

O‘yinlar va taqlid qilish: Bolalarga hayvonlarning harakatlarini takrorlashni taklif qilish. Masalan, ular itning yugurishini yoki qushning uchishini taqlid qilib, o‘zlarini hayvonlar sifatida his qilishadi.

3-4 yoshdagi bolalar ko‘proq tushunchalarga ega bo‘lib, ular hayvonlar va tabiat haqidagi bilimlarni rivojlantirishda qiziqish bildira boshlaydilar. Ushbu davrda bolalarda tasavvurlar birmuncha kengayadi va ular hayvonlar haqidagi bilimlarni anglashda ijtimoiy va ahloqiy o‘rganishga qiziqishadi. Hayvonlar va ularning yashash joylari haqida tushunchalar ularga yanada yaxshiroq bilib olish imkonini beradi.

Ushbu yoshda bolalar bilan quyidagi usullardan foydalanish tavsiya etiladi:

Kichik hikoyalar va ertaklar aytish: Bu yoshdagi bolalar uchun hayvonlar haqidagi oddiy hikoyalar yoki ertaklar o‘qish orqali ularning tasavvurlari kengayadi. Masalan, "Bo‘ri va quyon" yoki "Mushuk va uning bolallari" kabi hikoyalar bolalarni hayvon-larning xarakterli xususiyatlarini tushunishga undaydi.

Hayvonlarni yashash joylariga qarab tasniflash: Uy hayvonlari va yovvoyi hayvonlarni farqlash va ularning yashash joylari haqida tushunchalar berish. Misol uchun, "it uyda yashaydi, mushuklar esa ko‘pincha uyda yoki bog‘da yashaydi" kabi oddiy tushunchalar bolalar uchun muhim bo‘ladi.

O‘yinlar orqali tanishtirish: Hayvonlarning xususiyatlarini o‘rganish uchun turli o‘yinlar o‘tkazish mumkin. Masalan, “Hayvonlar qayerda yashaydi?”, “Uy va yovvoyi hayvonlar nima bilan farq qiladi?”, “Bu kimning bolasi?” kabi o‘yinlarda bolalar hayvonlarni yashash joylari bilan bog‘lashni o‘rganadilar.

4-5 yoshda bolalar ko‘proq tafakkur qilishni boshlaydilar. Ular hayvonlarning turli xususiyatlarini, yashash joylari va ozuqlanish tartibini bilishga qiziqadilar. Ushbu yoshda bolalar murakkabroq tushunchalar va bilimlarga ega bo‘ladi. Hayvonlar haqidagi ilmiy bilimlar bolalarning dunyoqarashini yanada kengaytiradi. Bu yoshdagi bolalar uy hayvonlari yashash joyi va oziqlanishi va yovvoyi hayvonlarning xarakterli xususiyati haqida tushunchaga ega bo`la boshlaydilar. Shuningdek, uy hayvonining nega uy hayvoni, yovvoyi hayvonlarning yovvovi tarzda hayot kechirishi haqida bir muncha tasavvurga ega bno`la boshladilar.

Bolalarni hayvonlar haqidagi bilimlarini oshirish maqsadida quyidagi usullardan foydalanish maqsadga muvofiqdir.

Tabiatga sayohatlar: Hayvonlarni haqiqiy yashash joylarida ko‘rish uchun bolalar bilan tabiatga sayohat uyushtirish. Misol uchun, hayvonot bog‘lariga borish yoki tabiat qo‘riqxonalari haqida o‘rganish orqali ular hayvonlarning tabiiy muhitini ko‘rishlari mumkin.

Hayvonlarning oziqlanishi va turli xususiyatlarini o‘rganish: Masalan, "itlar go‘sht yeydi", "qushlar urug‘lar bilan oziqlanadi", “Sigir o`t yeydi” , “ Tulki nima yeydi?” kabi bilimlarni bolalar bilan muhokama qilish. Bu orqali ular hayvonlarning oziqlanish tartibini o`rganadilar va tabiatdagi o‘rni haqida bilimga ega bo`lishhadi.

Ijodiy faoliyatlar: Bolalar bilan hayvonlar haqidagi rasmlarni chizish, hayvonlar haqida kichik hikoyalar tuzish yoki o`yinlar orqali ularning obrazini yaratish. Bu faoliyatlar bolalarga hayvonlarni yanada kengroq tushunishga yordam beradi.

5-6 yoshdagi bolalar o‘zlarining ilmiy va tahliliy fikrlash ko‘nikmalarini rivojlantiradilar. Bu yoshda bolalar hayvonlarning turli xususiyatlarini chuqurroq o‘rganadilar va hayvonlarning tabiatdagi o‘rnini tushunishga ko`proq qiziqadilar. Bolalarning uy va yovvoyi hayvonlar haqidagi bilimlarini turli faoliyatlar orqali yanada kengaytirishlari mumkin. Bolalar uy va yovvoyi hayvonlarni bir- biridan farqini ularning turmush tarzidagi farqdan bilib oladilar, uy havonlarining uyda yashashidan tashqari odamlarga keltiradigan foyadasi haqida tushunchaga ega bo`ladilar, yovvoyi hayvonlarni yovvoyi tabiatdagi o`rni va ahamiyatini tushuna boshlaydilar.

Hayvonlar haqida ilmiy tadqiqotlar: Bolalar bilan hayvonlarning turlarini o‘rganish. Masalan, "Tovuq qanday tuxum beradi?", “Tuyaning o`rkachi nima vazifani bajaradi”, "Filning uzun burni nima uchun kerak?" kabi savollarni muhokama qilish orqali bolalar hayvonlar haqidagi ilmiy tushunchalarni o‘rganadilar.

Loyihalar va amaliy mashg‘ulotlar: Hayvonlar haqida o‘qib-yozish (tarbiyachi yordamida), rasm chizish yoki maketlar yasash orqali bolalar hayvonlar haqida ilmiy va amaliy bilimlarni egallashadi.

Tabiatni humoya qilish: Yovvoyi hayvonlarning saqlanishi va ularning tabiatdagi o‘rni haqida mashg`ulotlar o‘tkazish, videofimlar namoyish etish. Bolalarga hayvon-lar va tabiatni asrab-avaylashning ahamiyati haqida tushunchalar berish.

Xulosa sifatida aytish mumkinki, bolalarni kichik yoshidan boshlab tabiat bilan yaqin munosabatini rivojlantirish, ularning ekologik bilimlarini oshirish, atrof-olamga, ona tabiatga g`amxo`rlik ruhida tarbiyalash maktabgagacha ta`lim tashki-lotining bugungi kundagi muhim vazifalaridan biridir.

Bolalarga uy va yovvoyi hayvonlarning tabiatdagi o`rni haqida bilimlar berish va ularning hayotiy tajribalarini oshirishda tarbiyachi bolalarning yosh xususiyatini hisobga olishi, ularning qiziqishini hisobga olgan holda tegishli usullarni qo`llay bilishi muhimdir.

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THANATOLOGY IN PHILOSOPHY

Abstract: *In this article, we tried to shed light on the issue of death in philosophy. We analyze the approaches to the issue of death in medicine, psychology and philosophy. The goals also include examining the mediating impact of modern societies among the links of death theories in philosophy. This study has taken the quantitative method and received the data from researchers in philosophy, politics and sociology using questionnaires. The results indicated that problem of death in philosophy associated with the modernization of philosophy. These results indicate that philosophical issues related to death in the modern world have not yet been fully resolved*

Key words: *soul, death, karma, euthanasia, reinkornation.*

No matter what society a person lives in, whether it is developed or not the issue of death is always relevant. To see a person lying on the verge of death makes a person shudder. Death is interpreted as an element that proves the existence of a person in life. Death scares people regardless of the culture and level of development of the society. Researcher Asafaylo, considering the phenomenon of death, believes that it is formed in a community related to beliefs and rituals. He said, "The fact of death of man, and at the same time his desire for life, is a serious motivation for the development of the soul and the soul after death ." Thus, beliefs and rituals related to death can have a profound effect on people, both those who know that death is near and those who are waiting for the death of their loved ones while they are still alive. Death scared everyone, and perhaps that is why the dead were taboo in early human cultures. Primitive communities created many rituals in order to not disturb their ancestors in the society, they did not even remember the names of the dead in such rituals.

Sigmund Freud commented on this in his book "Totem and Taboo": "Even though the corpse is a good person during life, after death it becomes evil and wants to harm its relatives and friends believed. It is possible that the corpse gave rise to the idea of not only a spirit but also an evil spirit in the eyes of a person. But one question is discussed among different researchers. The question of why a person is buried after death has always been controversial. Historians say that this tradition has existed since the Middle Paleolithic. E. Mircha said that this ceremony was not only for practical purposes, but also had some philosophical meaning. In some tribes of the Slavs, it was customary to bury a person after his death in an embryonic form. The reason for this is that it can be assumed that the appearance of a person should be proportional to his death.

There are several modern concepts of burial after death:

Hygienic reason. According to this determinism, burying the body in the ground prevents the spread of diseases and microorganisms that threaten public health from the body of the deceased. In addition, it protects the remains of corpses from being scattered.

Religious and cultural factors. In many religious traditions, burial is considered a spiritual state. For example, in Christianity and Islam, it is customary to bury the human body.

Honoring his memory . Burying the dead is a way of honoring the memory of the deceased and paying respect to his soul. Creating conditions for visiting them in cemeteries.

Laws and social rules cause. Many countries and regions have laws and regulations regarding burial of the deceased. This can be related to public safety, environmental land use regulation.

The appearance of the funeral ceremony has completely developed people's views on the afterlife. Many findings support these ideas. Death took the status of an element that regulates the universe in the eyes of a primitive person, therefore Y. Antonyan "death is interpreted as a magical force for creation and birth in the life of a primitive society "

It can be said that the ideas about the other world and the afterlife appeared in parallel with the ideas about the soul. The reason is that a person's perception of the soul increases his desire for the next life. In addition, while observing life, a person involuntarily thinks about the essence and meaning of his life on earth. Perhaps this process means that a person has transformed from an initial religious worldview to a philosophical worldview. Death stopped the physical life of a person and tried to create an image of the soul for primitive people. If we come to the conclusions of Y. Antonyan, it is the soul that gives a person the opportunity to overcome the fear of death. Gradually, a person's abandonment of the universal idea of the soul helps to search for the source of the concept of "life" in people. Thus, the concept of animate and inanimate nature emerges in the human mind, and images of supernatural beings - soul and spirit - are formed based on the sources of vitality. In the eyes of primitive people, only high people can see it. In his research, E. Mircha expressed an opinion about the shaman, the intermediary between man and soul, and means that he appeared in the early Paleolithic period.

The British sociologist George Fruzer based his conclusions on the observations of peoples at the stage of primitive development and puts forward such an opinion - "In the primitive period, the soul was not considered a purely spiritual object, it had a material basis." It believed that he resides within every being in material form. If a living thing lives and moves, it is, according to primitive man, that some small "animal" lives within it, and this living thing is called a soul. Giving life to inanimate objects is a human concept . Because mankind believed in ancient Greek myths. Through this, animistic thinking appears in a person. Some experts have considered the idea of the soul to be instinctive in nature. This indicates that the first worldview of man was based on animism.

Conclusion

Today, concepts of the soul are used differently in different fields. It does not have a unified syncretic concept. Therefore, in all nations, it has a different approach. To this day, it is closely related to the concept of morality.

In the views of Eastern and Western philosophers, the concept of soul differs from each other. In particular, the western view is based on morality, while the eastern view is related to religion. The Eastern "soul" is subject to fatalism, while the Western "soul" appears rebellious. The Eastern soul is more emotional, while the Western soul is more intellectual.

The issue of death also has its place in the development of philosophical thinking, and to date, the development of the science of anatomies has led to new achievements in medicine. That is why the old stereotypes about death have disappeared nowadays.

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KUZ OBRAZI VA INSON KECHINMALARI: USMON AZIM SHE'RLARI MISOLIDA

Annotatsiya: *Ushbu maqolada 1960–1970-yillar o'zbek she'riyati rivoji, ayniqsa lirik kechinmalar tasviri va ulardagi motivlar o'zgarishi (modifikatsiyasi) tahlil etiladi. Shuningdek, yangi o'zbek she'riyati vakillaridan biri – Usmon Azim ijodida kuz obrazining poetik talqini, uning lirik tuyg'ular bilan uyg'unligi, mavsumiy tasvirlar orqali ifodalangan ichki holat va kechinmalar poetik yondashuvda ochib beriladi.*

Tayanch so'zlar: *she'r, lirika, poetika, motivlar modifikatsiyasi, fenomen, lirik kechinma.*

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AUTUMN IMAGE AND HUMAN EXPERIENCES: ON THE EXAMPLE OF USMON AZIM'S POEMS

Abstract: *This article explores the development of Uzbek poetry in the 1960s–1970s, focusing particularly on the depiction of lyrical emotions and the modification of motifs. It also analyzes the poetic interpretation of the image of autumn in the works of Usmon Azim, one of the representatives of modern Uzbek poetry, highlighting the harmony between seasonal imagery and lyrical feelings, as well as the expression of inner states and emotions through a poetic lens.*

Key words: *poem, lyrics, poetics, modification of motive, phenomenon, lyrical experience,*

Kirish. Har bir poetik talqinda ijodkor fenomenining falsafiy-psixologik tarxi yotadi. Unda milat va bashariyat haqidagi og'riqli o'ylar zalvori tajassum etiladi. XX asrning 60-yillaridan buyon poetik yangilanishlar sarhadi tobora kengaydi. Olam va odam muammolarini anglash va anglatish borasida qator ijodiy yutuqlar qo'lga kiritildi. San'atning chegara bilmas qonuniyatlari o'z tavrini o'zgartirdi. Haqiqiy komillik sari dadil qadamlar davri boshlandi. Ayniqsa, 70-yillar avlodida Rauf Parfi, Usmon Azim, Shavkat Rahmon izlanishlari bunga yorqin misol bo'la oladi.

Adabiyotlar sharhi. Shuni qayd etish joizki, ijodkor hamma vaqtda o'z qalbini kashshofi bo'lib sahnaga chiqadi. U kim va qanday vaziyatda qalam tebratmasin, mohiyatida insoniy go'zallikni qayta idroklash malakasi qabarib ko'rinadi. Shu ma’noda, lirik kechinma tabiatda motivlar modifikatsiyasi alohida o‘rin egallaydi. Prof.I.G‘aniev ta’kidlashicha: “She’r, u biror konkret voqea-hodisa, his-tuyg‘u yoxud hadis asosida yaratilishidan qat’iy nazar, ilhomning hosilasi sifatida tug‘iladi. Binobarin, jonli ijodiy jarayonda shoir hajm bilan ko‘p ham hisoblashib o‘tirmaydi, balki ma’lum bir fikr yoki his-tuyg‘uning tugal tasviri bunda rol o‘ynaydi. Albatta, u yozishga kirishishdan oldin rejalashtiriladi, shakl va mazmunini taxminan belgilab oladi. Ammo hamma vaqt bunday “rejalashtirish” ijod jarayoni bilan mos kelmaydi. Binobarin, hajm ham biroz kichrayib qolishi yoki kengayib ketishi mumkin”.[1] Darhaqiqat, she’riy asarda ijodkor davrning manzarasini ko‘z o‘ngida gavdalantirar ekan, unda qanday masalalar idrok etilishini to‘liq bayoniga o‘tadi. Masalan U.Azim, X.Davron, Sh.Rahmon she’rlarida kuzning poetik jilvasi – inson umri va uning shonli, ayanchli va qayg‘uli qismati tarzida tasvirlanadi. Shuning uchun ham she’rning tagida birinchi siyosat, ikkinchi ruhiyat qabarib ko‘rinishi tabiiy. Demak, kuz motivi ijodkor olamining hali anglanmagan sezimlariga borib tutashuvi shundan dalolat beradi.

Muhokama va natijalar tahlili. Shuni qayd etish lozimki, adabiyotshunoslik lug‘atida “Motiv” (lot.moveo - harakatlantiraman) – musiqashunoslikdan o‘zlashtirilgan termin.[2] Motiv musiqada asarning eng kichik shakl birligi sanalib, asar uning aynan takrorlanishi (shuningdek, o‘zgartirilishi yoki zid M.lar kiritish) asosida rivojlantiriladi. Adabiyotshunoslikda motiv termini turlicha ma’nolarda qo‘llaniladi. M.lar turli variantlarda qo‘llanilib, lirik qahramonning turfa o‘y-hislarini lo‘nda va ta’sirli ifodalashga xizmat qiladi. Shuningdek, bir shoir ijodi yoki bir davrda yashagan shoirlar ijodi doirasida takrorlanuvchi poetik obrazlar motiv obrazlar sanaladi”[3] Cho‘lponning aksariyat she’riyatida erk, ozodlik, hurlik, binafsha U.Azimda daraxt, olov, xazon, kuz, hijron motivlari uchraydiki, Sh.Rahmonda ko‘ngil, kuz, inson, borliq, olam kabi motivlar mavjud. Bu kabi motivlar tabiatida hamma vaqt ijodkorning umuminsoniy g‘oyalari, kechinmalarida o‘z ifodasini topadi. Atama musiqadan o‘zlashgan adabiyot, ayniqsa, she’riyat bilan bog‘liq qirralari xususida to‘xtalganda, haq va oshiq orasidagi ruhiy yaqinlikni uchratishimiz mumkin:

Qahraton o‘tkinchi – to‘nmoq o‘tkinchi,
Bahor o‘tkinchidir – unmoq o‘tkinchi.
Yoz ham o‘tkinchidir – to‘nmoq o‘tkinchi –
Faqat kuzak cheksiz – so‘lmoq cheksizdir.

She’rdagi ayriliq va visol umidida yonayotgan oshiqning dardu hasrati poetik talqin etiladi. Shoir kuzning cheksizligiga shubha qilmaydi. Undan olam-olam ma’no topadiki, boshqa hamma narsaning o‘tkinchiligini birma-bir tavsiflab chiqadi. Mana shu yerda poetik talqin shoir badiiy olamining cheksizligini asoslaydi.

Mana shu she’rda motiv qizil ip bo‘lib, kuzning xazonli lahzalarini, uning ayriliq hukmi bilan abadiyligini isbotlashga harakat qiladi. “Zamonaviy o‘zbek she’riyatida shakl va mazmun birligi masalasi har qachongidan ham dolzarb bo‘lib bormoqda. Chunki shoirlarimiz tomonidan olib borilayotgan shakliy-uslubiy va mazmuniy o‘zgarishlar bugungi she’riyatimizdagi sub’ektiv olam tasvirini tubdan o‘zgartirdi. Lirik kechinmaning ifodasida topoxronos imkoniyatlaridan foydalanish kuchaydi. Buni shoirlar dunyoqarashining shartli aksi deb qarash mumkin”[4], - deya yozadi dots. Q.Yo‘lchiev. Haqiqatdan ham, olimning fikr-mulohazalari o‘rinli. Lirik kechinmaning o‘ziga xosligi shoir qanday mavzuni va mazmunni idroklagani bilan o‘lchanadi.

Oyatlar o‘qiydi kuzning har ro‘zi,
Har yaproq bir hadis – tersam, maylimi?
O‘rikning qontalash bargidan o‘zim
Bargdastalar tuzib bersam, maylimi?

Shoir juda ko‘plab she’rlarida kuzga, xazonga va to‘kilayotgan yaproqlarga murojaat qiladi. Uning murojaatlari shunchaki murojaat emas. unda millat dardu hasratlari, insonning nafsni tiyishga qaratilgan da’vatlari, iztiroblari qizil ip bo‘lib o‘tadi. Shoir qaysi nuqtadan turib botiniy olamini yuzaga chiqarmasin Alloh va Inson o‘rtasidagi tasavvur, tafakur, itoat, gunoh va tavba motivlarini bir ipga tizilgan marjondek idroklaydi. Ya’ni inson o‘zini o‘rab turgan muhit bilan aloqaga kirishadi. Millatning kuchli yoki qaramligi undagi ruhiyatning nechog‘li yuksakligi bilan o‘lchaydi. Mana shu tamoyil shoirni – kuz obraziga bo‘lgan munosabatini ham, xazonlardan hikmatlar shodasini terishida ham juda qo‘l keladi

Xulosa va takliflar. Umuman, lirik kechinmada motivlar modifikatsiyasi shakl va mazmunni uyg‘unligini kafolatlaydi. Talqin idrokida shoir anglamlari uslubiy o‘ziga xoslik kasb etadi. XX asrning 70-yillaridan keyingi avlod izlanishlarida kuz poetik obraz fragmentlarini jipslashtirdi. Erk va ozodlik uchun qurbon bo‘lgan jadid mutafakkirlarining ijodiyotini barakali davom ettirdi. Natijada, shoirlar o‘zlarining talpingan ideallariga chiqishdi. Vaqt sinovidan omon o‘tgan har qanday poetik talqin millat fojeasini obrazli gavdalantirishdan sira uzoqlashmadilar. U.Azim, Sh.Rahmon, X.Rustamovalar pokiza tuyg‘ularida insoniy muhabbatning ulug‘vor manzarasining ifodasini ko‘ramiz. Mana shu jihatdan olib qaraganda, kuz erkinlik va istiqlol shukuhiga evrildi. Bunday ta’rif ko‘proq U.Azim ijodiy olamida alohida mavqe kasb etadi desak, mubolag‘a qilmagan bo‘lamiz.

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HOW BISPHENOL A CONTRIBUTES TO OVARIAN CANCER: SHIFTS IN EPITHELIAL CELL VARIETY, CELL DEATH, AND THE BODY'S ANTIOXIDANT AND ANTI-INFLAMMATORY RESPONSES

Abstract: *This study aimed to investigate the cancer-causing effects of Bisphenol A (BPA) on ovarian epithelial cells. Over four months, mice were given low (LD, 1 mg/kg) or high (HD, 5 mg/kg body weight) doses of BPA every other day via oral gavage, while the control group received corn oil through the same method. Histopathological analysis revealed that repeated BPA exposure led to a borderline epithelial tumor, characterized by changes in epithelial structure and the formation of branching papillae. As a result, BPA exposure modifies ovarian antioxidant, apoptotic, and inflammatory gene expression, alters EC diversity, and causes mortality.*
Keywords: *ovarian epithelial cells, ovarian cancer, cell death, antioxidant, anti-inflammatory, bisphenol A, gene expression, epithelial tumor, endocrine-disrupting chemicals, natural hormones.*

Introduction

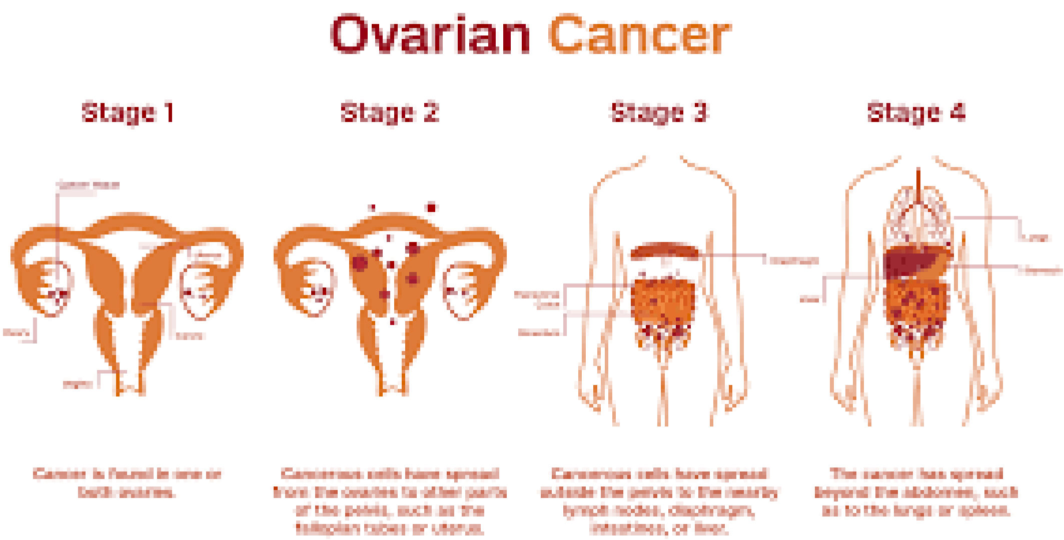
Human infertility and subfertility are caused by a class of chemicals known as endocrine-disrupting chemicals (EDCs), which interfere with the natural hormones' ability to function [1]. Natural hormones, which are essential for controlling growth, reproduction, development, and behavior, are inhibited by these exogenous substances [2]. Sterility, unbalanced sexual behavior, thyroid and adrenal cortical dysfunctions, elevated cancer risk, birth defects, immunosuppression, heightened immune responses, and autoimmunity are all consequences of exposure to EDCs [3,].

One of the most extensively researched and widely distributed EDCs is bisphenol A (BPA). Epoxy resins and polycarbonate polymers, such as polyester, polysulfone, polyacrylate, and polyetherimide, are frequently synthesized using BPA . In many Asian nations, the daily intake of BPA is estimated to be between 1.61 µg and 5.19 µg [4].

Research on BPA's toxicity to reproduction has been extensive. Reproduction and development issues result from BPA's disruption of hormones through interactions with oestrogen, androgen, and thyroxine receptors . Pregnancy-related exposure to BPA increases ovarian cysts and causes aneuploidy in maturing oocytes, while also promoting early puberty, early vaginal opening, ovarian dysfunction, and primordial follicle loss in offspring [5].

Oestrogen and progesterone, which control the reproductive cycle, are produced by the ovary in females and aid in the growth of oocytes. Most of the ovary is covered by ovarian surface epithelium (OSE). Throughout the repeated cycles of rupture and repair during ovulation, it experiences structural changes that result in the formation of inclusion cysts.

There are cuboid or simple pseudostratified epithelium in the epithelial layer. Moreover, Ly6A+ stem cells with a greater capacity for carcinogenesis are found in the hilum region . These cells divide and repair the damaged ovarian surface during ovulation. There are two sources of OSE cells: the hilum comes directly from the mesonephros, whereas the majority of cells come from the GREL cells, which are derived from the mesonephros [6]. Additionally, the ovary is home to a variety of cell types, such as somatic cells such as endothelial cells, granulosa cells (GC), theca cells (TC), and immune cells, as well as germ cells, which are different stages of oocytes [7]. While endothelial cells remove waste and supply nutrients, immune cells (lymphocytes and macrophages) are involved in immunological response and tissue remodeling . BPA disrupts the normal development of follicles and has an impact on ovarian function . Because BPA has an oestrogenic effect, it disrupts reproductive processes by encouraging apoptosis and cell cycle inhibition of GC [8]. Through oxidative stress, ERK/AKT/NF-κB signaling, and reproductive function, BPA affects inflammatory processes and cellular proliferation in human endometrial stromal cells [9]. While a number of researchers have examined the harmful effects of BPA on ovarian cells, a thorough investigation of ovarian epithelial cells (OECs) has not yet been conducted. In general, BPA exposure causes death and changes the expression of genes that suppress tumors, inflammation, and apoptosis inside the ovary. Figure1. Stages of the ovary cancer.



Materials and methods

Mice given BPA had their ovaries examined for histopathological alterations. Normal ovaries in untreated mice have a monolayer of microscopically flat, cuboidal to pseudostratified columnar cells with varying stages of follicles and smooth surface epithelium. The ovarian tissues of BPA-treated mice displayed a disordered epithelial morphology with branching papillae, stratified epithelium with stromal core, and homogeneous nuclear characteristics, which could be a sign of low-grade

Discussion and Results

BPA is an endocrine disruptor that leads to a number of reproductive abnormalities in people. It disrupts ovarian follicle maturation and induces inflammation in females [7], [8]. We previously demonstrated that BPA causes inflammation in the uterus and ovaries and raises the production of cancer stem cells in the ovaries [9]. We examined the effects of repeated LD (1 mg/kg BW) and HD (5 mg/kg BW) BPA administration on OECs, PDPL and CD74 receptor expression, and apoptotic.

In conclusion

The ovarian epithelial surface changed after BPA treatment, exhibiting branching papillae, a sign of a borderline low-grade epithelial neoplasm. In mice treated with BPA, the diversity of ECs was altered. The administration of BPA causes ovarian cell death and alters the expression of the PDPL and CD74 receptors. Molecular alterations in BPA-treated ovaries reveal modifications in antioxidant, apoptotic, anti-inflammatory, and tumor suppressor genes.

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FREQUENT HISTOLOGICAL FINDINGS IN GLOMERULAR EPITHELIAL CELLS LINKED TO SECONDARY FSGS

Abstract:*In primary focal segmental glomerulosclerosis (FSGS), parietal epithelial cells (PECs) play a role in developing sclerotic lesions. By examining 60 patient biopsies, including 7 different common and uncommon glomerular diseases associated with secondary FSGS changes, this study examined the role of PECs in the more common secondary FSGS lesions. Two different quadruple staining techniques were applied to each biopsy: one targeted PECs (ANXA3), podocytes (synaptopodin), PEC matrix (LKIV69), and nuclei (Hoechst), while the other targeted activated PECs (CD44 and cytokeratin-19), PEC matrix, and nuclei. Cells expressing either podocyte or PEC markers were involved in the cellular adhesions (synechiae) that connected Bowman's capsule to the glomerular tuft in all lesions.*

Keywords: *chronic kidney disease, glomerulosclerosis, glomerulus, parietal epithelial cells, progression, renal biopsy.*

Introduction

Chronic kidney disease, which affects 5–10% of the general population, has become a significant social burden. One of the biggest risk factors for cardiovascular problems is chronic kidney disease. The most frequent histological finding is focal and segmental glomerulosclerosis (FSGS).

The majority of research on the pathophysiology of FSGS to date has concentrated on "primary" or "idiopathic" FSGS, which is glomerulosclerosis without any indication of other inflammatory or degenerative glomerular pathology. But "secondary" (or "reactive") FSGS is far more prevalent, where a renal biopsy can identify the underlying glomerular disease.. The glomerular tuft and Bowman's capsule form fibrous synechiae, which are cellular adhesions containing extracellular matrix, early in the development of a classic sclerotic lesion (except collapsing FSGS). Alongside mesangial and endocapillary sclerosis, which is characterized by the obliteration of glomerular capillaries that develop in the affected tuft segments, epithelial cell hypertrophy and hyperplasia may also be observed. Significant advancements in our knowledge of the pathophysiology of glomerulosclerosis have occurred in recent years 1, 2, and 3. In general, podocyte-specific transgenic depletion studies have shown that glomerulosclerosis requires podocyte damage 4, 5 and 6. The glomerular tuft and Bowman's capsule adhere to one another (synechia), the first hallmark lesion of glomerulosclerosis. 7., 8. Segmental sclerotic lesion arises from adhesion. 9, Endocapillary sclerosis may eventually completely revert, but extra-capillary lesions are believed to be irreversible.10 Genetic cell-fate tracking in transgenic mice offered conclusive evidence for a critical role of parietal epithelial cells (PECs) in FSGS. The experiments demonstrated that PECs invade the sclerosis-affected section of the tuft where they deposit their matrix through cellular adhesions.13.PECs were segmentally "activated," meaning they expressed the de novo activation marker CD44, primarily near a sclerotic lesion.

Materials and Methods

After reviewing all 50 human biopsies, a pathologist identified 7 distinct glomerular diseases and secondary FSGS in each case (Figure S1). Normal human biopsy material from tumor nephrectomies was used to create two quadruple stainings . The first was stained with Hoechst (DNA), 10 podocytes (synaptopodin), PEC matrix (a particular but undefined heparansulfate moiety that is synthesized in the glomerulus exclusively by PECs, LKIV69), and annexin A3 (ANXA3, characterized in17), a novel marker for all PECs.

PEC markers are found in every secondary human FSGS lesion.For every biopsy, the two quadruple stainings were used. Almost all secondary FSGS lesions had PEC markers found on the tuft. In total, periodic acid-Schiff (PAS) sections revealed FSGS in 32% of the glomeruli, and 29% (or 91% of all FSGS lesions) stained positive for LKIV69, a sensitive and specific marker for PEC matrix. Staining with the PEC marker ANXA3 produced a similar outcome . Just half of the FSGS lesions were found to be Claudin-1-positive. Using more recent batches resulted in a lower sensitivity of the claudin-1 immunostaining (data not shown).

Discussion and Results

Cellular adherences

Our first significant discovery is that cells expressing either podocyte or PEC markers, or both types of cells, can be the source of cellular adhesions between a tuft segment and Bowman's capsule (Figure 4a and b). In a number of investigations, tuft-to-capsule fibrous synechiae have been identified as a nidus for the development of sclerotic lesions in both human and experimental animal models.5. 10, 11, 12, and 13.

The development of FSGS lesions in this study was only linked to PEC marker and/or PEC matrix expression on the glomerular tuft. Therefore, any cellular adhesion may be a sign of a primary podocyte injury, while the development of sclerotic lesions may only be linked to PEC invasion of the tuft segment in question.

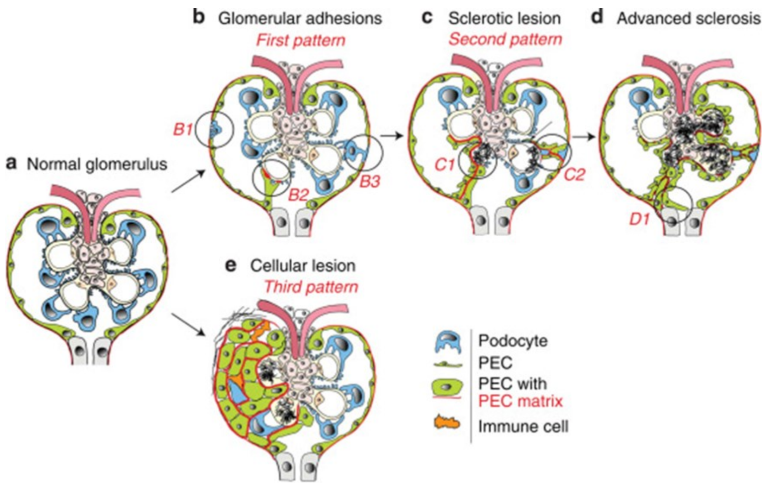

Figure 4 shows three different histological patterns of parietal epithelial cell (PEC) involvement in human focal and segmental glomerulosclerosis (FSGS) lesions. (A) Normal glomerulus with parietal epithelial cells (PECs, green) and podocytes (blue) in the extracapillary compartment, which is isolated from the endocapillary compartment by the glomerular basement membrane (GBM). (b) PECs (B2) and/or presumed podocytes (B1) formed glomerular adhesions/synechiae. The PEC matrix beneath the parietal podocytes (B1 + B3) along the Bowman's capsule was no longer visible. At the location of adhesion to the glomerular tuft, PECs migrating onto the GBM deposited PEC matrix (B2, red). The possibility that podocytes in close proximity to cellular adhesions, unlike mice, undergo trans- or de-differentiation in situ to display PEC markers de novo cannot be ruled out. (c) Lesions of Sclerotic FSGS. There is a correlation between the development of sclerosis in the neighboring endocapillary compartment (C1) and presumed PEC migration onto the GBM. Presumptive podocytes were occasionally still visible within adhesions (C2), and cells expressing PEC markers were seen on top of podocytes that were positive for synaptopodin (arrow). Note that the formation of sclerotic lesions was not linked to podocyte migration, but rather to presumed PEC migration onto tuft segments that were impacted. Advanced sclerosis (d). Whole segments of sclerotic tufts are capped by presumed PECs. This can lead to the obstruction or loss of the tubuloglomerular outflow (D1). (e) Cells that express PEC markers almost entirely fill cellular lesions, and compared to sclerotic lesions, more presumed PECs show activation markers.

In conclusion

In our investigation, synaptopodin-positive cells on the glomerular tuft were covered by cells expressing PEC markers. This supports the theory that PECs outgrow living podocytes in situ, which may be another mechanism for podocyte loss, secondary FSGS progression, and irreversible renal function loss. As an alternative, glomerular epithelial cell layers may transdifferentiate in an orderly, outside-in fashion on the glomerular tuft.

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LOKALLASHTIRILGAN SIRT PLAZMONLARI: XUSUSIYATLARI, REZONANS MEXANIZMLARI VA ZAMONAVIY ILOVALARI

Annotatsiya: *Maqolada lokallashtirilgan sirt plazmonlarining fizikaviy xususiyatlari, ularning nanozarrachalar bilan o'zaro ta'siri va optik rezonans mexanizmlari yoritilgan. Shuningdek, plazmon rezonanslarining zamonaviy texnologiyalardagi qo'llanilish imkoniyatlari ko'rib chiqiladi.*
Kalit so'zlar: *nanorodlar, sirt plazmoni, rezonans.*

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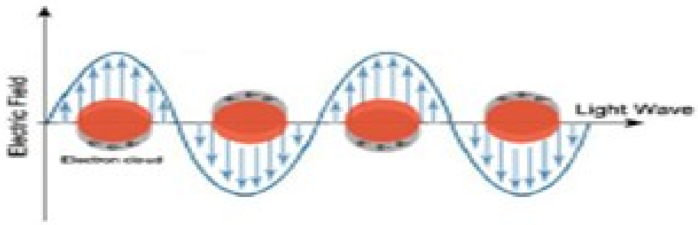
LOCALIZED SURFACE PLASMONS: PROPERTIES, RESONANCE MECHANISMS AND MODERN APPLICATIONS

Abstract: *The article discusses the physical properties of localized surface plasmons, their interaction with nanoparticles and optical resonance mechanisms. The possibilities of application of plasmon resonances in modern technologies are also considered.*
Keywords: *nanorods, surface plasmon, resonance.*

Kirish. Lokallashtirilgan sirt plazmonlari(LSP) plazmonni qo'zg'atish uchun ishlatiladigan yorug'lik to'lqin uzunligi bilan taqqoslanadigan yoki uning nanozarrachadagi sirt plazmonining chegaralanishidan hosil bo'ladi.

Kichik sferik metal nanozarracha o'tkazgich bo'ladigan yorug'lik bilan nurlangan tebranuvchi elektr maydoni elektronlarning tebranishiga sabab bo'ladi. Elektron bulut siljiganda asl holatga nisbatan tiklovchi kuch elektronlar va yadrolar orasidagi tebranma tortishish kuchidan kelib chiqadi. Ushbu kuch elektron buluti tebranishini keltirib chiqaradi. Tebranish chastotasi quyidagilar bilan belgilanadi, elektron zichligi,effektiv elektron massasi, va zaryad taqsimotining hajmi va shakli



1-rasm. Metall nanozarrachaga tushgan yorug'lik o'tkazuvchanlik zonasi elektronlarini tebranishga olib keladi. Bu lokallashtirilgan sirt plazmonidir.

LPS- ikkita muhim ta'sirga ega zarracha yuzasi yaqinidagi elektr maydonlari ancha yaxshilanadi, va zarrachaning optik yutilishi plazmon rezonans chastotasida maksimal darajada bo'ladi. Yuza plazmoni rezonans asosida sozlanishi va boshqarilishi mumkin.

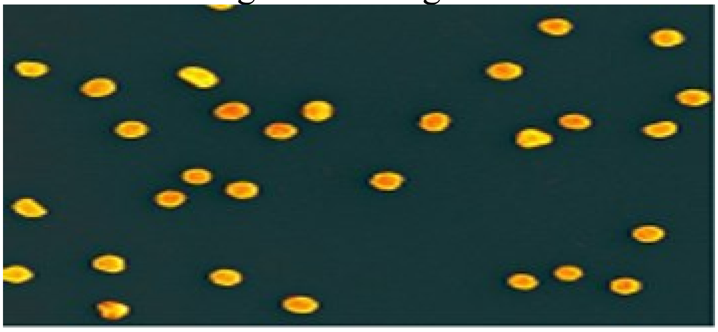
Kumush va oltin kabi metallar uchun tebranish chastotasi d-orbitaldagi elektronlar tomonidan ta'sir ettiriladi. Kumushda zaryadlarga yorug'lik nuri ta'sirini o'rganish uchun muhimdir. Chunki unda to'lqin uzunligining kenglik diapazoni (300-1200nm) sirt plazmonini qo'llab quvvatlaydi. Va uning to'lqin uzunligi yutilish cho'qqisini osongina o'zgartiradi. Masalan, Kumush nanozarrachalaring yutilish burchagi to'lqin uzunligini o'zgartirish orqali o'zgaradi. Uchburchaklarning burchak aniqligi u ko'k siljishdan o'tganda kamayadi.Bundan tashqari yuqori nuqtada to'lqin uzunligi qizil siljishga uchraganda katta miqdorda kamayadi. $HAuCl_4$ qo'shilganda nanozarrachalarning g'ovakliligi oshdi.Yarim o'tgazgichli nanozarachalarda maksimal optik yutilish ko'pincha yaqin infraqizil va o'rta infraqizil hududda uchraydi. Qozg'almas sirt plazmonida elektronlar buluti bilan birga tebranadi.Sirt plazmonlarining ko'payishida sirt plazmon strukturasi uchlari orasida oldinga va orqaga tarqaladi. Sirt plazmonlari shuningdek to'lqin uzunligiga yaqin yoki undan uzunroq bo'lgan kamida bitta o'lchamga ega bo'lgan yorug'likning to'qnashishidir.

Sirt plazmonlarini ko'paytirishda hosil bo'lgan to'lqinlarni metall nanostruktura geometriyasini o'zgartirish va boshqarish uchun foydalanish mumkin.

Xarakteristikasi tavfsiflash va o'rganish. Plazmonikaning maqsadi sirt plazmoni -orqali nanoo'lchovlarni boshqarishda ularning xarakteristikasini bilishdan iboratdir. Sirt plazmonlarini tavfsiflash uchun ko'p ishlatiladigan usullardan biri qorong'u soha mikroskopiyasi, UV-vis-NIR spektrokopiyasi SERS (sirt yaxshilangan Raman tarqalishi). Qorong'i maydon mikroskopiyasi yordamida yorug'lik qutblanishi, to'lqin uzunligi yoki dielektrik muhitdagi o'zgarishlar metall nanostruktura spektrini kuzatish mumkin.

Ilovalar

Plazmon rezonans chastotasi atrof-muhitning sindirish ko'rsatgichi juda sezgir, sindirish ko'rsatgichining o'zgarishi rezonans chastotasining siljishiga olib keladi. Rezonans chastotasini o'lchash oson bo'lganligi uchun, bu LSP nanozarrachalarini nano o'lchamdagi sersorli dastur bilan ishlashga imkon beradi. Shuningdek, oltin nanorodlari kabi kuchli LSP xossalariga ega bo'lgan nanozarrachalar plazmonning sirt rezonansini sezishda signalni kuchaytirishi mumkin.LSP rezonanslarini namoyish qiluvchi nanostrukturalar spektroskopiyaga asoslangan zamonaviy analitik texnikada signallarni kuchaytirish uchun ishlatiladi. Nano miqyosda issiqlik hosil qilish uchun samarali yorug'likka tayanadigan boshqa ilovalar issiqlik yordamida magnit yozuvlar (HAMR), fototermal saraton terapiyasi va termofotovolta. Hozirgacha metallar ichidagi yo'qotishlar ayniqsa optik spektral diapazonda (ko'rinadigan va NIR) bo'lganligi sababli plazmonikadan foydalangan holda yuqori samarali dasturlar amalga oshirilmagan.



2-rasm.Skanerli elektron mikroskop ostida tasvirlangan oltin nanozarrachalar kuchli LSP rezonanslarini namoyish etishi.

Bundan tashqari sirt plazmonlari super linzalarni va ko'rinmas plashlarni, va kvant hisoblashni yaxshilash uchun ishlatilingan. Plazmonikadagi yana bir qiziqarli tadqiqot sohasi bu plazmonlarning boshqa molekulani modefikatsiya qilish orqali "yoqish va o'chirish" qobiliyatidir.Plazmonlarning yoqish va o'chirish qobiliyatini aniqlash usullarida sezgirlikni oshirish uchun muhim oqibatlarga olib keladi. Yaqinda supromolekular xromofor metall nanostruktura bilan birlashtirildi. Ushbu o'zaro ta'sir kumush nanostrukturasining lokalizatsiya qilingan sirt plazmon rezonans xususiyatlarini yutish intensivligini oshirish orqali o'zgartiradi.

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PROSPECTS FOR ATTRACTING FOREIGN INVESTMENTS IN THE ELECTRIC VEHICLE SECTOR IN THE CONTEXT OF UZBEKISTAN'S TRANSITION TO A GREEN ECONOMY

Abstract. *This article examines the experience of the People's Republic of China in attracting foreign investment to the electric vehicle sector and analyzes the prospects for the development of this industry in Uzbekistan.*
Keywords: *foreign investment, green economy, electric vehicle, China, auto industry*

In the current global economic and environmental conditions, the electric vehicle industry is one of the fastest growing segments of the automotive market. In order to achieve technological innovation, the need for environmental sustainability, and reduce dependence on oil, countries and companies are investing heavily in electric vehicles. The production of electric vehicles has a significant impact not only on the development of the transportation system, but also on the energy, logistics, and environmental sectors.

The development of electric vehicles has been selected by China as a national strategy to solve the problems of energy security and urban air pollution. China has invested heavily in the development of electric vehicle technology. Over the past 15 years, electric vehicle technology has improved significantly, and electric vehicles have begun to be widely used in public services.

Table 1.
Changes in electric vehicle sales by region.

Country/region	2010	2023	Changes (number)	Changes (%)
China	1 440	8 100 000	+8 098 560	+562 400%
USA		1 390 000		
EU	1 191	2 450 000	+2 448 809	+205 609%
World	7 450	13 800 000	+13 792 550	+185 135%

Source: International Energy Agency. Global EV Outlook 2024.[9]

[9] International Energy Agency. Global EV Outlook 2024. URL https://www.iea.org/reports/global-ev-outlook-2024

From the above data, we can see that from 2010 to 2023, China achieved significant growth in the electric vehicle market. It sold more than 8 million new electric vehicles, which is a leading indicator globally.

Due to excessive urban pollution and increasing pressure to reduce carbon emissions globally, the Chinese government has chosen the path of radical transformation of the automotive industry. Since the beginning of 2009, the country has implemented large-scale programs to introduce and develop electric vehicles.

China's development strategy for the electric vehicle market includes several main stages. These stages are determined by technological innovations, government policies and adaptation to international market requirements.

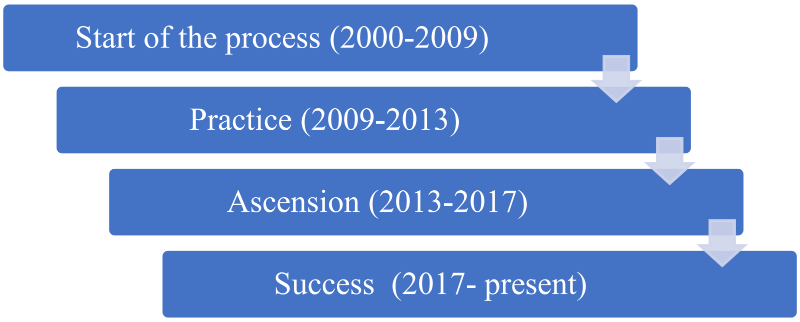

Figure 1. A plan developed by the Chinese government for the electric vehicle industry.

Source: Chinese EV Market Overview and Technical Enablers.[10]

- **2000-2009: Strategy formulation.** At this stage, China's strategic approach focused on building the industry, learning from international experiences, and building infrastructure.
- **2009-2013: Strategy refinement through practice.** Special attention was paid to expanding the domestic market by introducing technologies and supporting domestic manufacturers. The government provided subsidies to encourage buyers to purchase new energy vehicles.
- **2013-2017: Growth of the new energy market.** Demand for electric vehicles increased as technology advanced and production costs began to fall. Domestic companies, such as BYD and Nio, entered the international market and increased competitiveness. At this stage, China became the largest electric vehicle market in the world.
- **2018 to the present: High-quality development stage.** Since 2018, China has been adhering to high-tech and environmental standards in the production of electric vehicles. In addition, international cooperation and foreign investment are helping the industry to develop further. Tesla's opening of its Gigafactory Shanghai and entering into competition with local companies was one of the important events in this phase.

[10] https://www.unescwa.org/sites/default/files/event/materials/Chinese%20EV%20Market%20Policy%20Enablers.pdf. URL

The development of China's electric vehicle industry is based on three main factors:

1. Strong support from the state;
2. Technological innovation;
3. International cooperation.

China's membership in the World Trade Organization has served to bring foreign investment policies and domestic policies into the field of environmental protection.

The United States, Germany and South Korea have consistently occupied leading positions as the main sources of investment. The advanced experience and technological leadership of these countries in the automotive industry have increased their interest in the Chinese electric vehicle market.

The automobile market of Uzbekistan is the largest in the Central Asian region. The market size is increasing every year, as evidenced by the growth rate of the automobile industry, production volumes and sales figures. The main players in the market are large manufacturers such as UzAuto Motors, and domestic cars play a large role in covering the domestic market.

On May 19, 2023, the BYD Uzbek Factory launched the construction of a plant for the production of cars based on alternative and renewable energy sources in Uzbekistan.

In our opinion, in order to develop the production of electric vehicles in Uzbekistan and to make more attractive for foreign investors in the future, we consider it necessary to overcome the following problems:

• Instability or opacity of the regulatory framework. Possible changes in tax and customs benefits. Lack of a clear and sustainable state strategy to support the electric vehicle industry.

• Problems with localization of production. High dependence on imports, especially batteries and electric motors

• Limited access to financing. High initial costs of starting production. Insufficiently developed mechanisms for public-private partnerships and support for startups.

• Limited domestic market. To develop the electric vehicle industry, it is necessary to gradually reduce existing monopolies and create real competitive conditions. WTO membership can create a competitive environment in the country.

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COMPENSATION OF REACTIVE POWER IN AUTONOMOUS ELECTRIC POWER SOURCES

Annotation. *This article analyzes the issue of reactive power that arises during the operation of diesel generators and methods for its compensation. Based on modeling, the interaction between the generator, battery, and converter device under various load conditions has been studied. The research results enable effective limitation of the generator’s output power and improvement of system efficiency through reactive power compensation. Based on the findings, technological proposals and recommendations for energy saving are provided.*

Keywords: *diesel generator, reactive power, active power, converter device, electrical energy efficiency, compensation.*

1. Introduction.

Nowadays, diesel generators are widely used in various sectors as an important source of independent power supply. Their role is especially invaluable in facilities disconnected from the power grid or located in remote areas. However, during the operation of these generators, the issue of reactive power arises. Although reactive power does not perform useful work, it causes fluctuations in current and voltage within the electrical system, placing additional load on the generator and other equipment. As a result, the overall efficiency of the system decreases, and energy losses increase. The aim of this article is to explore methods for compensating reactive power in diesel generators and to propose effective solutions[1].

2. Methods (Metodlar).

In this study, power fluctuations and reactive power compensation occurring during the operation mode of diesel generators were modeled. During the modeling process, the active and reactive power components were analyzed for loads with $\cos\varphi = 0.8$ and $\cos\varphi = 0$. The interaction between the power source, converter, and battery was observed through time-based diagrams. The calculation results were compared with the modeling outcomes in Tables 1, 2, and 3. Variations in current and voltage, pulsating components, and modulation coefficients were considered as key parameters[2].

Parameter	Calculation	Modelling	Deviation, %
$K_{GI}(f_S)$, %	6,00	6,14	2,3
$S_I(M_{max.cal.})$, kVA	100,0	96,4	3,6
$M(S_{Imax.cal.})$	0,990	0,991	0,1
P_{Gmin}, kVt	30,0	30,0	0
P_{Gmax}, kVt	80,0	80,0	0

Table 1. Comparison of calculated and measured parameters in the generator active power limiting mode.

Parameter	Calculation	Modelling	Deviation, %
$K_{GI}(f_S)$, %	6,00	5,85	2,5
$S_I(M_{max.cal.})$, *kVA*	100,0	99,2	0,8
$M(S_{Imax.cal.})$	0,990	0,991	0,1
P_{Gmin}, kVt	40,0	40,0	0
Q_{Gmax}, kVA	30,0	30,0	0

Table 2. Comparison of calculated and measured parameters in the generator active-reactive power limiting mode.

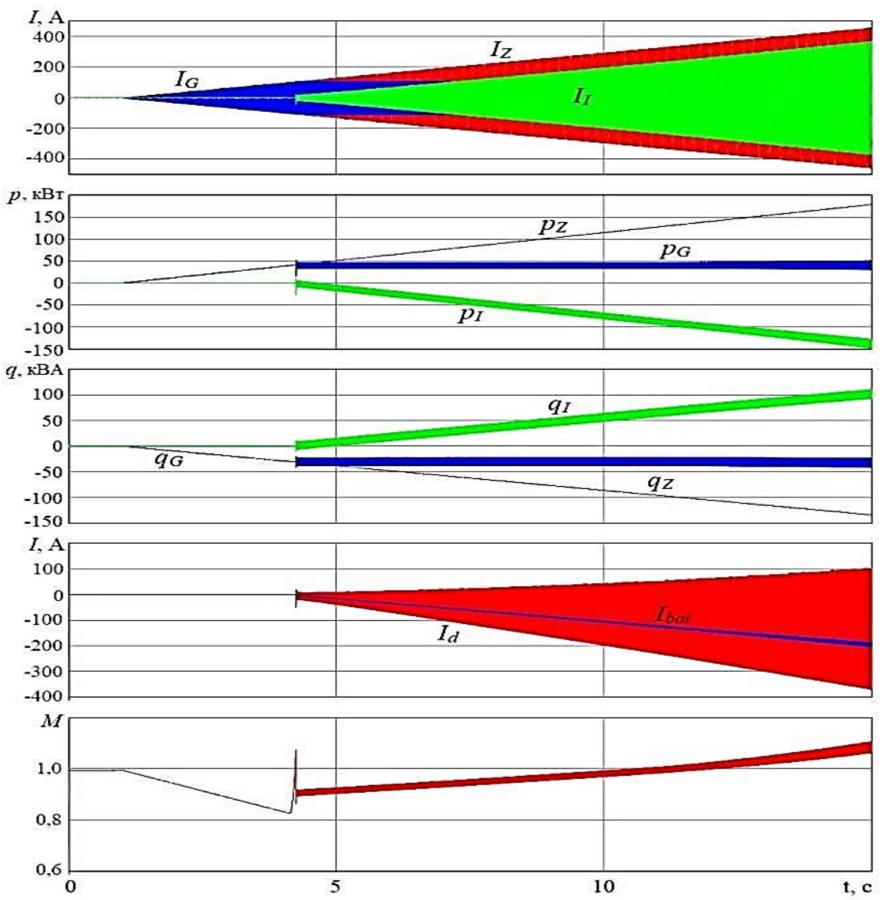

Figure 1. Modeling results of the power supply system in the generator active-reactive output power limiting mode.

Parameter	Calculation	Modelling	Deviation, %
$K_{GI}(f_S)$, %	6,00	5,80	3,3
$S_I(M_{max.cal.})$, kVA	100,0	99,4	0,6
$M(S_{Imax.cal.})$	0,990	0,991	0,1
Q_{DGmax}, kVA	30,0	30,0	0

Table 3. Comparison of calculated and measured parameters in the generator reactive power limiting mode.

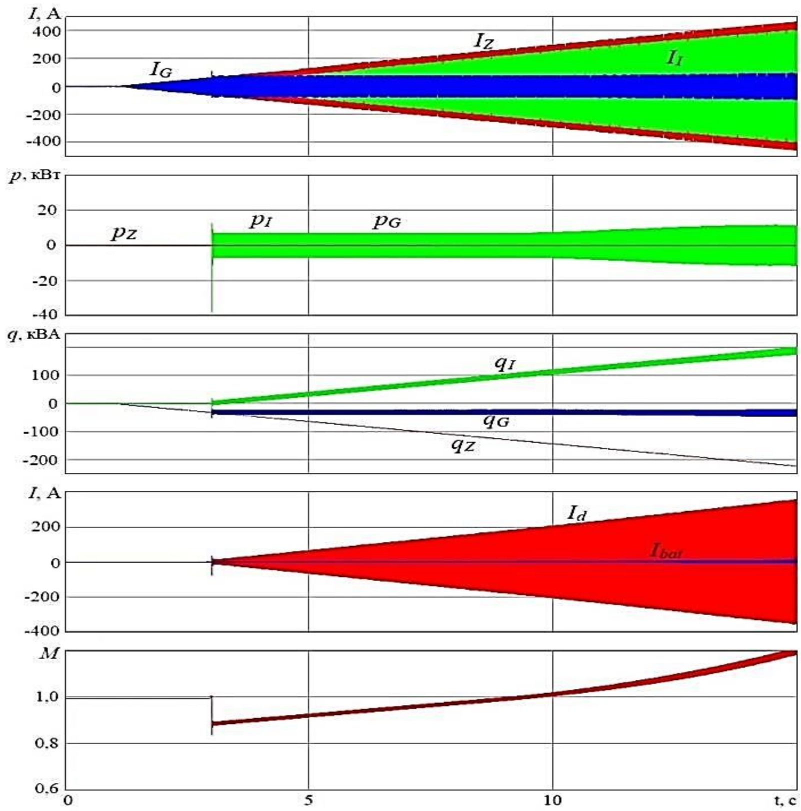

Figure 2. Modeling results of the power supply system in the generator reactive output power limiting mode.

3. Results.

Starting from 0.35 seconds, the active power of the load begins to increase linearly. Until 2.13 seconds, the output power is maintained around 30 ± 7.2 kW. At 5.35 seconds, when the load power reaches the upper limit, the battery is activated. The comparisons in Table 1 show that the modeling results are close to the calculations with a maximum error of 3.6%. The range of the modulation coefficient relative to the cosφ values was determined, and the sensitivity of the power regulator was evaluated graphically through Figure 3[3].

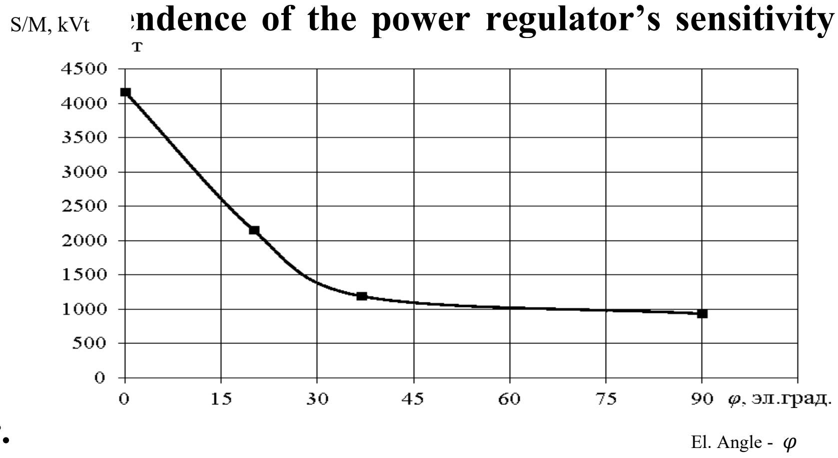

Figure ndence of the power regulator's sensitivity on the load power factor.

4. Discussion.

The research shows that reactive power compensation using a converter device allows the diesel generator to produce only active power. This reduces its overall load and increases energy efficiency. The control system, developed based on the model, supports the reactive component with the help of a battery, which stabilizes the electric field in the system. By minimizing amplitude and changing the current phase, it became possible to limit the amount of reactive power. Additionally, the obtained results demonstrated new opportunities for improving energy savings[4,5].

5. Conclusion.

The experimental results show that increasing system efficiency is possible through reactive power compensation in diesel generators. The minimal difference between model results and actual calculations indicates that this method can be practically implemented.

Recommendations:

- Implementation of reactive power compensation systems in generators,
- Development of mechanisms to control active and reactive power using batteries and converters,
- Designing a control system based on phase analysis and signal modulation to improve electrical energy efficiency is advisable.

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O‘ZBEKISTONDA YO‘LOVCHI TASHISH TIZIMINI TASHKIL ETISH: HOZIRGI HOLATI VA RIVOJLANISH YO‘NALISHLARI

Anotatsiya: *Ushbu maqolada O‘zbekistondagi yo‘lovchi tashish tizimining bugungi holati, mavjud transport turlari va ularning rivojlanish darajasi tahlil qilinadi. Shuningdek, tizimda duch keladigan muammolar va ularni bartaraf etish yo'llari ko'rib chiqiladi. Maqolada avtomobil, temir yo‘l, havo va metro transportining afzalliklari va kamchiliklarini yoritib, yo‘lovchi tashish sohasini rivojlantirishning ustuvor yo‘nalishlari taklif etilgan. Maqolada transport infratuzilmasini modernizatsiya qilish, ekologik toza transport turlarini joriy etish va raqamlashtirish muhimligi ta’kidlangan. Tadqiqot natijalari O‘zbekistonda barqaror va samarali yo‘lovchi tashish tizimini shakllantirish bo‘yicha ilmiy-amaliy takliflarni o‘z ichiga oladi.*

Kalit so‘zlar: *yo‘lovchi tashish, transport tizimi, avtomobil transporti, temir yo‘l, metro, havo transporti, infratuzilma, raqamlashtirish, ekologik transport.*

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ORGANIZATION OF THE PASSENGER TRANSPORT SYSTEM IN UZBEKISTAN: CURRENT STATUS AND DEVELOPMENT DIRECTIONS

Annotation: *The article analyzes the current state of the passenger transportation system in Uzbekistan, existing modes of transport and their level of development. It also discusses the problems arising in the system and ways to overcome them. The article examines the advantages and disadvantages of road, rail, air and metro transport, and proposes priority areas for the development of the passenger transportation sector. The article emphasizes the importance of modernizing transport infrastructure, introducing environmentally friendly modes of transport and digitalization. The research results include scientific and practical proposals for the formation of a sustainable and efficient passenger transportation system in Uzbekistan.*

Keywords: *passenger transport, transport system, automobile transport, railway, metro, air transport, infrastructure, digitalization, eco-friendly transport.*

Kirish

Transport tizimi har qanday mamlakat ijtimoiy-iqtisodiy taraqqiyotining muhim tarkibiy qismi hisoblanadi. Aholining erkin harakatlanishini ta'minlash, iqtisodiy aloqalarni mustahkamlash, turizmni rivojlantirish va ishlab chiqarish zanjirlarini samarali tashkil etishda yo'lovchi tashish tizimining roli beqiyosdir. Zamonaviy davrda aholi sonining ortishi, urbanizatsiya jarayonlarining jadallashuvi va ekologik muammolarning kuchayishi transport sohasida yangi yondashuvlarni talab qilmoqda.

O'zbekiston Respublikasida so'nggi yillarda transport infratuzilmasini modernizatsiya qilish, yo'lovchi tashish xizmatlarining sifatini oshirish hamda zamonaviy, qulay va xavfsiz transport turlarini joriy etish borasida keng koʻlamli islohotlar olib borilmoqda. Davlat dasturlari doirasida yangi yoʻllar, metro liniyalari, avtobuslar parkini yangilash kabi tashabbuslar amalga oshirilmoqda. Shu bilan birga, mavjud tizimda hal etilishi lozim boʻlgan qator muammolar ham mavjud: tirbandliklar, transport vositalarining texnik jihatdan eskirganligi, yoʻlovchi xavfsizligi masalalari, raqamlashtirishning past darajada boʻlishi shular jumlasidandir.

Adabiyotlar tahlili

Oʻzbekistonda yoʻlovchi tashish tizimi sohasida olib borilayotgan ilmiy tadqiqotlar, hukumat qarorlari, tahliliy hisobotlar va xalqaro tajribalarni oʻrganishga asoslangan adabiyotlar mazkur mavzuni har tomonlama yoritishda muhim manba hisoblanadi.

Oʻzbekiston Respublikasi Prezidentining tegishli qaror va farmonlarida (masalan, PQ–470-sonli qaror, 2022-yil 5-iyul) transport infratuzilmasini modernizatsiya qilish, ekologik toza transport vositalarini joriy etish, shuningdek, raqamli texnologiyalarni keng qoʻllash boʻyicha aniq yoʻnalishlar belgilangan. Ushbu hujjatlar mamlakatda transport sohasini davlat darajasida rivojlantirishga boʻlgan yondashuvni aks ettiradi.

Jahon banki va Osiyo taraqqiyot banki tomonidan tayyorlangan hisobotlarda Markaziy Osiyodagi, jumladan, Oʻzbekistondagi transport logistikasining rivojlanish tendensiyalari, muammolar va imkoniyatlar chuqur tahlil qilingan. Bu manbalar orqali yoʻlovchi tashish sohasida xalqaro standartlarga mos yondashuvlarni aniqlash mumkin.

Akademik manbalar, xususan, Sh. M. Mamatqulov, A. A. Norqulov, D. T. Xoʻjamberdiyev kabi olimlarning ilmiy maqolalarida yoʻlovchi tashish tizimining tarixiy shakllanishi, hozirgi holati va uni rivojlantirishga doir nazariy va amaliy jihatlar tahlil qilingan. Ayniqsa, shahar transporti tizimi, jamoat transportining muvofiqlashtirilishi, multimodal tizimlar va smart-texnologiyalar boʻyicha ilmiy ishlanmalar mavzuni chuqur oʻrganishga zamin yaratadi.

Bundan tashqari, xalqaro ilmiy jurnallarda (masalan, *Journal of Transport Geography*, *Transportation Research Part A*) chop etilgan maqolalarda urbanizatsiya, transportdagi barqarorlik, ekologik transport turlari va yoʻlovchilar oqimini boshqarish boʻyicha ilgʻor tajribalar keltirilgan. Bu tadqiqotlar Oʻzbekistondagi transport tizimi uchun taqqoslama tahlil qilish va kelgusidagi yoʻnalishlarni belgilashda foydalidir.

Umuman olganda, mavjud adabiyotlar tahlili shuni koʻrsatadiki, yoʻlovchi tashish tizimini rivojlantirish boʻyicha nazariy yondashuvlar va amaliy tavsiyalar mavjud, biroq ularni milliy sharoitga moslashtirish va tizimli qoʻllash zarur. Shu sababli, mavzuga oid chuqurlashtirilgan tahliliy tadqiqotlar olib borish dolzarb boʻlib qolmoqda.

Tadqiqot metodologiyasi

Ushbu tadqiqotda Oʻzbekistonda yoʻlovchi tashish tizimining hozirgi holatini tahlil qilish, mavjud muammolarni aniqlash hamda rivojlanish yoʻnalishlarini asoslash maqsad qilingan. Mazkur maqsadga erishish uchun quyidagi metodologik yondashuvlar qo‘llanildi:

1. Deskriptiv (tasviriy) tahlil

Avvalo, O‘zbekiston Respublikasida yo‘lovchi tashish tizimining tuzilmasi, mavjud transport turlari va ularning geografik taqsimoti o‘rganildi. Statistik ma’lumotlar asosida mavjud holat tasvirlab berildi.

2. Statistik usullar

Rasmiy manbalar – O‘zbekiston Respublikasi Statistika agentligi, Transport vazirligi hamda xalqaro tashkilotlar (Jahon banki, Osiyo taraqqiyot banki) hisobotlari asosida transport oqimi, yo‘lovchilar soni, transport vositalari yangilanishi kabi mezonlar statistik tahlil qilindi.

3. Solishtirma tahlil

O‘zbekistondagi yo‘lovchi tashish tizimi ayrim rivojlangan davlatlar (Janubiy Koreya, Turkiya, Polsha) tajribasi bilan taqqoslab tahlil qilindi. Bu usul orqali ilg‘or tajribalarni milliy sharoitga moslashtirish imkoniyatlari baholandi.

4. SWOT-tahlil

Yo‘lovchi tashish tizimidagi kuchli va zaif jihatlar, tashqi imkoniyatlar va tahdidlar aniqlanib, tizimning strategik holati baholandi.

5. Ekspert baholari

Soha mutaxassislari, transport muhandislari va shaharsozlik bo‘yicha ekspertlarning fikr-mulohazalari asosida amaldagi tizimdagi muammolar va ularning yechimlariga oid takliflar ishlab chiqildi.

6. Normativ-huquqiy tahlil

Transport tizimiga oid qonunchilik hujjatlari, hukumat qarorlari va davlat dasturlari o‘rganilib, tizimning institutsional asoslari tahlil qilindi.

Ushbu metodlar uyg‘unligi tadqiqot natijalarining ishonchliligini ta’minlash bilan birga, Mazzoni kompleks tahlil qilish imkonini berdi. Tadqiqot natijalari O‘zbekistonda yo‘lovchi tashish tizimini takomillashtirish bo‘yicha ilmiy-amaliy takliflar ishlab chiqishga xizmat qiladi.

Tahlil va natijalar

O‘zbekistonda yo‘lovchi tashish tizimi so‘nggi yillarda izchil islohotlar va modernizatsiya jarayonlari orqali yangi bosqichga ko‘tarilayotgan bo‘lsa-da, tizimda haligacha bir qator tizimli muammolar saqlanib qolmoqda. Olib borilgan tahlillar quyidagi asosiy natijalarni aniqlash imkonini berdi:

1. Transport turlarining rivojlanish darajasi turlicha.

Avtomobil transporti (ayniqsa, avtobuslar) yo‘lovchi tashishda yetakchi o‘rinda turadi. Bu yo‘nalishdagi xizmatlar aholiga nisbatan keng taqdim etilgan bo‘lsada, transport vositalarining aksariyati eskirgan, ekologik talablarga javob bermaydi va tirbandliklarga olib kelmoqda. Temir yo‘l transporti uzoq masofalardagi tashishlar uchun samarali hisoblanadi, biroq ichki qatnovlar soni cheklangan. Havo transporti esa asosan yirik shaharlarga xizmat qiladi va oddiy fuqarolar uchun hali ham iqtisodiy jihatdan unchalik qulay emas.

2. Shahar va qishloq joylar orasida katta tafovut mavjud

Poytaxt va yirik shaharlarda yo‘lovchi tashish xizmatlari nisbatan yaxshilangan bo‘lsa-da, chekka hududlarda muntazam qatnovlar, sifatli transport vositalari va muvofiqlashtirilgan yo‘nalishlar yetarli emas. Bu esa hududiy tengsizlikka olib kelmoqda.

3. Raqamlashtirish darajasi past

Jamoat transportlarining harakatini boshqarish, yo‘lovchi oqimini nazorat qilish va xizmatlarni onlayn rejalashtirish tizimlari (mobil ilovalar, elektron to‘lov tizimlari va h.k.) hali to‘liq joriy etilmagan. Bu esa transport tizimining zamonaviy boshqaruv darajasiga chiqishini sekinlashtiradi.

4. Transport infratuzilmasining yangilanishi izchil olib borilmoqda

So‘nggi yillarda yangi yo‘llar qurilishi, metro liniyalarining kengaytirilishi, elektrobus va ekologik toza transport vositalarining xarid qilinishi ijobiy siljishlarga olib kelmoqda. Jumladan, Toshkent shahrida elektrobuslar soni ortmoqda, Samarqandda esa yangi turistik yo‘nalishlar uchun jamoat transporti sifati oshirilgan.

5. Xalqaro tajriba yetarlicha o‘zlashtirilmagan

Solishtirma tahlillar shuni ko‘rsatmoqdaki, rivojlangan davlatlarda yo‘lovchi tashish tizimi raqamlashtirish, integratsiyalashgan multimodal yondashuvlar, ekologik transport va foydalanuvchi qulayligiga asoslangan. O‘zbekistonda esa bu jihatlar hali bosqichma-bosqich yo‘lga qo‘yilmoqda.

Xulosa va takliflar

Xulosa

O‘zbekistonda yo‘lovchi tashish tizimi ijtimoiy-iqtisodiy barqarorlikni ta’minlashda muhim o‘rin egallaydi. Olib borilgan tahlillar shuni ko‘rsatadiki, so‘nggi yillarda transport infratuzilmasini modernizatsiya qilish, ekologik toza transport vositalarini joriy etish va xizmatlar sifatini oshirish yo‘nalishida ijobiy o‘zgarishlar amalga oshirilmoqda. Biroq tizimda hali ham texnik eskirish, raqamlashtirishning sustligi, shahar va qishloq joylari o‘rtasidagi transport tafovuti, multimodal integratsiya va foydalanuvchi qulayligi kabi muammolar mavjud.

Transport sohasining barqaror rivojlanishini ta’minlash, aholining harakatlanish imkoniyatlarini kengaytirish va zamonaviy texnologiyalar asosida xizmat ko‘rsatish tizimini shakllantirish uchun kompleks yondashuv talab etiladi.

Takliflar

1. Transport vositalarini yangilash va ekologik standartlarga moslashtirish:

Eskirgan avtobus va mikroavtobuslarni bosqichma-bosqich ekologik toza transport vositalariga (elektrobus, gazda yuradigan avtobus) almashtirish zarur.

2. Hududlararo tenglikni ta’minlash:

Chekka hududlarda transport yo‘nalishlarini ko‘paytirish, qatnovlar jadalligini oshirish va sifati yuqori transport vositalarini jalb etish orqali markaz va qishloq o‘rtasidagi transport tengsizligini kamaytirish lozim.

3. Raqamlashtirish va axborot texnologiyalarini keng joriy etish:

Jamoat transporti harakatini onlayn kuzatish, elektron chiptalar, mobil ilovalar va aqlli to‘lov tizimlarini keng joriy etish orqali transport xizmatlarining qulayligi oshiriladi.

4. Multimodal transport tizimini yo‘lga qo‘yish:

Avtomobil, temir yo‘l, metro va havo transporti o‘rtasidagi muvofiqlashtirilgan tizimni ishlab chiqish orqali yo‘lovchilarning vaqt va resurs tejamkorligini ta’minlash mumkin.

5. Xalqaro tajribani o‘rganish va milliy sharoitga moslashtirish:

Transportni boshqarish, ekologik yechimlar va shaharsozlik yondashuvlari borasida ilg‘or tajribalarni tahlil qilish va O‘zbekiston sharoitiga mos strategiyalar ishlab chiqish zarur.

6. Xavfsizlik va xizmat sifati ustuvorligi:

Yo‘lovchi tashish sohasida xizmat ko‘rsatish madaniyatini oshirish, haydovchilar malakasini doimiy ravishda oshirish va texnik xavfsizlik qoidalariga qat’iy amal qilish talab etiladi.

7. Ilmiy tadqiqotlarni qo‘llab-quvvatlash:

Transport tizimini rivojlantirishda ilmiy asoslangan yondashuvlar, sohani monitoring qilish, model va prognozlar yaratish orqali uzoq muddatli strategiyalar ishlab chiqilishi lozim.

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GENERATION OF PONDEROMOTOR FORCES IN A DIELECTRIC SORTING MACHINE WITH AN AUXILIARY ELECTRODE SYSTEM

Abstract:

Purpose: *This article is devoted to studying the generation, nature, and role of ponderomotor forces in dielectric sorting machines. Ponderomotor forces arise due to the charging of cotton seeds under the influence of an electric field and the differences in their dielectric properties. These forces enable the movement of seeds and their separation into various fractions. The article analyzes the dependence of ponderomotor forces on factors such as electric field strength, dielectric properties of seeds, degree of charging, and weight.*

Methods. *The article investigates the processes of high-quality sorting and processing of cotton seeds using dielectric sorting technologies. The formation of ponderomotor forces and their dependence on seed charging and dielectric properties have been studied. These forces play a crucial role in separating seeds into different fractions, thereby improving quality and efficiency in agriculture.*

Results. *Dielectric sorting machines separate cotton seeds based on differences in their charging behavior and dielectric properties. Ponderomotor forces, generated under the influence of an electric field, enable the segregation of seeds into distinct fractions. Research demonstrates that these forces depend on factors such as electric field strength, the dielectric properties of seeds, their charge level, and mass. The adoption of this technology in Uzbekistan expands opportunities to enhance both cotton cultivation and processing, yielding higher-quality products.*

Conclusion. *Dielectric sorting devices hold significant potential for high-precision seed separation. Ponderomotor forces arise from the combined effects of electric field-induced seed charging and variations in dielectric properties. These forces govern seed movement and enable their classification into targeted groups. Studies confirm that ponderomotor forces are influenced by electric field intensity, seed dielectric characteristics, charge accumulation, and particle mass.*

Keywords: *seed, dielectric separation, electrode, ponderomotor forces, electric field strength, charge, electric field.*

Introduction

In modern agriculture, high-quality sorting and processing of agricultural products are of paramount importance. Particularly in cotton cultivation and processing, the separation of high-quality seeds and the removal of defective ones are among the key factors in improving productivity. Today, dielectric sorting technologies are widely used in many countries worldwide, including the United States, China, India, and European nations. These technologies leverage differences in the dielectric properties of materials to enable precise and rapid sorting.

Global researchers are actively conducting scientific studies on dielectric sorting machines and their working principles. For instance, in the U.S. and Europe, new methods for high-quality sorting of grains, seeds, and other agricultural products are being developed using dielectric sorting technologies. In China, these technologies are applied to sort medicinal plant seeds, while in India, dielectric sorting machines have demonstrated effective results in separating damaged and healthy cotton components [1].

Methods.

This study investigates the generation of ponderomotor forces in dielectric sorting machines, their nature, and their role in the sorting process of seeds. Ponderomotor forces are formed as a result of the charging of seeds under the influence of an electric field and differences in their dielectric properties. These forces allow the movement of seeds and their separation into different fractions. The results of the research suggest new solutions for high-quality sorting and processing of seeds, which will help to increase quality and efficiency in agriculture. Ponderomotor forces and their nature are described in a number of ways. These forces are directly related to the strength and direction of the electric field, and the stronger the electric field, the stronger the ponderomotor force. The dielectric properties of the seed also play an important role in the formation of ponderomotor forces. Different seeds or different states of the same seed (for example, healthy and defective seeds) are charged to different degrees in an electric field, which leads to the influence of different forces on them.

The degree of charge of the seed determines the magnitude of the ponderomotor forces. Seeds with a large surface area are more highly charged and therefore are subject to a stronger ponderomotor force. In addition, ponderomotor forces also depend on the weight of the seed. Lighter seeds move faster under the influence of an electric field, while heavier seeds move slower. This difference makes it possible to separate seeds according to their qualities and properties [2-3].

Results.

Ponderomotor forces can move the seeds in a specific direction depending on the direction of the electric field. This feature is used in the sorting process to separate seeds into different fractions. The nature of the forces may be linear or nonlinear depending on the strength of the electric field and the properties of the seed. For example, in small electric fields, the forces are linear, but in large fields, this relationship may become more complex [4-6].

Ponderomotor forces are formed under the influence of the electric field, depending on the charging of the seeds and their physical properties. These forces allow accurate separation of seeds based on their quality and properties and are considered the main mechanism of dielectric sorting technologies [5-9].

Determining ponderomotor forces:

$$\vec{F}_{эл} = К_{ф} E gradE \qquad (1)$$

Where $К_{ф}$- is the coefficient that accounts for the influence of the shape and dielectric permeability of the particle on the dipole moment value.

In a specific case for a spherical particle:

$$К_{ф} = 4\pi\varepsilon_0 R^3 \frac{\varepsilon_2 - \varepsilon_1}{\varepsilon_2 + 2\varepsilon_1} \qquad (2)$$

R- radius of the dielectric particle.

By substituting the electric field E and its gradient $gradE$ into the equation, we derive the function of ponderomotor force for a system of conductors with variable polarity.

For the condition $R <<$ a the following formula is derived:

$$\overrightarrow{F_{эл}} = -\frac{К_{ф}\pi\tau^2}{8\varepsilon_0^2\varepsilon_1^2 a^3}\left[\frac{sin^2\frac{\pi}{a}x}{(ch^2\frac{\pi}{a}y - cos^2\frac{\pi}{a}x)^2}\cdot\vec{\imath} + \frac{sh^2\frac{\pi}{a}y}{(ch^2\frac{\pi}{a}y - cos^2\frac{\pi}{a}x)^2}\cdot\vec{J}\right] \qquad (3)$$

The minus sign before formula (3) indicates that the ponderomotor force is directed opposite to the unit vectors $\vec{\imath}$ and $\vec{J}$ in the case where $\varepsilon_2 > \varepsilon_1$, meaning this force is attractive and directed toward the system of conductors with variable polarity.

Here

ε_1- relative dielectric permittivity of the medium;

ε_2- relative dielectric permittivity of the particle.

We determine the action zone of the ponderomotor force. To simplify the calculations, we pass from the vector function of the ponderomotor force to its modulus:

$$F_{эл} = \frac{К_{ф}\pi\tau^2}{8E_0^2E_1^2a^3}\cdot\frac{(sh^2\frac{2\pi}{a}y + sin^2\frac{2\pi}{a}x)^{\frac{1}{2}}}{(ch^2\frac{\pi}{a}y - cos^2\frac{\pi}{a}x)^2} \qquad (4)$$

We also check the change of $F_{эл}$- y along the y-axis at ordinates x=0 and x=0.5a. Furthermore, we observe the change of $F_{эл}$ along the x axis when y=0 in the inter-electrode space.

When x=0 along the y-axis:

$$F_{эл1y} = \frac{К_{ф}\pi\tau^2}{4\varepsilon_0^2\varepsilon_1^2a^3}\cdot\frac{ch\frac{\pi}{a}y}{sh^3\frac{\pi}{a}y}$$

It can be seen from the equation that the change in the force is equal to the ratio of the hyperbolic cosine to the cube of the hyperbolic sine, and as the distance from the conductor increases, it is characterized by a sharp decrease [10].

At a distance of a between the electrodes, the force decreases to such an extent that its value can be neglected.

When x=0,5a the force along y is determined by the following equation:

$$F_{\text{эл}2y} = \frac{\text{К}_{\phi}\pi\tau^2}{4\varepsilon_0^2\varepsilon_1^2 \cdot a^3} \cdot \frac{sh\frac{\pi}{a}y}{ch^3\frac{\pi}{a}y}$$

In this case, the change in force is determined by the ratio of the hyperbolic sine to the cube of the hyperbolic cosine. A characteristic feature of this ratio is that when $y = 0$ the ratio is equal to zero, i.e., at the point $\text{Mo} = (\,\text{x} = 0{,}5\text{a}, \text{y} = 0)$ the ponderomotor force is absent ($F_{\text{эл}2y} = 0$).

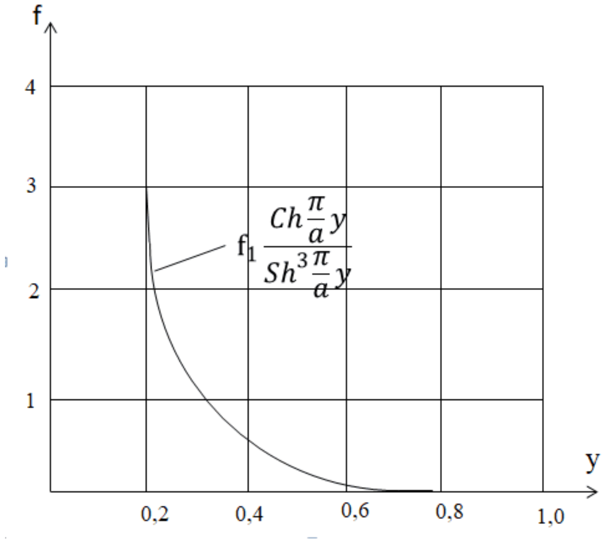

Figure 1. Graph of the function $\frac{ch\frac{\pi}{a}y}{sh^3\frac{\pi}{a}y}$ representing the change in the component of the ponderomotor force as the distance from the system of conductors increases along the y-axis.

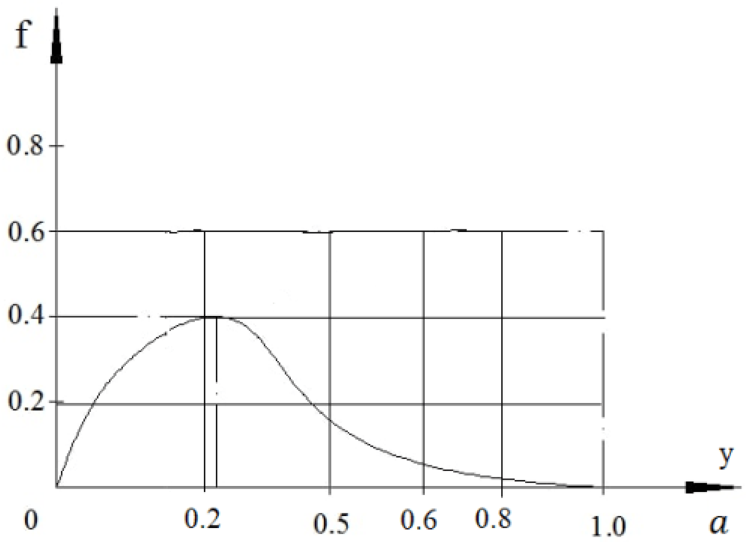

Figure 2. Graph of the change in the ponderomotor force function as it moves away from the system of alternating conductors at $x = 0.5a$.

Discussions.

First of all, the influence of the electric field plays a crucial role. In a dielectric sorting machine, a high-voltage electric field is generated, which causes the surface of the seeds to become charged. Healthy and defective seeds acquire different levels of charge because their dielectric constants and surface properties differ. Healthy seeds have good dielectric properties and become uniformly charged under the influence of the electric field. Defective seeds (for example, underdeveloped, damaged, or contaminated ones), on the other hand, receive less charge or are charged unevenly [12].

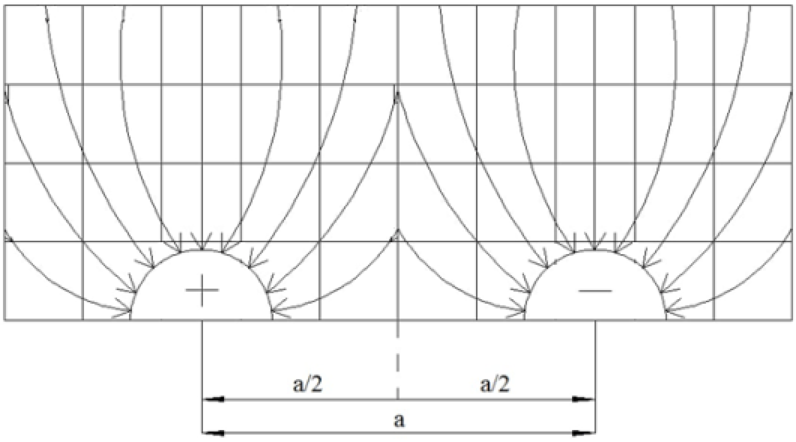

Figure 3. Illustration of ponderomotor forces in a system of alternating-polarity conductors

Figure 3 presents the depiction of ponderomotor forces in a system of alternating-polarity conductors. The tangents to these lines indicate the direction of the force at any arbitrary point in space. As seen in the figure, the force pattern is symmetric and uniform—whether for positively or negatively charged conductors. That is, the direction of the ponderomotor force is not influenced by the sign of the charge on the conductor. The conducted calculations and their analysis characterize the behavior of finely dispersed particles in a variable-polarity field [15-16].

Dielectric sorting machines play a crucial role in the quality-based sorting of seeds. Ponderomotor forces arise due to the charging of seeds under the influence of an electric field and differences in their dielectric properties. These forces cause the seeds to move and enable their separation into various fractions. Research results show that ponderomotor forces depend on factors such as the strength of the electric field, the dielectric properties of the seeds, their charge level, and their weight.

Conclusions.

Dielectric sorting technologies offer methods to improve product quality, increase production efficiency, and ensure environmentally friendly processes in agriculture. Implementing this technology in Uzbekistan's agricultural sector will expand opportunities for obtaining high-quality products in cotton cultivation and processing. In the future, by improving and widely applying this technology, it will be possible to further enhance quality and efficiency in agriculture.

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GLOBAL DYNAMICS OF THE SHADOW ECONOMY AND MODERN STRATEGIES FOR COMBATING IT IN THE REPUBLIC OF UZBEKISTAN

Abstract: *This article provides a fundamental and practical in-depth analysis of the historical origins of the shadow economy, its scope in modern conditions, and the comprehensive measures being implemented to combat this sector in the Republic of Uzbekistan. As research methodology, institutional analysis, comparative research methods, statistical data processing, temporal analysis, and synthetic generalization methods of expert assessments have been widely used. The article systematically examines the historical genesis of the shadow economy, its evolutionary development stages, various manifestation forms, sectoral distribution, and the multifaceted, often contradictory impact on the economies of developing and developed countries. The empirical part of the research covers the latest trends in world practice, statistical indicator dynamics, and regional characteristics.*

Keywords: *shadow economy, informal sector, tax rates, tax evasion, economic growth, state policy, economic stability, tax system, transparency.*

The shadow economy, encompassing all economic activities that operate outside official regulatory frameworks and tax systems, has emerged as a persistent global phenomenon affecting both developed and developing nations. Defined as economic activities that generate income but remain unrecorded in official statistics and untaxed by government authorities, the shadow economy poses significant challenges to fiscal policy, economic planning, and sustainable development.

The conceptualization of shadow economy activities gained academic prominence in the 1970s when economist Peter Gutmann first systematically analyzed unrecorded economic activities in the United States, estimating their contribution at approximately 10% of GDP. Since then, scholarly understanding of shadow economy dynamics has evolved considerably, encompassing various theoretical frameworks and empirical methodologies for measurement and analysis.

This study addresses the critical need for comprehensive analysis of shadow economy dynamics in the context of economic transition and development, with particular focus on the Republic of Uzbekistan's experience since 2017. The research objectives include examining global shadow economy trends, analyzing causal factors contributing to shadow economic activities, evaluating Uzbekistan's comprehensive reform strategies, and assessing the effectiveness of implemented policy interventions.

The shadow economy encompasses diverse economic activities ranging from completely illegal operations to legal activities conducted outside regulatory oversight. Schneider and Enste (2000) classify shadow economy activities into four categories: illegal activities, unreported income from legal activities, unrecorded income from legal activities, and income not captured in official statistics due to statistical shortcomings. Theoretical explanations for shadow economy emergence include institutional theory, which emphasizes the role of weak governance structures and regulatory inefficiencies, and economic theory, which focuses on tax burden optimization and regulatory compliance costs. The dual economy model suggests that shadow activities emerge when formal sector regulations impose excessive costs on economic actors.

Shadow economy measurement remains methodologically challenging due to the inherently hidden nature of these activities. Primary approaches include direct methods (surveys and tax auditing), indirect methods (electricity consumption, currency demand, labor force participation), and model-based methods (Multiple Indicators Multiple Causes models, Dynamic General Equilibrium models). Recent advances in digital analytics and big data applications have enhanced measurement precision, enabling more sophisticated tracking of shadow economy indicators through financial transaction analysis, digital payment monitoring, and cross-reference verification systems.

Shadow economy activities generate complex economic effects. Negative impacts include reduced government revenue, distorted competition, inadequate worker protection, and compromised statistical accuracy for policy formulation. However, some scholars argue that shadow activities may provide economic flexibility, employment opportunities during economic downturns, and entrepreneurial development platforms.

The net economic impact varies significantly across countries and development stages, with developing economies typically experiencing more pronounced negative effects due to limited institutional capacity and greater dependence on formal sector tax revenue. According to International Labour Organization estimates, over 2 billion individuals worldwide participate in informal economic activities, representing approximately 60% of global employment. This participation rate varies significantly across regions, with Sub-Saharan Africa showing the highest rates (70%), followed by South Asia (68%), East Asia (58%), Latin America (45%), Eastern Europe (32%), Western Europe (18%), and North America (10%).

The World Bank estimates global shadow economy value at 30-35% of world GDP, equivalent to approximately $30-35 trillion annually. This substantial economic activity remains largely outside official regulatory and taxation frameworks, representing significant lost potential for economic development and social protection systems.

Shadow economy activities concentrate in specific sectors characterized by labor-intensive operations, limited capital requirements, and minimal regulatory oversight. Construction and repair services account for 25-30% of shadow activities, followed by retail trade and personal services (20-25%), transportation and logistics (15-20%), agriculture (10-15%), and various other sectors (20-25%).

The COVID-19 pandemic significantly impacted shadow economy dynamics, with an estimated additional 100 million individuals transitioning to informal activities due to formal sector job losses and economic disruption. This shift highlighted the shadow economy's role as an economic buffer during crises while simultaneously demonstrating its vulnerability to external shocks. Approximately 93% of shadow economy participants live near or below poverty thresholds, lacking access to social security, healthcare, and retirement benefits. This concentration of vulnerable populations in shadow activities perpetuates cycles of economic insecurity and social exclusion.

Uzbekistan’s transition from a centrally planned to market-oriented economy created conditions conducive to shadow economy expansion. Historical factors including limited private sector development, extensive regulatory barriers, complex bureaucratic procedures, and restrictive foreign exchange policies contributed to informal activity growth.

Prior to 2017, Uzbekistan’s shadow economy was estimated at approximately 49% of GDP, significantly above regional averages and representing substantial lost economic potential. This high level of informal activity reflected systemic challenges including tax system complexity, regulatory uncertainty, limited access to formal financial services, and weak institutional frameworks. Key challenges contributing to shadow economy expansion included excessive tax burdens on small and medium enterprises, complex licensing and registration procedures, limited access to formal credit markets, currency exchange restrictions, and inadequate legal protection for business activities. These factors created strong incentives for economic actors to operate outside formal regulatory frameworks.

Additionally, limited digitalization of government services, lack of transparent regulatory processes, and weak rule of law contributed to informal activity prevalence. The formal sector's inability to provide adequate employment opportunities further drove individuals toward shadow economy participation.

Uzbekistan implemented comprehensive tax reforms beginning in 2017, significantly reducing tax rates and simplifying tax procedures. Corporate income tax rates were reduced from 12% to 9%, with further reductions for small businesses. Value-added tax rates were decreased, and numerous tax exemptions were introduced for priority sectors. The introduction of simplified tax regimes for small and medium enterprises, including fixed tax payments and turnover-based taxation options, substantially reduced compliance costs and administrative burdens. These reforms made formal sector participation economically attractive for previously informal operators.

Regulatory simplification initiatives eliminated numerous licensing requirements, streamlined business registration procedures, and established "single window" systems for government services. Business registration time was reduced from several months to 2-3 days, while required documentation was minimized significantly. The establishment of business ombudsman institutions provided entrepreneurs with advocacy and support in resolving regulatory disputes. Free economic zones were expanded with enhanced incentives, creating attractive formal sector opportunities for businesses previously operating informally.

Digital transformation initiatives played a crucial role in formalizing economic activities. The implementation of electronic tax filing systems through the “Soliq.uz” platform simplified tax compliance and reduced interaction with tax officials, minimizing corruption opportunities. Electronic payment systems were promoted through reduced fees and enhanced accessibility, enabling better transaction tracking and formal sector integration. Blockchain technology applications in customs and trade facilitated transparent and efficient formal sector operations.

Criminal law liberalization reduced penalties for economic offenses, while administrative liability measures were softened to encourage voluntary compliance. The judicial system underwent reforms to enhance commercial dispute resolution and strengthen property rights protection. Anti-corruption measures were intensified through institutional reforms, digital systems implementation, and enhanced transparency requirements. These changes improved business confidence in formal sector operations and reduced informal activity incentives.

Banking sector reforms enhanced access to formal financial services, with simplified loan procedures and reduced collateral requirements for small businesses. Microfinance institutions were developed to serve previously unbanked populations, facilitating formal sector integration.

Foreign exchange liberalization eliminated black market currency trading, a significant component of shadow economy activities. The introduction of market-based exchange rates reduced arbitrage opportunities and encouraged formal sector participation.

Uzbekistan’s comprehensive reform program achieved remarkable results in shadow economy reduction. Official estimates indicate a decrease from 49% of GDP in 2017 to 38% by 2024, representing an 11 percentage point reduction over seven years. This improvement significantly exceeded regional averages and demonstrated the effectiveness of comprehensive policy interventions.

Government revenue increased by 25% between 2017 and 2024, reflecting improved tax compliance and economic formalization. Formal sector employment expanded substantially, with official job creation rates increasing by over 40% during the reform period. Different economic sectors experienced varying degrees of formalization success. The services sector showed the most significant improvement, with formal registration rates increasing by over 60%. Construction and trade sectors also demonstrated substantial progress, though at lower rates due to traditional informal practices.

Agricultural sector formalization proved more challenging due to seasonal employment patterns and rural infrastructure limitations. However, even in agriculture, formal cooperation development and value chain integration initiatives showed promising results.

Formal sector expansion enhanced worker protection through social security coverage, healthcare access, and legal employment protections. Small and medium enterprise development accelerated, contributing to economic diversification and innovation.

Investment climate improvements attracted increased foreign direct investment, with formal sector transparency and legal certainty serving as key factors. Economic statistics accuracy improved substantially, enabling better policy formulation and economic planning.

Uzbekistan's shadow economy reduction success compares favorably with regional experiences. While neighboring countries typically experienced modest improvements or stagnation in shadow economy indicators, Uzbekistan achieved substantial progress through comprehensive reform implementation.

Key success factors in Uzbekistan's experience include comprehensive approach integration, addressing multiple causal factors simultaneously rather than focusing on isolated interventions. Stakeholder engagement throughout the reform process ensured business community buy-in and reduced resistance to change.

Gradual implementation timelines allowed for adjustment and refinement, while clear communication strategies helped build public understanding and support for reforms. Digital technology utilization enhanced efficiency and transparency while reducing corruption opportunities. Despite significant progress, challenges remain in Uzbekistan's shadow economy reduction efforts. Rural areas continue experiencing higher informal activity rates due to limited infrastructure and service access. Cross-border trade informalization persists due to regional regulatory differences and enforcement challenges. Certain sectors, particularly agriculture and construction, retain traditional informal practices that resist formalization efforts. Cultural attitudes toward informal activities require continued education and incentive programs to achieve comprehensive change.

Accurate shadow economy measurement remains challenging, with official estimates potentially underestimating actual improvement rates. Enhanced monitoring systems and methodological refinements are needed for precise impact assessment. International comparison difficulties arise from methodological differences and data availability variations across countries. Standardized measurement approaches would enhance policy learning and best practice identification.

Sustaining shadow economy reduction requires continued reform momentum across multiple dimensions. Tax system simplification should proceed with further rate reductions and procedure streamlining. Digital system expansion must continue with enhanced cyber security and user accessibility. Rural development initiatives should prioritize infrastructure improvement and service access expansion. Cross-border cooperation mechanisms need strengthening to address informal trade activities effectively.

The reduction of shadow economy participation from 49% to 38% of GDP between 2017 and 2024 represents substantial progress that benefited both government finances and economic development. Enhanced formal sector participation improved worker protection, business development opportunities, and overall economic stability.

Key success factors include comprehensive approach integration, stakeholder engagement, gradual implementation, digital technology utilization, and sustained political commitment. These elements provide valuable lessons for other developing countries seeking to address shadow economy challenges.

However, continued efforts are required to sustain progress and address remaining challenges. Rural area development, sectoral-specific initiatives, enhanced monitoring systems, and regional cooperation mechanisms will be crucial for long-term success.

The Uzbekistan experience contributes significantly to understanding effective shadow economy reduction strategies and provides a valuable case study for international policy learning and development cooperation initiatives.

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EFFECTIVENESS OF IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN THE ACTIVITIES OF HIGHER EDUCATION INSTITUTIONS

Abstract: *In this article, the implementation of artificial intelligence technology in the higher education system of our republic, based on the analysis of the possibilities of artificial intelligence, the implementation of artificial intelligence technology in the activities of higher education institutions should be implemented. proposals are given for determining the initial measures, development of ways to effectively use the possibilities of artificial intelligence platforms in the higher education system.*

Keywords: *artificial intelligence, intelligent learning systems, cognitive, smart robots, "dual teacher" model, plagiarism detection tools.*

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OLIY TA'LIM MUASSASALARI FAOLIYATIDA SUN'IY INTELLEKT TEXNOLOGIYASINI JORIY ETISH SAMARADORLIGI

Annotatsiya: *Mazkur maqolada respublikamiz oliy ta’lim tizimida sun’iy intellekt texnologiyasini joriy etish etish, sun’iy intellekt imkoniyatlarini tahlil qilish asosida, oliy ta’lim muassasalari faoliyatiga sun’iy intellekt texnologiyasini joriy etish bo‘yicha amalga oshirilishi lozim bo‘lgan dastlabki chora-tadbirlarni aniqlab olish, oliy ta’lim tizimida sun’iy intellekt platformalari imkoniyatlaridan samarali foydalanish usullarini belgilab olishni rivojlantirish bo‘yicha takliflar keltirilgan.*

Kalit so‘zlar: *sun’iy intellekt, intellektual ta’lim tizimlari, kognitiv, aqlli robotlar, “dual o‘qituvchi” modeli, plagiatni aniqlash vositalari.*

Introduction

The topic of artificial intelligence is a very urgent problem in the world today. He began to be seen as a good helper in most fields. For example, education, medicine, industry, technology, media and dozens of other fields are entering new stages of development with the help of artificial intelligence. Experts also emphasize that everyone should know about artificial intelligence, that its use will bring great benefits. Artificial intelligence is a set of programs designed to reproduce human skills. Artificial intelligence is an ability that helps to complete tasks such as finding solutions to existing problems, planning, gaining knowledge, and working on oneself in a timely and complete manner.

In a broad sense, artificial intelligence is a branch of the science of developing analytical systems capable of studying and solving complex problems. In a narrow sense, artificial intelligence is a computer training technology based on human thinking. In general, artificial intelligence is a set of models and methods that are able to draw certain conclusions based on received data.

Literature analysis

The term "artificial intelligence" was first used by John McCarthy in 1956 at a seminar held at Dartmouth College, an American Ivy League university. The first artificial intelligence program was developed in 1951 by British computer scientist Christopher Strachey. In 1952, this artificial intelligence program learned to play checkers with humans while predicting the moves of its partners. English mathematician and computer scientist Alan Turing even mentioned this system in his article on chess programming published at that time.

Research methodology

The next stage of development in the field of artificial intelligence corresponds to the mid-1990s. In particular, the IBM Deep Blue supercomputer, which managed to defeat the chess player Garry Kasparov in 1997, causes a lot of noise. The introduction of artificial intelligence technologies into education dates back to the 1970s. Early attempts have featured the use of rule-based artificial intelligence to automatically adapt or individualize learning for each student. Since then, the development of artificial intelligence technologies in education has continued in several directions, in the form of student-oriented artificial intelligence, teacher-oriented artificial intelligence, and system-oriented artificial intelligence. .

Analysis and results

Scientists working in the field of artificial intelligence divide artificial intelligence technology into four main types:

1. Weak artificial intelligence is an artificial intelligence that does not have the ability to accumulate experience and use the collected information. Weak artificial intelligence is designed to perform a specific task and cannot perform additional functions.

2. Artificial intelligence with limited memory is designed to remember pieces of information and analyze the current situation based on them. The accumulated experience is not stored in memory and is not integrated with other data.

3. Powerful artificial intelligence — powerful machines can understand the thinking and motivations of humans, communicate with humans, and even have social and emotional intelligence. Machines similar to powerful artificial intelligence already exist. These include Apple's Siri and Yandex's virtual assistant Alisa. These powerful artificial intelligence tools teach people how to communicate.

4. Superintelligence is the final stage in the development of artificial intelligence that surpasses humans in every way. The emergence of systems of this level is possible when scientists fully study and model the working system of the

human mind. Today, artificial intelligence technologies are widely used in the field of education, as well as in all fields. The use of artificial intelligence technology in education is a direct factor that serves to improve the quality of education.

The use of artificial intelligence technology in the field of education is manifested in the following forms:

1. Using artificial intelligence to provide educational services and manage the learning process. System-oriented artificial intelligence applications are designed to automate higher education management processes based on information systems. Their category includes tasks such as enrolling students, drawing up a lesson schedule, monitoring attendance and independent work, and checking the quality of education. Artificial intelligence technologies demonstrate their capabilities in improving the educational process through the following platforms:

– educational chatbots. Chatbots are online computer software that use cloud services and artificial intelligence techniques to analyze human conversations and respond. More and more chatbots are being used in educational programs. After the user (participants of the educational process) writes or speaks a question, the chatbot displays the answer, provides information or performs a given task. Educational chatbots include Ada, owned by Canada's Ada Support, and DeakinGenie, developed by Deakin State University in Australia;

- The OUAnalyse platform is an AI-based application by Open University UK to predict student performance and identify students at high risk of dropping out. The application uses big data analysis from the university's education management information system. The main purpose of the application is to enable students with difficulties to complete (graduate) their studies;

- The Swift platform is a set of methods developed by SwifteLearningServices in India to help the learning management information system use the data generated in the e-learning module. From data collected through student interactions, Swift provides important insights into when and why a student is struggling or succeeding in learning. Swift analyzes this data to help create individualized learning trajectories based on student preferences;

- The "ALP" platform is an internal tool based on artificial intelligence for the US education system to support standard educational technologies. The system analyzes each student's data and collects information to create a psychometric profile of their interactions, preferences and achievements;

- The "UniTime" platform is a project jointly developed by major US IT companies. UniTime 9 is an AI-based educational planning system that develops university course and exam schedules, groups students, and creates personalized schedules for students.

2. Using artificial intelligence for learning and performance evaluation. AI, known as the “Fourth Revolution in Education”, aims to provide quality, personalized and accessible lifelong learning (both formal and informal) to every student, regardless of location. directed. The field of artificial intelligence focused on learning and performance evaluation can also be used to:

- intellectual education systems. The task of intelligent education systems is to provide step-by-step learning activities that are individual for each student in a block of compulsory subjects such as mathematics or physics. The system determines the best learning trajectory based on subject matter and cognitive science expertise, and through instructional materials and classrooms that respond to individual student challenges or successes. This approach is sometimes used in learning management systems such as Moodle and OpenedX or Used on platforms like KhanAcademy. As a student engages in learning activities, the system uses knowledge tracking and machine learning algorithms to automatically adjust the level of difficulty and provide tips or recommendations based on each student's strengths and weaknesses.

- interactive educational systems. Dialogue-based learning systems use natural language processing and other artificial intelligence techniques to learn and simulate conversations between teachers and students in sequential online tasks. Most of the interactive educational systems were developed as part of research projects.

- cognitive educational environment. In a cognitive learning environment, the role of artificial intelligence is to minimize the cognitive overhead associated with cognitive processes through automated guidance and feedback based on knowledge tracking algorithms and machine learning.

– automatic writing assessment. It is necessary to use natural language processing and other artificial intelligence methods to create an opportunity for students working on a computer to give automatic feedback during the writing process.

- reading and learning languages with the help of artificial intelligence. Artificial intelligence technology compares sample recordings of native speakers to provide speech recognition, automatic feedback, and help students improve their pronunciation.

– intelligent robots. The prospect of using artificial intelligence-enabled robots is very useful in the context of educational processes, especially in the context of teaching students with disabilities or learning difficulties. For example, humanoid robots have been created that provide mechanical interactions and can create speech for a student with autism spectrum disorders or physical disabilities. The main purpose of these robots is to develop communication and social skills of students;

- virtual and augmented reality. Virtual and augmented reality are two interrelated innovations used in the context of education, often combining machine and artificial intelligence techniques to improve the user experience.

- learning network architecture. They are tools that allow network groups of students and teachers to participate in the educational process and organize educational activities. A learning network architecture can typically focus on the availability of participants, the choice of topic based on industry and expertise, and the development of collaboration.

- Using artificial intelligence to expand the capabilities of professors and teachers in educational processes.

- monitoring forum discussions using artificial intelligence. Artificial intelligence technologies are used to support online education, especially to assist faculty or provide technical assistance in monitoring various discussion forums.

- "dual teacher" model.

- teacher's assistant based on artificial intelligence technologies. As noted, many technologies have been developed to free teachers from time-consuming tasks such as monitoring attendance, grading assignments, and answering the same questions over and over again.

The implementation of artificial intelligence technology in the activities of higher education institutions provides them with the following advantages:

1. Personalized Learning: artificial intelligence helps to provide personalized learning by creating customized curriculum and content based on students' knowledge level and potential.

2. Enhanced Efficiency: AI technologies can automate administrative tasks such as evaluation, planning, and record keeping.

3. Intelligent tutoring systems (Intelligent Tutoring Systems): educational technologies based on artificial intelligence can immediately respond to students' requests, make suggestions and recommendations, and provide guidance.

4. Analysis based on data (DataDriven Insights): thanks to the ability of artificial intelligence to quickly process large amounts of educational data, analytical documents can be prepared easily and without losing time.

5. Accessibility and Inclusivity: artificial intelligence will facilitate the educational process of students with disabilities or special needs by providing alternative learning platforms, adaptive and assistive technologies.

6. Plagiarism Detection: artificial intelligence-based plagiarism detection tools help faculty closely identify plagiarism by comparing student work with extensive databases of scholarly resources and published materials.

Conclusion

In conclusion, it can be said that artificial intelligence offers various opportunities for additional learning of relevant educational materials by analyzing students' learning methods and their preferred learning resources. This system monitors students remotely during the exam process and helps prevent potential fraud. Artificial intelligence can remotely assess students and help ensure academic integrity and fairness, and help prevent emotional and mental stress for students. The AI-powered platform offers flexible exercises, pronunciation feedback, and text-based language training for students learning various foreign languages. AI can help improve overall student achievement by providing targeted support to students who are struggling to stay out of academic debt.

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DIGITAL ECONOMY AS A DRIVER OF SUSTAINABLE DEVELOPMENT IN CENTRAL ASIAN COUNTRIES

Annotation. *This article explores the transformative role of the digital economy in promoting sustainable development in the Central Asian region. As countries like Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, and Turkmenistan undergo significant technological shifts, digital tools and platforms are becoming integral to economic diversification, environmental management, and social inclusion. The study investigates how digitalization contributes to achieving the Sustainable Development Goals (SDGs) by enhancing transparency, promoting innovation, and improving service delivery in both the public and private sectors. The article also analyzes key barriers to digital transformation, including infrastructural deficits, digital inequality, and policy gaps. The research provides insights into how Central Asian countries can strategically harness digital technologies for inclusive and green economic growth.*

Keywords. *digital economy, sustainable development, Central Asia, innovation, digital transformation, economic growth, SDGs, digital infrastructure, inclusive development, policy reform.*

In recent years, the digital economy has emerged as a powerful catalyst for sustainable development across the globe. For Central Asian countries—Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, and Turkmenistan—this transformation presents both unique opportunities and significant challenges. These nations, traditionally reliant on natural resources and agriculture, are now actively seeking ways to diversify their economies, improve governance, and foster social inclusion through digitalization. The global shift towards knowledge-based economies, accelerated by the Fourth Industrial Revolution, has emphasized the need for technological integration across all sectors, from banking and education to agriculture and healthcare.

The digital economy encompasses a broad range of activities, including e-commerce, digital finance, artificial intelligence, big data analytics, and the Internet of Things. By leveraging these technologies, countries can increase efficiency, reduce costs, and create more inclusive economic systems. In the context of Central Asia, where geographic isolation and infrastructural limitations have historically hindered development, digital tools offer new pathways for connectivity, innovation, and global integration. Moreover, digitalization supports the achievement of the United Nations Sustainable Development Goals (SDGs), particularly in areas such as quality education, decent work, reduced inequalities, and climate action.

This article aims to analyze the current state of the digital economy in Central Asia, assess its potential to drive sustainable development, and identify key policy measures needed to overcome existing barriers.

The digital economy in Central Asia is gaining momentum, driven by both governmental strategies and increasing public demand for digital services. Uzbekistan, for example, has launched several initiatives under its “Digital Uzbekistan 2030” program aimed at expanding internet access, developing e-government systems, and fostering innovation. Similarly, Kazakhstan’s “Digital Kazakhstan” strategy has prioritized the development of digital infrastructure, human capital, and smart industries. These national strategies reflect a regional trend towards embracing digital transformation as a means to achieve long-term economic sustainability and resilience.

One of the most significant contributions of the digital economy to sustainable development is its ability to enhance economic diversification. In resource-dependent economies like those in Central Asia, digital technologies enable the growth of new sectors, such as IT services, e-commerce, and digital finance. These sectors not only create high-skilled jobs but also increase productivity and reduce reliance on extractive industries, which are often environmentally damaging. For example, the development of fintech solutions in Uzbekistan has expanded access to financial services in rural areas, supporting small businesses and promoting inclusive economic growth.

Digital platforms also improve transparency and efficiency in public administration, which is crucial for good governance and sustainable development. E-government initiatives across the region have streamlined bureaucratic procedures, reduced corruption, and improved access to essential services such as healthcare, education, and social protection. In Kyrgyzstan, the implementation of online portals for public services has significantly increased citizen satisfaction and reduced the time needed to access government support.

Moreover, the digital economy plays a critical role in environmental sustainability. Technologies such as smart grids, remote sensing, and data analytics support better resource management, pollution monitoring, and disaster risk reduction. In agriculture, digital tools have improved irrigation systems and crop planning, leading to higher yields and reduced environmental impact. Countries like Kazakhstan and Uzbekistan are also exploring digital solutions for water management and renewable energy integration, addressing key environmental challenges in the region.

However, despite these positive trends, several barriers continue to hinder the full realization of digital economy benefits. Infrastructure gaps, especially in rural and remote areas, limit internet access and technological adoption. There is also a significant digital skills gap, particularly among older populations and disadvantaged groups. Moreover, regulatory frameworks in many Central Asian countries are still evolving, often lacking clear guidelines for data privacy, cybersecurity, and digital trade.

To overcome these challenges, regional cooperation is essential. Central Asian governments should collaborate on developing shared digital infrastructure, harmonizing digital regulations, and promoting cross-border e-commerce. Investment in education and training programs is also crucial to ensure that the labor force is equipped with the digital skills needed in a modern economy. Furthermore, inclusive policies that target women, youth, and rural populations will be key to ensuring that the benefits of the digital economy are widely distributed.

The digital economy holds great potential to serve as a key driver of sustainable development in Central Asian countries. By promoting innovation, improving governance, enhancing service delivery, and supporting economic diversification, digital technologies can significantly contribute to achieving the Sustainable Development Goals. The experiences of countries like Uzbekistan and Kazakhstan demonstrate that strategic investments in digital infrastructure, human capital, and regulatory frameworks can yield positive outcomes in terms of growth, inclusion, and environmental protection.

However, realizing this potential requires coordinated efforts to address existing barriers such as limited infrastructure, digital inequality, and outdated policy frameworks. Central Asian governments, in collaboration with international partners, must adopt forward-looking strategies that prioritize inclusive digitalization and regional integration. Only through comprehensive and inclusive digital policies can the region fully leverage the transformative power of the digital economy to build a more sustainable, equitable, and prosperous future.

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EDUCATIONAL RESOURCES THAT DEVELOP INTELLECTUAL COMPETENCE

Abstract: *In this article, the use of information technology and computer systems in the educational process gives students the opportunity not only to use graphic illustrations, increase the speed of information transfer and increase the intensity of understanding, but also develop their intellectual abilities. In the information age, many higher educational institutions of the world conduct large-scale scientific research on information technologies, information and communication technologies and their modeling tools, motivational mechanisms for the development of the competencies of many teachers. The emergence of electronic devices and global telecommunication environments has led to the creation of educational software tools using hypertext, multimedia and hypermedia technologies, virtual systems. The use of such systems has made it possible to digitize many electronic programs, reference books, books and other resources in information storage systems. This article presents analytical data aimed at enriching intellectual educational resources with the help of information technologies based on the principles of openness, the network principle, the principle of control, the principle of adaptation, the principle of computer support and the principles of data collection.*

Keywords: *educational, theoretical lessons, examples, auxiliary references, insert, the principle of networking, the principle of control, the principle of adaptation.*

1. *Introduction*

The transition of the educational system to a new modern level can be realized only by creating computer packages (that is, electronic information educational resources, manuals, simulators, virtual stands and educational test editor). They create a single computerized environment in the form of a computer for a special audience of an educational institution, or in dormitories equipped for students' independent work, as well as on a personal computer at home. Based on the official definition of electronic products, textbooks and manuals, it is necessary to expand and clarify the concept of electronic information and educational resources. Therefore, it is one of the urgent issues to clarify the basic concepts related to electronic information and educational resources. Electronic information educational resource is the methodological basis of distance education, a new form of education. Concepts of electronic information and educational resources are being analyzed in different ways. For example, text and educational materials on diskettes, a presentation, etc.

Electronic educational products consist of graphic, text, number, sound, music, video, photo and similar information. The electronic educational product is displayed in various electronic sources in magnetic (magnetic tape, magnetic disk, etc.) and optical (CD-ROM, DVD, etc.) forms, as well as in the information storage databases of the electronic computer network (Internet).

2. *General aspects of electronic education textbooks*

The electronic educational product consists of systematic materials on a specific scientific and practical field of knowledge, and ensures that students and pupils acquire the necessary knowledge and practical skills in this field in a creative and active way. Electronic educational products should be distinguished by high quality of execution and artistic formation, completeness of information, quality of methodological equipment, quality of technical execution, openness, logic and connection sequence [1].

The electronic information learning resource and the printed textbook have the following aspects in common:

- educational material is described in a certain field of knowledge [2];
- educational material is covered at the level of modern achievements of science, technology, technology and culture [3];
- the educational material is systematically described in the textbooks, that is, it describes the entire finished work, which ensures the integrity of the textbook, consisting of many elements with meaningful relations and connections [4].

An electronic learning resource (even the most well-designed one) cannot and should not replace the traditional printed book. Just as the adaptation of a work is considered a new genre, the electronic information educational resource is a completely different genre of educational literature [5].

The electronic information educational resource should have the following properties:

- ensuring high-quality training sessions [6];
- creating opportunities to create and evaluate knowledge itself [7];
- bringing lectures and practical trainings closer to each other [8];
- to have a harmonious classification of the development of informational and educational resources [9];
- textual and other information materials should be updated (hypertexts) and illustrated (multimedia tools, pictures, tables, diagrams, etc.) [10].

Electronic information education resources should be different from the usual textbooks in the educational process, involving the capabilities of the human brain, in particular, auditory and emotional memory, as well as using computer efficiency to facilitate understanding, remembering existing concepts and examples as much as possible [11].

The following types of e-learning resources are available[12]:

Electronic information is divided into two types according to the use of educational resources:

1) Electronic information educational resources intended for public use should not require large system resources of a computer, since they are often installed on servers and can be accessed through a computer network.

2) Electronic information educational resources for individual use are

designed for studying educational material with or without the participation of the student.

Both types of e-learning resources can be used in lectures. Regarding the delivery of study materials: this type of e-textbooks does not allow you to move to the next section or module without mastering the study material of one section or module [13].

According to the update of educational information and materials, it can be divided into the following:

1. Continuously updated electronic textbooks are mainly placed in electronic educational databases (portals, websites, etc.) or electronic libraries.

2. Periodically updated electronic textbooks mainly describe various types of electronic data carriers (diskettes, SD-disks, etc.)

It is also necessary to determine the category of electronic information and educational resources. Electronic information educational resources are divided into the following four types:

- educational materials are presented mainly as verbal text, they have hypertexts and glossaries, as well as 2-dimensional (2D) graphics-diagrams, pictures (up to 25% of the educational material).
- educational materials are partly in the form of text with hyperbola and 2D graphics and 3-dimensional (3D) graphics (up to 25% of the educational material).
- educational materials have text, 2D graphics, video and audio animations and 3D effects (up to 50% of the educational material).
- the electronic information educational resource is created in a virtual environment, using modern network technologies, connected with the teacher through a computer network (Internet) at the level of distance training.

Each category of e-learning resources has its own requirements. However, there are a number of requirements that apply to all categories [14]. They consist of:

- the text of modules (paragraphs and topics) should not exceed 4-5 monitor screens (2 pages, preferably);
- hypertexts should not exceed 3 levels, because it is impossible to deviate from the main topic;
- the product system must meet the requirements of computer technology;
- following the recommendations of psychologists and ergonomics experts when creating pages of different colors.

The classification of electronic information and educational resources by categories is based on the following set of requirements:

- pedagogical requirements: these include didactic and methodological requirements;
- psychological requirements;
- technical requirements.

Categories of electronic information and educational resources are marked with “*” (asterisk). The number of stars increases as the quality and complexity of e-textbooks increases. Electronic information educational resources are classified according to four categories. High- category electronic information-educational resources are marked with four asterisks “****”, low- category electronic information-educational resources are marked with one asterisk, “*”.

Electronic information educational resource should serve to maximally ease the process of understanding and memorizing the most basic concepts and examples by engaging the ways of receiving the human brain (sound, emotional memory, computer tests) than a normal textbook. The text part should be limited, because there are simple textbooks for this, and paper and pencils should be used for deeper learning of computer materials.

Table 1 lists the categories of electronic information and educational resources based on the above requirements.

Therefore, it is necessary to use several principles and approaches in the process of creating electronic information and educational resources.

The principle of quantization: dividing the material into sections consisting of modules of minimum size.

Principle of completeness: Each module must contain components:

- theoretical lessons;
- theoretical questions;
- examples;
- problems and examples for independent solution;
- questions with answers for the entire module;
- control work;
- auxiliary references;
- commentaries.

The principle of openness: Each module should have visual frames that facilitate the acquisition of new concepts and methods .

The principle of branching: Each module is connected with other modules by hypertext applications, which implies a sequence of information acquisition.

Management principle: the student manages the exchange of personnel by himself, he can open examples of the required level of complexity and check himself.

The principle of adaptation: the electronic textbook should meet the needs of the student at a certain time of the educational process.

The principle of computer support: it is possible to get computer support at any time when using an electronic information educational resource (complex mathematical calculations, vocabulary, checking one's knowledge level, etc.).

The principle of collection: it should be done in the format of placing in single electronic complexes and libraries and expanding them with new sections and topics.

Table 1

Categories of electronic information and educational resources

Indicators	**Categories**			
	*	**	***	****
Coverage of interactive learning material %	15	25 - 45	50 - 85	86 - 100
Test questions in each section or module	+	+	+	+
Level of answers in tests	1	1	2	3 and more
Time limit for answers	-	-	+	+
Amount of explanation	-	-	+	+
Taking into account the evaluation rating	-	-	+	+
Virtual processes and objects	-	-	+	+
Hypertexts	+	+	+	+
Audio monitoring of educational material: - in some illustrations; -partly in lecture sessions or in educational materials of practical sessions; - fully systematic application.	-	+	+	+
Video animations: - in some illustrations; - fully systematic application of partial lectures or practical exercises in educational materials.	-	+	+	+
Psychological requirements				
Size of screened pages on the topic being studied	up to 5	up to 4	up to 3	up to 3
Musical observation	-	Allowed	Allowed	Allowed
Glowing gamma background of pages	Light color does not participate	Light color does not participate	Light color does not participate	Light color does not participate
Technical requirements				
Consideration of teaching time	-	-	-	-
Go to the required page	+	+	+	+
Structured presentation of educational material	+	+	+	+

Electronic information educational resource is necessary for independent work of full-time, part-time and remote students, because:

- learning materials will be facilitated due to the use of other methods (increase of reception methods) in addition to printed textbooks;
- adapts to the student's requirements and readiness, intellectual level;
- conditions for deeper mastery of science are created due to saving time in complex calculations;
- wide conditions are created for self-examination at each stage of work;

- conditions are created to print the completed work in a modern form on a file or printer;
- Acts as a patient coach, providing an unlimited number of clarifications, repetitions, and supporting materials.

3. ***Principles of creating electronic information educational resources***

Based on the above, it is recommended to follow the following rinciples when creating electronic information and educational resources:

The principle of quantization: It is necessary to divide the educational material into parts (modules) that are small in size, but have a whole content.

The principle of completeness: Each created section (module) consists of the following elements: a theoretical part, structured control questions for testing theoretical knowledge, tests, tasks for independent solving, and exercises aimed at learning practical skills and should consist of historical comments.

The principle of visuality: each section (module) should consist of a sequence of small frames that make it easy to understand and remember new concepts, ideas and methods.

The principle of branching: each section (module) should be connected to other sections by means of hyper-text links in such a way that the user can freely choose to switch to other sections at any time. The principle of branching does not limit the materials of the studied subject, but envisages a step-by-step mastering of the subject.

The principle of control: Students should be able to independently control the exchange of screen frames, to display any topic or information, concepts, ideas, illustration materials and multimedia on the screen. Students will have the opportunity to test their knowledge and skills by answering control questions and tests and completing practical exercises.

The principle of adaptability: the e-learning resource should adapt to the needs of the specific user during the learning process, a practical way depending on the depth and complexity of the material being studied and the future educational stage of the learner. should create an opportunity to change direction. Users should be able to create additional illustration materials according to their needs, interpret the studied concepts graphically and geometrically.

Computer-assisted principle: In this principle, learners should use the computer to look for and complete tasks and problems that encourage them to focus on the essence of the learning material at any time during the learning process.

The computer must not only perform complex substitution operations, various calculations and graphs, draw pictures and diagrams, but also perform operations of various complexity levels. It is necessary to check the previously studied and obtained results not only at the response stage, but also in optional cases [15].

The principle of flexibility: Electronic information education allows expanding and replenishing the resource with new departments and topics, science and technology innovations, and electronic libraries in special and separate subjects or learners, (it (in accordance with the specialty and course) should form private electronic libraries of teachers or researchers.

4. *Results, and Discussion*

Stages of creation of electronic information educational resources:

Stage 1. To acquaint teachers with available electronic information and educational resources in this field, to acquaint them with the requirements;

Stage 2. Forming a working (creative) group to create electronic information and educational resources;

Stage 3. Structuring the educational module (lectures, materials);

Stage 4. Creation of an electronic information educational resource based on a plan and script, rets

Stage 5. Enzymization and expertise;

Stage 6. Approval of the electronic information educational resource in the scientific council and its distribution as a program.

The technology of creating an electronic information educational resource includes the following steps:

- determining the goals and tasks of development;
- development of the structure of the electronic textbook;
- development of the content of the textbook by sections (modules) and topics;
- preparation of individual structure scenes of the electronic textbook;
- programming;
- testing;
- improving the content of the electronic textbook according to the test results;
- preparing a methodical manual for use.

5. *Conclusion*

It is known that a person can remember 5 times more information received with the help of the organs of vision compared to the organs of hearing. Unlike the hearing organs, the information received from the organs of vision is not recoded, but goes directly to memory and is stored for a long time. Not only its content, but also factors such as size, appearance of letters, color and movement of the image can play an important role in receiving information. Therefore, the text of the e-textbook should have its own characteristics, for the students to receive the information, the e-textbook's special features, i.e. highlighting, highlighting, underlining yish, sound can be affected. It can be seen from the practice of teaching in this way that teaching with the help of multimedia tools is doubly effective. It is known that a quarter of the heard material remains in the memory, if the material given to the listeners is made through video, the possibility of retaining and imagining the information increases by 35-70 percent. Also, if these educational programs are delivered to listeners in the form of audio, video and graphics, retention of the material in memory increases by 70-95 percent.

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THE DEVELOPMENT OF STUDENTS' CREATIVE ABILITIES THROUGH AN INDIVIDUALIZED APPROACH IN THE EDUCATIONAL PROCESS AS A SOCIO-PEDAGOGICAL NECESSITY

***Annotation**: This article explores the socio-pedagogical necessity of developing students' creative abilities through an individualized approach within the educational process. It analyzes the psychological foundations of creativity, the importance of personal differentiation in learning, and the influence of individualized instruction on students' intellectual and emotional development. The paper emphasizes that in the context of modern educational reforms, especially in Uzbekistan, fostering creative thinking is crucial for preparing students to meet the demands of a knowledge-based society. Special attention is given to how tailored teaching strategies and psychological support can unlock individual potential and promote self-expression, critical thinking, and problem-solving skills in learners.*

***Keywords**: creative development, individualized approach, socio-pedagogical necessity, student-centered learning, creativity in education, psychological development, Uzbekistan, educational process, pedagogical innovation, talent support.*

In the context of rapid changes in education and the growing demands of a knowledge-driven society, the development of students' creative abilities has become a fundamental objective of modern pedagogy. Creativity is no longer viewed as an exclusive attribute of a few gifted individuals; rather, it is recognized as a universal human potential that can and should be nurtured in every student. An individualized approach to teaching is one of the most effective ways to cultivate creativity, as it takes into account the unique psychological characteristics, interests, strengths, and learning styles of each student. This method encourages learners to take ownership of their educational journey, promotes motivation, and creates a supportive environment where they can explore and realize their creative potential.

In Uzbekistan, where educational reforms aim to modernize teaching strategies and align them with international standards, the implementation of individual approaches in the learning process is of particular relevance. The shift from teacher-centered to student-centered education aligns with the broader goal of humanizing the educational environment, making it more responsive to the diverse needs and capacities of learners. Within this framework, creativity is seen as both a goal and a tool for achieving holistic development. Developing creative abilities contributes not only to academic success but also to personal fulfillment, adaptability, and social integration, making it a socio-pedagogical necessity.

Understanding the psychological and pedagogical underpinnings of creativity, along with applying appropriate methodologies, is essential for educators. Teachers must be equipped with strategies to recognize individual differences and provide differentiated instruction that fosters creative expression. Thus, the individualized approach is not merely a methodological preference but a pedagogical imperative for nurturing well-rounded, competent, and innovative individuals capable of contributing meaningfully to society.

The individualized approach in education involves designing learning experiences that align with each student's personal characteristics, cognitive abilities, emotional state, and sociocultural background. It is based on the understanding that students learn in different ways and at different paces, and that their capacity for creativity can be significantly enhanced when their individuality is respected and nurtured. In practice, this requires the educator to assess students' needs through observation, psychological diagnostics, and feedback, and then adapt teaching methods accordingly. Such differentiation not only addresses students' intellectual needs but also supports their emotional well-being and intrinsic motivation.

One of the central elements of creative development through individualized learning is the cultivation of autonomy and critical thinking. When students are given the opportunity to make choices in their learning process, they become more engaged and invested. Assignments that encourage open-ended thinking, problem-solving, and personal reflection contribute to the development of creative competencies. Moreover, integrating subjects such as art, music, literature, and project-based learning into the curriculum provides diverse channels for self-expression and innovation. Teachers serve as facilitators and mentors rather than information transmitters, guiding students in exploring their interests and taking creative risks.

In Uzbekistan's educational context, the push for student-centered learning is reflected in national education policy and curriculum reforms. The goal is to prepare students not just for exams but for life-long learning and innovation. However, several challenges remain, including limited teacher training in individualized instruction, rigid assessment systems, and large class sizes. Overcoming these barriers requires institutional support, policy changes, and professional development programs that prioritize creative pedagogy.

Psychological theories, including those by Vygotsky, Gardner, and Rogers, provide a strong theoretical basis for individualized and creative education. Vygotsky's concept of the zone of proximal development highlights the importance of scaffolding learning according to individual readiness. Gardner's theory of multiple intelligences stresses the diverse ways in which creativity can manifest, while Rogers emphasizes the importance of a supportive environment that nurtures self-actualization. Applying these ideas, teachers can foster a classroom culture where risk-taking, exploration, and divergent thinking are valued and rewarded.

Furthermore, collaboration between psychologists and educators is essential in developing diagnostic tools and instructional frameworks that support individualized creativity. Psychological assessments can identify students' creative strengths and barriers, allowing for more targeted interventions. Educational institutions should also involve parents and the broader community to create a supportive ecosystem for students' creative development. Overall, the success of individualized creative education depends on a systemic approach that combines policy, pedagogy, psychology, and practice.

In conclusion, the individualized approach to fostering creativity among students is not only an innovative pedagogical strategy but a pressing socio-pedagogical necessity in today's educational systems. In the context of Uzbekistan's ongoing educational reforms, this approach aligns with the broader goals of developing well-rounded, socially active, and intellectually capable individuals. Nurturing creativity through tailored instruction contributes to students' personal growth, academic success, and ability to navigate complex social realities. It cultivates independence, self-confidence, emotional resilience, and the capacity to generate original ideas—skills that are critical in the modern world.

The implementation of individualized learning must go beyond mere differentiation of tasks; it should involve a transformation in the teacher's role, instructional planning, classroom management, and evaluation strategies. Teachers should be prepared not only to deliver subject matter but to inspire, guide, and challenge students to explore their own potentials. Schools must adopt flexible curricula, promote interdisciplinary connections, and create psychologically safe environments where creativity can flourish.

Future educational development must emphasize teacher training in creative and individualized instruction, establish support systems for student-centered learning, and encourage research on effective pedagogical models. Only through such comprehensive efforts can the education system fulfill its mission of empowering each student as a unique and creative contributor to society. In this way, creative development becomes not just an aspiration, but a foundational principle of human-centered education.

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BEHVAOURIAL FINANCE AND ITS IMPACT ON FINANCIAL CRISES

Annotation. *This article explores how behavioural finance reshapes our understanding of financial market dynamics and the root causes of financial crises, with a focus on the 2008 global crisis. The discussion covers key psychological biases, including heuristics, overconfidence, herd behaviour, and moral hazard and shows how these factors contributed to the formation and bursting of market bubbles, particularly in the mortgage and financial instruments sectors. Through an analysis of theoretical foundations, real-world examples, and recent research, the paper demonstrates that traditional models of rational behaviour are insufficient to explain recurring market anomalies. The article also highlights practical lessons for investors and policymakers, suggesting that financial literacy, robust regulation, and a deeper appreciation of behavioural influences are critical for promoting market stability and preventing future crises.*

Keywords. *Behavioural finance, financial crisis, heuristics, cognitive bias, herd behaviour, overconfidence, financial markets, 2008 crisis, mortgage-backed securities, risk management, investor psychology, moral hazard, financial literacy, market regulation.*

Introduction. The emergence of behavioural finance has fundamentally changed how we interpret financial markets and their recurring episodes of instability. While traditional financial theory posits that market participants are rational and always act in their best interest, the reality of market behaviour marked by bubbles, crashes, and anomalies suggests otherwise. Drawing on advances in psychology and behavioural economics, behavioural finance investigates the biases and social forces that drive collective decision-making, often leading markets far from equilibrium. The global financial crisis of 2008 served as a stark reminder of these dangers, as psychological errors and flawed incentives cascaded through the banking system, amplifying risks and destabilizing economies. This paper reviews the key insights of behavioural finance, examines its relevance to past crises, and considers what practical lessons can be drawn to promote a safer and more resilient financial system in the future.

Literature Review. The study of behavioural finance is rooted in the work of scholars such as Kahneman and Tversky, who introduced prospect theory and revealed fundamental psychological deviations from classical rationality. Numerous studies, such as those by Prosad et al. (2016), have outlined the impact of heuristics, overconfidence, and herd behaviour on investment decisions, offering empirical evidence that these biases persist across markets and asset classes. Further research, such as Barberis and Thaler (2002), systematized the ways in which these psychological factors lead to persistent market anomalies. More recent works, including Handoko et al. (2024) and Nassirtoussi & Rahman (2024), have applied these insights to novel financial domains such as cryptocurrencies, demonstrating the universality of behavioural effects. The literature also documents how the absence of adequate financial literacy amplifies the impact of these biases, suggesting an educational dimension to market stability (Research in Behavioral Economics, 2024). Collectively, these studies confirm that behavioural patterns are robust, widespread, and crucial to understanding market instability and crises. This paper builds on these foundations, synthesizing theoretical and empirical findings to examine how behavioural finance explains the 2008 financial crisis and what lessons can be drawn for future policy and practice.

Methodology. This study utilizes a qualitative approach based on an integrative literature review. Relevant scholarly articles, books, and institutional reports (including those by the IMF and ECB) were systematically analyzed to synthesize the theoretical concepts and empirical findings relating to behavioural finance and financial crises. Special attention was given to works that investigate the psychological factors behind market anomalies and their role in amplifying systemic risks. The research draws on both classical literature (e.g., Kahneman & Tversky, Simon) and recent empirical studies of post-2008 crises and emerging markets such as cryptocurrency. By triangulating evidence from academic, institutional, and market sources, the study aims to provide a comprehensive understanding of how behavioural factors influenced the 2008 financial crisis and derive practical recommendations for market participants and policymakers.

Theoretical Foundations of Behavioural Finance

What is behavioural finance?

The emergence of behavioural finance marked a turning point in how we understand financial decision-making and market outcomes. While traditional economic theories rest on the notion that individuals always act rationally and possess perfect information, practical experience and numerous market anomalies have long challenged these assumptions.[11] Behavioural finance grew out of the recognition that real-life investors are not robots, they are people, and people are deeply influenced by emotions, mental shortcuts, and cognitive biases.

Rather than assuming markets are always efficient and prices always reflect true value, behavioural finance explores the psychological underpinnings of financial behaviour. This approach suggests that factors such as overconfidence, fear, greed, and the tendency to imitate others frequently cause markets to deviate

[11] Prosad, J. M., Kapoor, S., & Sengupta, J. (2016). Theory of Behavioral Finance. *International Journal of Research in Finance and Marketing*, 6(8), 112-124. https://www.researchgate.net/publication/297767583_Theory_of_Behavioral_Finance

from what conventional models would predict. The roots of behavioural finance can be traced to the pioneering work of psychologists Daniel Kahneman and Amos Tversky, whose development of prospect theory illustrated that individuals do not assess gains and losses in strictly rational ways. [12]Instead, people experience losses more acutely than equivalent gains a phenomenon known as loss aversion which in turn leads to risk-averse or risk-seeking behaviour depending on the context.

At its core, behavioural finance does not simply add a psychological layer to standard economic theory it fundamentally questions whether the core assumptions of rationality and market efficiency hold true under real-world conditions. The field identifies specific, repeatable patterns in how investors misjudge probabilities, anchor on irrelevant information, or follow the herd even when logic dictates otherwise. For instance, during periods of rapid market growth, investors often become overconfident in their ability to predict future movements, sometimes ignoring clear signs of risk. This can result in bubbles, followed by abrupt market corrections once reality sets in.

Importantly, behavioural finance also recognizes that our mental resources and attention are limited. The concept of bounded rationality, introduced by Herbert Simon, explains that people make decisions based not on perfect optimization, but on what seems "good enough" given time, cognitive constraints, and imperfect information.[13] In practice, this means financial decisions are a blend of rational calculation and instinctual, emotion-driven impulses.

Behavioural finance, therefore, offers a more nuanced and realistic framework for understanding why markets behave as they do and, crucially, why they sometimes experience dramatic swings or outright crises (Prosad et al., 2016). By focusing on how people actually think and act in financial settings, this field provides powerful insights into the drivers of both everyday investment decisions and large-scale market events.[14]

As our understanding of financial markets deepened, it became increasingly clear that the traditional models, which view investors as entirely rational, could not explain many recurring patterns or anomalies observed in practice. Behavioural finance emerged as a direct response to this gap. According to Prosad, Kapoor, and Sengupta (2016), this field seeks to integrate psychological theory into financial analysis, providing a more realistic view of how people actually make investment decisions.

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One of the most significant insights from behavioural finance is that investors are influenced by various cognitive biases that systematically affect their judgments. For example, people often show overconfidence in their knowledge and predictions, which leads them to underestimate risks or overtrade in financial markets. This overconfidence was repeatedly witnessed during periods of excessive optimism, such as asset bubbles, when many market participants believed that prices could only go higher.

Another common bias discussed by Prosad and colleagues is herding behaviour. Rather than acting independently and rationally, investors frequently follow the crowd—buying when others buy and selling when others sell. This tendency to imitate the majority can drive prices far from their intrinsic values, leading to sharp rises or sudden crashes.

Loss aversion is also central to behavioural finance. Most people feel the pain of losing money much more intensely than the pleasure of gaining the same amount. This often causes investors to hold onto losing investments for too long, hoping to avoid realizing a loss, while being too quick to sell winning assets. Such patterns are not isolated mistakes; they appear systematically across markets and time, highlighting the importance of psychology in financial decision-making.

By studying these and other behavioural patterns, behavioural finance provides important explanations for why markets can be inefficient or unstable, despite the presence of sophisticated technology and abundant information. The work of Prosad, Kapoor, and Sengupta (2016) emphasizes that acknowledging human imperfection is crucial for a deeper understanding of how financial systems operate in reality.[15]

Further exploring the main ideas of behavioural finance, it becomes clear that financial decisions are often shaped by a range of psychological influences and situational factors. ScienceDirect's overview highlights that behavioural finance is not merely about individual mistakes, but about systematic patterns that emerge when groups of people interact in markets.

A central concept in this field is the idea of **heuristics**, or mental shortcuts. Investors, faced with complex and uncertain environments, often rely on simplified rules to make decisions more quickly. While heuristics can be useful, they can also lead to predictable errors. For example, the **availability heuristic** makes people judge the probability of events based on how easily examples come to mind, which often leads to overestimating the likelihood of recent or dramatic market moves.

Another important theme is **anchoring**, where individuals give undue weight to the first piece of information they receive when making decisions. This can mean that the initial price of a stock or a market forecast can have an outsized impact on future expectations and trading behaviour, even if new data becomes available later.

Framing effects are also widely observed. The way choices are presented, for example, as gains or losses can dramatically affect what investors choose to do,

[15] Prosad, J. M., Kapoor, S., & Sengupta, J. (2016). Theory of Behavioral Finance. *International Journal of Research in Finance and Marketing*, 6(8), 112-124. https://www.researchgate.net/publication/297767583_Theory_of_Behavioral_Finance

even when the underlying information remains the same. This supports the idea that financial choices are highly context-dependent, and not always rationally calculated.

Finally, ScienceDirect emphasizes that group dynamics such as **herding** can lead to large-scale market phenomena. When many investors move in the same direction at once, either out of fear or euphoria, it can trigger bubbles and crashes that cannot be explained by fundamentals alone.

Overall, the behavioural finance perspective argues that to truly understand financial markets, we must look beyond models of perfect rationality and instead study the actual ways people think, feel, and interact. By recognizing these psychological factors, researchers and practitioners are better equipped to anticipate and possibly prevent the kinds of instabilities that have shaped financial history.[16]

Key psychological factors: heuristics, biases, herd behaviour

When discussing the psychological forces that drive financial decisions, three concepts stand out as central pillars in behavioural finance: heuristics, biases, and herd behaviour. According to Investopedia, **heuristics** are mental shortcuts or “rules of thumb” that people use to simplify decision-making in complex situations. While these shortcuts are often necessary given the overwhelming amount of information in financial markets, they can also lead to mistakes. For instance, an investor might rely on the recent performance of a stock as a quick indicator of future prospects, without carefully analyzing underlying fundamentals. This reliance on easily accessible information is efficient, but it can also result in suboptimal choices.

Closely related to heuristics are **biases**, which are consistent patterns of deviation from rational judgment. Some of the most prominent biases identified in behavioural finance include overconfidence, confirmation bias, and loss aversion. Overconfidence can cause investors to overestimate their knowledge or ability to predict market movements, often leading to excessive trading and risk-taking. Confirmation bias leads individuals to seek out information that supports their pre-existing beliefs, while ignoring evidence to the contrary. Loss aversion, a concept popularized by prospect theory, describes the tendency for people to feel the pain of losses much more strongly than the pleasure of gains, resulting in overly cautious behaviour or reluctance to sell losing investments.

The third key factor is **herd behaviour**, which describes the tendency for individuals to follow the actions of a larger group, even if those actions contradict their own information or intuition. In financial markets, herd behaviour can be particularly dangerous, as it can amplify trends and lead to asset bubbles or market crashes. For example, if a significant number of investors start buying a particular stock, others may join in simply because they don’t want to miss out, not necessarily because the investment makes sense. This can drive prices far beyond intrinsic value, setting the stage for dramatic corrections when sentiment inevitably shifts.

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[16] ScienceDirect. (n.d.). Behavioral Finance. In *Social Sciences Topics*. Retrieved June 11, 2025, from https://www.sciencedirect.com/topics/social-sciences/behavioral-finance

Together, these psychological factors reveal why financial markets are often more volatile and less predictable than traditional models suggest. By understanding heuristics, biases, and herd behaviour, investors and policymakers can better anticipate irrational swings and potentially take steps to mitigate the risks associated with collective human behaviour in finance.[17]

The influence of psychological factors such as heuristics and herding behaviour on investment decisions is especially pronounced in the fast-paced and highly volatile world of cryptocurrency trading. According to Handoko et al. (2024), both heuristic bias and herding behaviour play significant though distinct roles in shaping how investors act in these digital markets.

Heuristic bias refers to the shortcuts or simplified mental rules that investors use when faced with complex, uncertain situations. In cryptocurrency markets, where information is overwhelming and prices change rapidly, investors often lack the time or expertise to conduct deep analysis. As a result, they may rely on simple cues such as recent price trends or information circulating in online communities. Handoko and co-authors point out that this can lead to systematic errors, such as overconfidence, anchoring on irrelevant data, or availability bias where investors give too much weight to information that is most easily recalled, rather than what is most relevant. Such biases may prompt investors to make hasty or poorly-informed choices, resulting in missed opportunities or avoidable losses.

Herding behaviour, meanwhile, involves investors following the crowd rather than relying on their own independent analysis. This is particularly common in the crypto world, where collective sentiment and influencer-driven trends can trigger mass buying or selling regardless of the actual fundamentals of the asset. The study emphasizes that, in many cases, investors may feel safer acting in line with the majority, especially during times of high market uncertainty or when prices are highly volatile. This tendency is not always rational: it can magnify market swings, feed bubbles, or accelerate crashes.

What is especially interesting in Handoko et al.'s research is the role of investor experience. The study found that novice investors (with less than two years' experience) are more susceptible to heuristic bias and herding effects, especially when making decisions under pressure. Experienced investors, in contrast, are somewhat better equipped to evaluate risk and control their biases, using tools like technical analysis or lessons learned from past mistakes. However, even seasoned traders are not immune both groups are influenced by risk tolerance, which mediates how strongly these psychological factors affect final investment decisions.

In summary, the research by Handoko et al. (2024) demonstrates that heuristics and herding behaviour are central to understanding why investors in cryptocurrencies may behave unpredictably, often in ways that deviate from traditional economic theory. By acknowledging the powerful impact of these psychological biases and by considering how experience and risk tolerance can

[17] Investopedia. (n.d.). Behavioral Finance. Retrieved June 11, 2025, from https://www.investopedia.com/terms/b/behavioralfinance.asp

moderate their effects investors, educators, and platform providers can develop strategies to help mitigate poor decision-making and reduce unnecessary risks in the fast-evolving world of digital assets.[18]

Differences between traditional and behavioural approaches

When examining why financial markets often behave unpredictably, the insights from behavioural finance become even more important. Barberis and Thaler's influential survey explains that most investors are not the cold, rational actors described in traditional finance textbooks. Instead, their choices are systematically shaped by a mix of heuristics, biases, and social influences all of which can cause market outcomes that depart sharply from what classic theories would predict.

One of the most striking points in the literature is how heuristics, the mental shortcuts we use to navigate uncertainty can both help and hinder investors. For example, while a simple rule of thumb might save time, it also risks oversimplifying complex market signals, leading to mistakes. Representativeness bias is a typical case: investors often judge the quality of a stock or asset by how closely it resembles past "winners," without fully analyzing underlying fundamentals. Similarly, the availability heuristic leads people to give too much importance to recent, memorable events like a sudden price jump or news headline rather than basing their decisions on a broad, objective view of the market.

Barberis and Thaler also highlight a wide array of cognitive biases that consistently sway investors away from rational decisions. Overconfidence, for instance, causes many traders to overestimate their ability to pick winners or time the market, sometimes resulting in excessive risk-taking or trading. Loss aversion means that the pain of losing is felt more strongly than the pleasure of a similar gain, which can make investors reluctant to cut losses, or push them to sell winning assets too soon.

Perhaps just as significant is the effect of herd behaviour. Rather than relying solely on personal analysis or information, people often look to the actions of others, especially in times of market stress or uncertainty. This tendency to follow the crowd can amplify booms and busts, as collective action drives prices away from fundamentals, feeding cycles of optimism or panic.

Barberis and Thaler emphasize that these psychological factors are not just minor quirks, they fundamentally shape market dynamics. Their research suggests that recognizing, understanding, and (where possible) correcting for these biases is crucial not only for individual investors hoping to avoid costly mistakes, but also for academics, policy-makers, and market designers who want to build more stable financial systems.

By bringing together psychology and finance, the behavioural approach offers a more realistic and nuanced understanding of market behaviour, one that fits

[18] Handoko, B. L., Hamsal, M., Sundjaja, A. M., & Gunadi, W. (2024). Heuristic Bias and Herding Behavior for Predicting Investor Decision in Cryptocurrency Trading. *International Journal of Safety and Security Engineering, 14*(4), 1269–1277. https://doi.org/10.18280/ijsse.140424

much better with what we actually see in the real world, especially during periods of heightened volatility or collective excitement.[19]

Building on the idea that individual psychological tendencies shape market outcomes, Barberis, Shleifer, and Vishny's model adds another crucial dimension: the collective mood, or investor sentiment, and its power to sway entire financial markets. Their research demonstrates that market prices often reflect not just fundamentals, but also waves of optimism or pessimism that sweep through groups of investors.

In this framework, investor sentiment is more than just emotion, it's a systematic factor that can drive prices far from their true, intrinsic values. When sentiment is high, investors may become overly optimistic, fueling price bubbles and speculative frenzies. During these times, even experienced traders can get caught up in the excitement, sidelining careful analysis in favor of chasing short-term gains. On the other hand, when sentiment turns negative, the same psychological forces can trigger panic selling, sharp declines, and prolonged undervaluation of assets.

Barberis and his colleagues show that these waves of collective psychology often interact with the individual heuristics and biases discussed previously. For instance, as investors observe rising prices and positive news, representativeness bias and herding behaviour can reinforce each other making more people confident that the trend will continue simply because others believe so. Likewise, during downturns, availability bias ensures that negative events are more salient, further depressing sentiment and accelerating sell-offs.

The core insight of their model is that markets are not always self-correcting or efficient in the short run. Instead, feedback loops between individual psychology and collective mood can produce sustained mispricings sometimes lasting months or even years. The implication for investors and policymakers alike is clear: understanding the dynamics of investor sentiment, and its links to common behavioural biases, is essential for anticipating market booms, crashes, and everything in between.

By integrating sentiment into the study of behavioural finance, Barberis, Shleifer, and Vishny's work helps explain why financial markets so often swing between extremes, and why rational analysis alone isn't always enough to explain real-world outcomes. Recognizing these forces can help market participants stay grounded during periods of exuberance or fear, making decisions that are less reactive and more resilient in the face of uncertainty.**[20]**

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[19] Barberis, N., & Thaler, R. (2002). A Survey of Behavioral Finance. In G. Constantinides, M. Harris, & R. Stulz (Eds.), *Handbook of the Economics of Finance* (Vol. 1, pp. 1053–1128). Elsevier. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2394549

[20] Barberis, N., Shleifer, A., & Vishny, R. (1998). A Model of Investor Sentiment. *Journal of Financial Economics, 49*(3), 307–343. https://www.nber.org/papers/w5073

Behavioural Finance and the Causes of the 2008 Financial Crisis

Brief overview of the 2008 financial crisis

Psychological errors by market participants: overconfidence, herding, moral hazard

The global financial crisis of 2008 was a seismic event that exposed the fragility of the modern banking system and the far-reaching consequences of inadequate regulation. At its height, the crisis nearly brought down some of the world's largest banks and forced governments across the US, UK, and Europe to orchestrate massive rescue operations. The scale of state intervention, from recapitalizing banks to guaranteeing vast sums of bank assets, was unprecedented and, for a time, led to a partial nationalization of the banking sector. These extraordinary actions highlighted a stark truth: the banking system cannot function in periods of extreme instability without the safety net provided by the state.

What is often less discussed, but equally crucial, is how the crisis revealed fundamental flaws in the very design of financial regulation. Traditional approaches, shaped by decades of market liberalization and a deep faith in the self-correcting power of rational markets, proved inadequate in the face of real-world complexity and collective irrationality. The regulatory model that prevailed prior to the crisis was built on the assumption that banks and market participants would act rationally, optimizing risk and return when presented with the right incentives and sufficient information. This view, however, failed to account for the behavioural dynamics that actually drive markets dynamics that behavioural finance scholars have shown to be rooted in systematic biases, psychological heuristics, and herding behaviour.

As Avgouleas argues, many of the measures adopted in response to the crisis, such as stricter disclosure requirements and stronger capital buffers, were important but ultimately limited by their reliance on rational actor models. They overlooked the very behavioural factors like overconfidence, groupthink, and short-termism that played a decisive role in amplifying risk and triggering panic selling. In reality, financial markets are not just arenas for rational calculation; they are evolutionary and dynamic systems shaped by both logic and emotion, where collective psychology can push prices and risk-taking to dangerous extremes.

The lessons of 2008 demand a more pluralistic and psychologically informed approach to both regulation and market oversight. Recognizing the profound impact of behavioural forces is essential not just for understanding the roots of the crisis, but also for designing safeguards capable of withstanding future shocks.[21]

The Role of Extrapolation Error and Irrational Bubbles

Another key behavioural phenomenon that contributed to the 2008 crisis was the extrapolation error - the tendency of market participants to extend recent trends into the future as if these trends would continue indefinitely. Ercan (2019) emphasizes that investors frequently base their expectations on past data, believing

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[21] Avgouleas, E. (2009). *The Global Financial Crisis, Behavioural Finance and Financial Regulation: In Search of a New Orthodoxy*. *Journal of Corporate Law Studies, 9*(1), 23–59. http://search.informit.com.au/documentSummary;dn=710058989730516;res=IELBUS

that what happened in recent months or years must continue, while underestimating the possibility of unexpected reversals. This cognitive shortcut, born from imperfect knowledge, laid the psychological foundation for the rapid inflation of housing prices and mortgage-backed securities prior to 2008.

When many investors simultaneously make such predictions, it gives rise to price bubbles - asset valuations that far exceed their fundamental worth. In the years before the crisis, real estate prices soared based on the extrapolated belief that "housing prices will always go up." Market participants ignored clear signals of overvaluation because their mental models failed to accommodate the risk of decline. Ercan's thesis notes that irrational optimism, fueled by cognitive biases, effectively "stabilized" rising prices in the short term but at the cost of creating a fragile financial structure that could not absorb shocks .

When these bubbles finally burst, the crashes were swift and globally contagious. The mortgage market collapsed, banks faced massive devaluations, and financial institutions were forced to sell off assets often at steep losses because they had anchored their risk models on unrealistic future projections. The combination of extrapolation error, widespread herding, and overconfidence created a feedback loop: rising prices encouraged more optimistic forecasts, which in turn fueled further price increases, until the entire system reached a tipping point.

Ercan's research underlines a crucial lesson: financial crises are not random catastrophes, they are the cumulative result of predictable psychological patterns, especially when investors collectively lean too heavily on recent trends and ignore the limits of their knowledge. In such an environment, bubbles grow stealthily and burst with devastating impact. It becomes clear that integrating behavioural insights, especially around trend extrapolation into risk assessment and regulation is essential to prevent future crises.[22]

Recent findings highlight that the way behavioural biases influence financial decisions can be significantly moderated by an individual's financial literacy. The study in *The Research in Behavioral Economics* explores how competently understanding financial concepts, such as diversification, risk-return trade-offs, and compounding can help investors recognize and correct for their inherent biases.

For example, even when investors rely on heuristics, using mental shortcuts to make quick judgments, those with higher financial literacy are more likely to question simplistic assumptions. Suppose an investor uses recent price trends as a signal of future performance: better-informed individuals can challenge that assumption by recalling the limits of linear extrapolation and incorporating fundamental analysis.

Similarly, biases like overconfidence and loss aversion can be tempered through education. Investors who understand the statistical tendencies behind market movements are less prone to overestimate their predictive power or to let recent losses disproportionately affect their investment choices.

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[22] Ercan, R. D. (2019). *The relationship between behavioral finance and the financial crisis* (Master's thesis, İstanbul Üniversitesi, İstanbul). Retrieved from https://nek.istanbul.edu.tr/ekos/TEZ/ET000463.pdf

The study also shows that during periods of market stress, **financial literacy creates a buffer against herd behaviour**. Investors with a stronger grasp of market mechanics are less inclined to follow the crowd blindly; instead, they rely on their understanding of value and probability, even when many around them are panicking or exuberant.

Overall, this research underlines a critical point: **behavioural biases are not destiny**. While everyone is susceptible to cognitive errors, cultivating financial literacy offers a powerful tool for mitigating their impact. In the context of the 2008 crisis, it suggests that widespread investor education might have reduced irrational exuberance, mitigated herd-driven bubbles, or lessened the effectiveness of moral hazard.[23]

Manifestation of irrational behaviours in the mortgage and financial instruments markets

The mortgage and financial instruments markets of the mid-2000s provide a striking example of how irrational behaviour can create anomalies that traditional financial theory struggles to explain. The ResearchGate review underscores that such anomalies, persistent, patterned deviations from what classic models predict are not random errors but symptoms of deeper psychological and systemic distortions .

In these markets, irrational behaviour manifested in several telling ways. First, **price anomalies** appeared, where the pricing of mortgage-backed securities (MBS) and related instruments did not align with their underlying credit risk. Instead, investors appeared to chase yield or relative safety based on superficial attributes or recent performance. These anomalies violated the Efficient Market Hypothesis, as prices failed to fully reflect true default probabilities or macroeconomic variables.

Second, the review identifies the acceleration of **momentum effects** - situations where past returns continue to influence future price movements, even in the absence of any change in fundamentals. This was clearly visible in the housing sector, where the expectation that prices would keep climbing prompted lenders and investors alike to reinforce that trend, inflating valuations beyond rational limits.

Third, **volume anomalies** emerged, marked by excessive trading and securitization driven by moral hazard and the misaligned incentives of mortgage originators, investment banks, and credit rating agencies. As these parties pursued growth and fees, demand for MBS and collateralised debt obligations (CDOs) soared, while the true risk embedded in these products remained hidden from many market participants .

In summary, these manifestations of irrational behaviour reveal how deeply psychological biases and structural distortions can penetrate financial markets. The persistent anomalies in price, momentum, and volume within the mortgage and

[23] Research in Behavioral Economics. (2024). *Impact of behavioral biases on investment decisions and the moderating role of financial literacy*. The Research in Behavioral Economics. https://doi.org/10.1016/j.ssomething.2024.01.080

financial instruments markets are not merely technical glitches, they are reflections of systemic irrationality embedded in the incentives and thinking of market participants. This underscores the importance of incorporating behavioural insights into our understanding and regulation of such critical markets.[24]

While traditional finance assumes that markets quickly correct mispricings and that investors act on rational expectations, the period leading up to the 2008 financial crisis demonstrated just how persistent and dangerous irrational behaviours could be particularly in the mortgage and financial instruments markets. As highlighted in the Virtus Interpress collection, several mechanisms allowed these irrational patterns to become deeply embedded in the very fabric of global finance.

One of the most striking manifestations was the collective underestimation of risk in mortgage-backed securities and related products. Many market participants, including institutional investors and credit rating agencies, exhibited **optimism bias**, systematically downplaying the possibility of defaults or severe downturns in the housing market. This was reinforced by groupthink within financial institutions, where dissenting voices were often ignored in favor of maintaining the illusion of stable, continuous growth (Virtus Interpress, 2021).

Furthermore, the complexity and opacity of structured financial products created fertile ground for **information cascades** and herd-driven mispricing. Because many investors relied on surface-level signals, such as AAA ratings or the popularity of certain instruments rather than rigorous analysis, risk was not properly understood or priced in. As the Virtus Interpress authors point out, this widespread reliance on social proof and authority contributed to a dangerous feedback loop: rising demand and prices made these instruments appear ever safer, even as the underlying fundamentals grew weaker.

Finally, **moral hazard** and the misalignment of incentives played a crucial role in perpetuating irrational behaviour. Mortgage originators and banks, confident that they could sell off risky loans through securitization, had little motivation to carefully assess borrowers' creditworthiness or to worry about the long-term consequences of loose lending standards. This not only encouraged a surge in subprime lending, but also fueled the rapid expansion of risky financial innovation without sufficient checks and balances.

The combined effect of these irrational behaviours was to mask accumulating vulnerabilities and set the stage for a systemic crisis. As events unfolded, it became clear that psychological biases, social dynamics, and flawed incentive structures can be just as decisive in shaping financial outcomes as any economic variable. Recognizing and addressing these manifestations is therefore vital for anyone seeking to understand or prevent a repeat of such crises in the future.[25]

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[24] Nassirtoussi, A. K., & Rahman, S. (2024). Financial markets anomalies: A research review from the perspective of rational and irrational arguments. *Journal of Behavioral and Experimental Finance, 42*, 101960. https://www.researchgate.net/publication/378012524_Financial_markets_anomalies_a_research_review_from_the_perspective_of_rational_and_irrational_arguments

[25] Virtus Interpress. (2021). *Corporate Governance and Risk Management in Financial Institutions*. Virtus Interpress. https://virtusinterpress.org/IMG/pdf/complete_pdf_file_of_the_book-8.pdf

Results and Discussion. The analysis reveals that psychological biases such as overconfidence, herd behaviour, and extrapolation error played a central role in inflating market bubbles and magnifying the impact of the 2008 financial crisis. The review of literature and crisis case studies shows that the persistence of these biases undermined the effectiveness of traditional risk models and regulatory oversight. For example, the widespread belief in ever-rising housing prices led to excessive risk-taking and poor underwriting standards, while herd behaviour among institutional investors accelerated the buildup of systemic risk. The findings also highlight that markets with higher levels of financial literacy and robust regulatory frameworks exhibited greater resilience to irrational exuberance.

Further, the study finds that post-crisis regulatory reforms while necessary remained insufficient, unless they addressed the underlying behavioural tendencies of market participants. Enhanced transparency, continuous investor education, and the integration of behavioural indicators into macroprudential supervision are shown to be critical for early identification and mitigation of financial vulnerabilities. The discussion underscores that preventing future crises requires a paradigm shift in both market practice and policy from a narrow focus on rational expectations to a broader appreciation of collective psychological dynamics.

Lessons Learned and Implications for the Future

How behavioural finance can help prevent future crises and promote financial stability

The 2008 crisis made one thing painfully clear: financial stability cannot rely solely on the assumption of rational actors making optimal choices. The IMF's **Initial Lessons of the Crisis report (IMF, 2009)** underscores that flawed incentives fueled by shared optimism and excessive confidence were a core driver of market vulnerability. These behavioural patterns were amplified by weak regulation and narrow oversight, preventing early detection of growing systemic risk.

Behavioural finance offers a corrective lens by highlighting habitual errors like underestimating risk during calm markets or following peers without scrutiny. By embedding insights from behavioural science into regulation and supervision, authorities can better anticipate when markets deviate from fundamentals. One key lesson is the urgent need for a macroprudential approach: rather than monitoring institutions in isolation, regulators should track collective risk patterns and sentiment indicators across the system.

Similarly, the report warns that financial oversight must account for incentives that encourage risky choices, especially during boom times. When banks and investors all act on the same behavioural heuristics chasing yield, believing in everrising asset prices, or assuming bailouts are probable a bubble builds almost inevitably. Effective prevention, therefore, requires regulation that recognizes these behavioural drivers and is equipped to counterbalance them.[26]

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[26] International Monetary Fund. (2009, February 6). *Initial Lessons of the Crisis* (Staff Papers). IMF. https://www.imf.org/external/np/pp/eng/2009/020409.pdf

Building on earlier observations, the ECB's analysis offers further insight into how irrational behaviour manifested in mortgage markets and related financial instruments. In particular, central bankers witnessed how **excessive liquidity provision** though aimed at stabilizing crises can unintentionally reinforce herd behaviour and moral hazard when excessive availability of credit masks underlying fragilities.

First, the structural ability of central banks to rapidly and generously inject liquidity during calm periods may distort risk perceptions. If institutions expect such support during downturns, they may be inclined to take on riskier mortgages and complex loan packages, assuming that a central bank backstop will cushion the impact of any losses. This expectation creates a behavioural feedback loop where lending and securitization grow unchecked, inflating bubbles without direct oversight of borrower quality.

Second, central banks observed that markets rely heavily on collateralized borrowing, with asset valuations often detached from economic fundamentals a clear deviation from rational pricing models. During the boom, leveraging against seemingly stable mortgage securities encouraged still more exposure. But once stress hit, the regress became violent as collateral values dropped and forced deleveraging triggered a crash.

Third, herding behaviour was deeply intertwined with these institutional incentives. As noted by the ECB, when a critical mass of participants adopts similar funding and lending strategies driven by cheap borrowing and the assumption of regulatory safety nets, the entire system becomes vulnerable. Even prudent lenders may join the crowd to avoid being outpaced, further pushing the market toward irrational extremes .

Together, these patterns highlight a critical insight: better regulation and oversight must account for how policy tools themselves can influence market psychology. Liquidity operations, when unchecked, can inadvertently support unsound asset bubbles and shape investor expectations. Recognizing this, central banks now emphasize calibration and communication underscoring that extraordinary liquidity is exceptional, not routine.[27]

Practical takeaways for market participants

In light of the lessons from past crises and the everyday realities of financial markets, there are several practical takeaways that market participants whether individual investors or institutional players should keep in mind. Financial markets, as Investopedia explains, are not just abstract constructs; they are living systems shaped by the beliefs, behaviours, and decisions of millions of participants.

First, it's crucial to recognize that market prices are rarely driven by fundamentals alone. Sentiment, speculation, and collective psychology play a much larger role than many traditional models suggest. This means that even well-informed investors can fall victim to bubbles, panics, or the temptation to follow the

[27] Caruana, J. (2012). *The great financial crisis: lessons for the design of central banks*. In ECB Colloquium in Honour of Lucas Papademos. European Central Bank. https://www.ecb.europa.eu/pub/pdf/other/greatfinancialcrisisecbcolloquiumpapademos201203en.pdf

crowd. The antidote here is self-awareness: before making decisions, market participants should actively question their own assumptions and consider whether their actions are based on sound analysis or simply on the momentum of others.

Second, the sheer complexity and interconnectedness of today's financial markets demand a disciplined approach to risk management. Diversification remains one of the most effective tools for limiting exposure to sudden shocks. Rather than putting all their eggs in one basket whether that's a particular stock, asset class, or geographic region prudent investors spread their bets. This strategy not only reduces potential losses but also guards against the dangers of overconfidence and herd behaviour.

Third, participants should never underestimate the value of continuous education. Financial markets evolve rapidly; new products and instruments appear, regulatory environments change, and technological innovation shifts the playing field. Keeping up to date with market mechanics, understanding how different instruments work, and learning about common behavioural traps can help both seasoned professionals and newcomers avoid costly mistakes.

Lastly, transparency and due diligence are non-negotiable. Before entering any investment or financial contract, it's essential to fully understand the underlying risks, costs, and possible outcomes. Blind faith in market trends or third-party recommendations can be a recipe for disaster, as history has shown time and again.

In summary, successful market participation isn't about trying to predict the next big move or outsmart everyone else. It's about knowing your own limits, managing risk thoughtfully, and maintaining a long-term perspective, even when market noise and collective excitement make that difficult. By integrating these behavioural and practical lessons, market participants can better protect themselves and contribute to a healthier, more stable financial system overall.[28]

Another essential takeaway for anyone active in financial markets is to remain vigilant against the pull of herd behaviour, a tendency for individuals to mimic the actions of the majority, often disregarding their own information or analysis. According to research published by the IMF, herding can lead to significant mispricings, volatility spikes, and ultimately, the formation and bursting of financial bubbles (Bikhchandani & Sharma, 2001).

One of the biggest risks with herd behaviour is that it can create a false sense of security. When many participants are buying or selling a particular asset, it becomes easy to assume that "the crowd must know something." However, as Bikhchandani and Sharma point out, following the herd often means that critical, independent evaluation is abandoned, and market corrections when they arrive can be both sudden and severe.

So what can market participants do in practice? First, always be willing to pause and reassess your choices, especially when the prevailing sentiment seems one-sided or overly optimistic. If you find yourself making a decision mainly

[28] Investopedia. (n.d.). Financial Market. Retrieved June 12, 2025, from https://www.investopedia.com/terms/f/financial-market.asp

because “everyone else is doing it,” that is exactly the moment to step back and reconsider. Second, cultivate sources of independent information and foster a culture of questioning within your organization or peer group. Challenging consensus views can sometimes be uncomfortable, but it’s essential for avoiding costly mistakes.

Finally, investors should recognize that even seasoned professionals and institutional players are not immune to behavioural traps. Creating internal checks, such as pre-mortem analysis, scenario planning, or seeking out dissenting opinions can help counteract the emotional momentum that often comes with herd-driven markets. By maintaining critical distance from collective excitement and integrating independent judgment into decision-making processes, market participants can reduce their vulnerability to the next wave of irrational exuberance or panic.[29]

Conclusion

In conclusion, the study of behavioural finance provides a crucial lens for understanding both the origins and the dynamics of financial crises, especially those as severe as the 2008 meltdown. The evidence shows that financial markets are not driven solely by rational calculation, but are deeply influenced by human psychology by biases, emotions, and collective behaviour. Factors such as overconfidence, herding, extrapolation error, and moral hazard systematically distort investment decisions, inflating bubbles and amplifying downturns. The collapse of mortgage and financial instruments markets demonstrated how easily risk can be misjudged when entire industries succumb to groupthink and misplaced optimism.

Traditional economic models, which have long dominated regulatory thinking, failed to predict or prevent these outcomes because they overlooked the persistent impact of cognitive biases and incentive problems. By contrast, behavioural finance reveals that these patterns are not rare exceptions but are integral to how real markets operate. Recognizing this, modern risk management and regulation must not only address quantitative measures but also consider the qualitative, psychological aspects of market activity.

For market participants, the key practical lesson is that self-awareness, critical thinking, and a willingness to challenge consensus views are vital. Diversification, ongoing financial education, and maintaining independent analysis help counteract the pressures of herd behaviour and emotional trading. For policymakers and regulators, a more nuanced, macroprudential approach, one that monitors collective sentiment and incentive structures, is essential to anticipate and mitigate systemic risk.

Ultimately, the integration of behavioural insights into both investment practice and policy design holds promise not just for preventing future crises, but for promoting a more stable, transparent, and resilient global financial system. The lessons of the past must serve as a constant reminder: as long as human behaviour

[29] Bikhchandani, S., & Sharma, S. (2001). Herd Behavior in Financial Markets. *IMF Staff Papers, 47*(3), 279–310. https://www.imf.org/external/pubs/ft/staffp/2001/01/pdf/bikhchan.pdf

drives markets, understanding and managing our own biases will remain at the heart of financial stability.

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BUG‘DOY YETISHTIRISHDA IQTISODIY SAMARADORLIK VA RESURSLARDAN SAMARALI FOYDALANISH

Annotatsiya: *Ushbu maqolada O‘zbekiston Respublikasida bug‘doy yetishtirish jarayoniga va uning tannarxini kamaytirishga tasir ko’rsatadigan muammolarni tahlil qilishga qaratilgan va shu bilan birgalikda yuzaga kelayotgan muammolarning yechimlari borasidagi takliflar ilgari surilgan.*

Kalit so‘zlar: *bug‘doy yetishtirish, iqtisodiy samaradorlik, ishlab chiqarish xarajatlari, hosildorlik, resurslardan foydalanish, tannarx tahlili, rentabellik.*

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ECONOMIC EFFICIENCY AND RESOURCE USE IN WHEAT PRODUCTION

Annotation: *This article analyzes the challenges affecting the process of wheat cultivation and the reduction of its production costs in the Republic of Uzbekistan. It also presents proposed solutions to address the emerging issues in this sector.*

Key words: *wheat production, economic efficiency, production costs, yield, resource utilization, cost analysis, profitability.*

Kirish. Bugungi dunyo katta sinovlarni boshidan kechirmoqda. Global xavfsizlik va barqaror rivojlanishga jiddiy tahdidlar tobora kuchaymoqda, geosiyosiy jarayonlar ko‘z o‘ngimizda shiddat bilan o‘zgarmoqda. Jahonda qurollanish poygasi yana avj olmoqda. Yirik mamlakatlarning harbiy xarajatlari 2010 yilga nisbatan bir yarim barobar ortib, 2,5 trillion dollarga yetdi. Iqtisodiy inqiroz asoratlari, moliyaviy resurslar taqchilligi tufayli jahon yalpi ichki mahsulotining o‘sish sur'atlari esa ketma-ket uch yil davomida pasaymoqda. O‘zbekiston Rkspublikasi Prezidenti Shavkat Mirziyoyev to‘g‘ri ta'kidlaganidek “Bugun ming afsuski, xalqaro huquq normalari va diplomatiya kuchi zaiflashmoqda. Eng achinarlisi, insoniyat uchun eng dolzarb muammolar – oziq-ovqat xavfsizligi, kambag‘allik, iqlim o‘zgarishlari kabi masalalarga e'tibor kamaymoqda. Dunyoda tinchlik, adolat va inson qadriga bo‘lgan umumiy ishonchni tiklash har qachongidan ham muhim”[1].

O‘zbekistonda bug‘doychilik strategik ahamiyatga ega mahsulotlardan biri hisoblanadi, u oziq-ovqat xavfsizligini ta’minlashda, iqtisodiy barqarorlikni saqlashda va eksport salohiyatini oshirishda muhim rol o‘ynaydi. 2018-2022 yillarda ekin maydonlari 1,3% ga kamaygan, bug‘doy va paxtaning umumiy ulushi 73,5% dan 69,5% ga tushgan. Shunga qaramay, bug‘doy hosildorligi 15,1% ga oshib, 1 gektar maydondan 47,2 sentnergacha yetgan. 2023-yilda esa mamlakat bo‘yicha 6,47 million tonna bug‘doy yetishtirilgan[2].

Metodologiya. Maqola materiallarini tayyorlash jarayonida statistik tahlil, taqqoslash usullaridan keng foydalanildi. Mazkur maqola doirasidagi muallifning xulosalari aksariyati monografik kuzatuvlar hamda mutaxassisning ekspert baholash usullari mahsuli hisoblanadi.

Natijalar. Yuqoridagi jadvaldan ko‘rinib turibdiki 2023-yilda 1 gektar joyda bug‘doy ishlab chiqarish xarajatlari orasida 4 ta resurs ko‘p mablag‘ talab qiladi va shularning orasida eng ko‘pi bu organik o‘g‘it uchun xarajatlardir. Organik o‘g‘it uchun xarajatlar 5 600 000 so‘mni sal kam umumiy ishlab chiqarish xarajatlarining 50% ni tashkil qiladi. Keyingi o‘rinda esa urug‘ uchun xarajatlardir va bu xarajat 1 615 460 so‘mni tashkil qiladi. Uchunchi eng ko‘p xarajat bu texnika ijarasidir 1 365 000 so‘m. Oxirgi eng ko‘p mablag‘ talab qiladigan resurslardan biri mehnat resursidir 1 000 000 so‘m. Bundan tashqari ko‘zga tashlanadigan xarjatlar bular: yonilg‘i resurslari, azot o‘g‘iti va sug‘orishdir. 1 tonna bug‘doy ishlab chiqarish uchun O‘zbekistonda 2023- yil o‘rtacha 2 043 140 so‘m xarajat qilinadi. 1 tonna bug‘doyning o‘sha yilgi bozor narxi esa 3 000 000 so‘mdir va yuqoridagi hisob kitoblarga ko‘ra o‘rtacha 1 gektardan olinadigan sof foyda 2 601 230 so‘mni tashkil qilyapti.

5-jadval.

2023-yilda O’zbekistonda 1 gektar joyda bug‘doy ishlab chiqarish xarajatlari, tannarx va sof foyda tahlili. (Muallif tomonidan ishlanma)

Ko‘rsatkich	Barcha toifadagi xo‘jaliklar (Miqdor)	Barcha toifadagi xo‘jaliklar (Narx, so‘m)	Barcha toifadagi xo‘jaliklar (Jami, so‘m)
O‘rtacha hosildorlik (tonna/ga)	5.1		
Narx (so‘m/tonna)		3 000 000	
Umumiy daromad (so‘m/ga)			15 300 000
O’rtacha hosildorligi (samon, tonna/ga)	3.57		
Narx (samon, so‘m/tonna)		700 000	
Umumiy daromad (samon, so‘m/ga)			2 499 000
Yig‘ib olingan bug‘doy tarkibida don chiqindisi salmog‘i (%).	12		
Bug‘doy tarkibidagi chiqindi miqdori (tonna)	0.612		
Don chiqindisida butun bug‘doy salmog‘i (%)	40		
Urug‘ (Elita navi, kg)	220	7 343	1 615 460
Texnika ijarasi (yer haydash uchun)	1	600 000	600 000
Texnika ijarasi (urug’ sepish uchun)	1	165 000	165 000
Texnika ijarasi (hosilni yig’ib olish uchun)	1	600 000	600 000
Texnika ijarasi (jami)	3	1 365 000	1 365 000
Yonilg‘i (jami, litr)	65	11 000	715 000
Azot o‘g‘iti (Ammiakli selitra, kg)	200	2 915	583 000
Fosfor o‘g‘iti (superfosfat, kg)	90	2 059	185 310
Kaliy o‘g‘iti (kg)	50	2 500	125 000
Organik o‘g‘it biosmus, tonna)	5	1 120 000	5 600 000
Kimyoviy vositalar (bir martalik)	1	180 000	180 000
Sug‘orish (so‘m/ga)	1	800 000	800 000
Mehnat (kishi/oy)	1	1 000 000	1 000 000
Soliqlar (bir martalik)	1	230 000	230 000
Boshqa xarajatlar (bir martalik)	1	300 000	300 000
Umumiy ishlab chiqarish xarajatlari (so‘m/ga)			12 698 770
Tannarx (so‘m/tonna)			2 043 140
Sof foyda (so‘m/ga)			2 601 230
Rentabellik (%)			26.9

Rentabellik ko‘rsatkichi 26.9% ni tashkil qiladi. Bu ko‘rsatkich qishloq xo‘jaligi uchun kutilgan natija deb aytsak bo‘ladi, lekin bundan ham yuqoriroq natijaga erishsa ham bo‘ladi. Chunki yuqori aytib o‘tgan ko‘rsatkichlar ya’ni tannarx, sof foyda va rentabellik bularning hammasi bug‘doyning hosildorligiga bog‘liq. Bu bilan nima demoqchiman, 1 gektar joydan qanchalik ko‘p bug‘doy olinsa ya’ni hosildorlik darajasi oshsa bu tannarxni kamayishiga yordam beradi va sof foyda va rentabellikni oshirishi mumkin.

Mahsulot birligi tannarxini pasaytirish resurslar cheklangan sharoitda katta amaliy ahamiyat kasb etadi. Mahsulot tannarxi to'g'ridan-to'g'ri ikki omilga bog‘liq. Birinchidan, yetishtirilayotgan mahsulotning miqdoriga bog'liq. Yetishtirilayotgan mahsulot miqdorining oshishiga nimalar ijobiy ta‘sir etsa, ular ustida ishlash lozim. Bularga dehqonchilikda ya’ni g‘allachilikda quyidagilar kiradi: 1. Yerlarning meliorativ holatini yaxshilash, suv resurslaridan samarali foydalanish. Bu, o‘z navbatida, hosildorlikning o‘sishiga olib keladi; 2. Mintaqalar sharoitiga mos bo'lgan, ilmiy asoslangan qishloq xo‘jaligi yuritish tizimini joriy etish; 3. Almashlab ekishni to‘g‘ri joriy qilish, talab va imkoniyatdan kelib chiqqan holda ekin turlarini joylashtirishni ratsional tashkil etish; 4. Urug‘chilikni yaxshilash, selektsiya ishlarini jonlantirish; 5. Ma‘danli va organik o‘g'itlardan foydalanishni ilmiy asosga qo‘yish, barcha kimyoviy vositalardan samarali foydalanish; 6. Ishchi xodimlarning manfaatdorligini oshirish. 7. Bug'doyni kasalliklardan va hashoratlardan himoya qilish uchun genetik himoya, madaniy amaliyotlar, biologik nazorat, kimyoviy boshqaruv va monitoringni birlashtirgan holda qo‘llash.

Dehqonchilik tarmoqlarida mahsulotlar tannarxining past bo'lishiga xarajatlarni tejash ham katta ta‘sir ko'rsatadi. Bu boradagi omillarga quydagilar kiradi: 1. Ishlab chiqarish jarayonlarini kompleks mexanizatsiyalashtirish; 2. Ekinlarni parvarishlashda intensiv texnologiyalarni qo‘llash; 3. Ishlab chiqarish fondlaridan samarali foydalanish; 4. Ishlab chiqarishni ixtisoslashtirish va joylashtirish; 5 Ishchi xodimlarning manfaatdorligini oshirish; 6. Agrosanoat integratsiyasini chuqurlashtirish, agrosanoat majmuasiga kiruvchi tarmoqlarning mutanosib rivojlantirilishi; 7. Boshqaruv tizimini rivojlantirish hisobiga u bilan bog'liq xarajatlarni tejash[1].

Xulosa. Bug‘doychilik tarmog‘ida mahsulot birligi tannarxini pasaytirish xo‘jaliklarning barqarorligi va rentabelligi uchun asosiy omil. Hosildorlikni oshirish mahsulot tannarxini kamaytirishga yozrdam beradi. Shuning uchun, hoslidorlikni oshirish uchun esa zamonaviy texnologiyalarni, ilmiy tadqiqot natijalarini, boshqaruv va ijtimoiy chora-tadbirlarni birgalikda qo‘llash zarur.

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TO'DAKO'L VA QUYIMOZOR SUV OMBORLARI ATROFIDAGI JANUBI-G'ARBIY XOJKAB GEOEKOLOGIK MIKROZONASINING EKOLOGIK HOLATI

Annotatsiya: *Ushbu maqolada tabiiy geografik rayonlashtirishning tamoyillari va uning ilmiy amaliy ahamiyati bayyon etilgan. Jumladan, Quyi Zarafshon okrugi hududida joylashgan To'dako'l va Quyimozor suv omborlari atrofini, tabiiy tarixiy rivojlanishi, yer usti tuzilishi, iqlim sharoiti, tuproq va o'simlik qoplamining o'ziga xos xususiyatlarini hamda ularning ichki farqlarini nazarda tutib janubi-g'arbiy Xojkab geoekologik mikrozonaga ajratilib o'rganilgan hamda batafsil ma'lumotlar yoritilgan.*

Kalit so'zlar: *Tabiiy geografik rayonlashtirish, provinsiya, okrug, rayon, deflyatsiya, sho'rtob, sho'rxok, tuproq, geoekologik mikrozona, ekologik muvozanat, rekreatsion resurs, buyra qamish, juzg'un.*

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ECOLOGICAL STATE OF THE SOUTH-WESTERN KHOJKAB GEOECOLOGICAL MICROZONE IN THE ATROPHY OF THE TUDAKOL AND KUIMOZAR RESERVOIRS

Abstract: *This article describes the principles of physico-geographical regionalization and its scientific and practical significance. In particular, the territory of the Tudakul and Kuimazar reservoirs located in the territory of the Lower Zarafshan district, taking into account their natural-historical development, surface structure, climatic conditions, specific features of soil and vegetation cover,* *as well as their internal differences, was studied by dividing into the southwestern Khojkab geoecological microdistrict, and detailed information was presented.*

Keywords: *Physical-geographical regionalization, province, district, district, deflation, salt marsh, solonchak, soil, geoecological microzone, ecological balance, recreational resource, curly reed, juzgun.*

Tabiiy geografik rayonlashtirish geografiya fanlari tizimida geografik izlanish metodlaridan biridir. Tabiiy geografik rayonlashtirish deganda hududlarni ularning oʻxshash tabiiy xususiyatlariga qarab, muayyan tizimdagi regional tabiiy geografik birliklarga ajratish tushuniladi. Tabiiy geografik rayonlashtirish odatda uch xil tamoyil asosida boʻladi: regional, zonal va aralash. Regional tabiiy geografik rayonlashtirishda tabiatda obyektiv mavjud boʻlgan va taksonomik jihatdan bir-biri bilan bogʻliq regional tabiiy geografik komplekslar (oʻlkalar, provinsiyalar, okruglar, rayonlar va h.k.) ajratiladi, har bir kompleks tabiatining oʻziga xos xususiyatlari ochib beriladi, ular tabiati tasvirlanadi hamda kartaga tushiriladi [5].

Tabiiy geografik rayonlashtirish tabiatda obyektiv mavjud boʻlgan hududiy tabiiy geografik birliklarni aniqlash, ajratish va chegaralash jarayoni hisoblanib hozirgi zamon tabiiy geografiyasi va landshaftshunosligida muhim ilmiy va amaliy ahamiyat kasb etadi. Tabiiy geografik rayonlashtirishning asosiy vazifasi hududlarni oʻxshash va farq qiluvchi belgilariga qarab, ularni mustaqil qismlarga boʻlishdan iborat. Tabiiy geografik region nafaqat tabiiy sharoiti bilan, balki oʻziga xos tabiiy resurslari bilan ham boshqalaridan ajralib turadi. Shuning uchun ham tabiiy geografik rayonlashtirish har bir hududning oʻziga xos tabiiy sharoiti va resurslarini baholashga imkon beradi, ayniqsa, tabiatda ekologik muvozanatni saqlash va ekologik muammolarning oldini olish dolzarb masala boʻlib turgan hozirgi vaqtda tabiiy geografik rayonlashtirishning ahamiyati juda katta.

Oʻrta Osiyo tabiiy geografik oʻlkasi, jumladan, Quyi Zarafshon okrugini tabiiy geografik rayonlashtirish muammosi bilan L.S.Berg (1913, 1958), R.I.Abolin (1929), V.M.Chetirkin (1947, 1960), E.M.Murzayev (1953, 1958), P.S.Makeyev (1956), N.L.Korjenevskiy (1960), L.N.Babushkin, N.A.Kogay (1963, 1964), N.A.Gvozdeskiy (1965), P.V.Zvonkova (1965), F.N.Milkov (1977), A.A.Abdulqosimov, S.B.Abbosov (1997), I.Q.Nazarov, X.R.Toshov (2008) va boshqalar shugʻullanganlar.

Oʻrta Osiyo tekisliklari oʻlkasining moʻtadil mintaqa choʻllari zonasining janubiy choʻllar kichik zonasi (zonachasi), Zarafshon provinsiyasining Oʻrta Zarafshon okrugi, Buxoro – Qorakoʻl tabiiy geografik rayoni hududida kiradi.

Tadqiqotimizda quyidagi taksonomik birliklar sistemasidan foydalandik:oʻlka –zona – kichik zona – provinsiya – okrug – rayon – mikrorayon – mikrozona – landshaft.

Biz geoekologik rayonlashtirishda yuqorida eslatib oʻtilgan tabiiy geografik rayonlashtirishning asosiy tamoyillari va usullariga amal qilib, olib borilgan koʻp yillik tadqiqotlarimiz natijasida toʻplangan materiallarga, tuzilgan landshaft-tipologik va landshaft-ekologik kartalarga asoslanib tabiiy va antropogen omillar ta’sirida vujudga kelgan ekologik vaziyatlarni hisobga olib tadqiqot obyektida, jumladan, Quyi Zarafshon okrugi hududida joylashgan To‘dako‘l va Quyimozor suv omborlari atrofini, tabiiy tarixiy rivojlanishi, yer usti tuzilishi, iqlim sharoiti, tuproq va o‘simlik qoplamining o‘ziga xos xususiyatlarini hamda ularning ichki farqlarini nazarda tutib Antropogen sho‘rxoklar ustida shakllangan, o‘simlik va tuproq qoplami kuchli degradatsiyaga uchragan, kuchli ifloslangan va geoekologik holati yomon Janubi-g‘arbiy Xojkab geoekologik mikrozonaga ajratilgan.[3]

Mazkur geoekologik mikrozona To‘dako‘l va Quyimozor suv omborlarini janubi - g`arbi tomonidan Amu – Buxoro mashina kanali o‘rab turadi. Chegara Xojkab sho‘rxogi – Ahbori Vali tepaligining janubi-g`arbiy etagi bo‘ylab Buxoro vohasi chegarasiga boradi. Shimoli-g`arb tomondan esa chegara keskin ifodalangan bo‘lib, Buxoro vohasi bilan o‘ralgan. Mezazoy-kaynazoy tektonik strukturalarining tuzilishiga ko‘ra Quyimozor – To‘dako‘l hududi Turon platformasiga kiradi va uning janubiy chekkasini egallaydi. Aniqroq qilib aytganda Janubiy Tyanshanning Buxoro Qarshi bukilmasiga kiradi. Bu bukilma doirasida Zirabuloq – Ziyovuddin va Kogon ko‘tarilma zonasi mavjud. Mazkur ko‘tarilma zonaning g`arbiy qismi Xojkab sho‘rxokligi deyiladi.

Xojkab pastqamligining shimoli, shimoliy-g`arbiy qismida Xojkab tepaligi mavjud. Uning mutlaq balandligi 237 metr, janubida alohida ifodalangan orolsimon erozion tepalik yaqqol ko‘zga tashlanadi. Quyimozor – To‘dako‘l hududining relyefi, umumiy olganda shimoli-sharqdan, janubi-g`arbga tomon, aniqrog`i Qoratog` past tog`laridan (Chingiztog‘ 741va 669 metr) Xojkab pastqamligi tomon pasayib boradi.

Janubiy-g‘arbiy Xojkab geoekologik mikrozonasi iqlim jihatidan subtropik belgilarga ega bo‘lgan, keskin kontinental cho‘l iqlimiga ega. Tabiiy namlik yetishmaydi. Atmosfera yog`inlariga nisbatan mumkin bo‘lgan bug‘lanish (1200 mm), yillik harorati +14 darajaga teng. Eng past harorat yanvar oyida kuzatiladi, ya’ni bu oyning o‘rtacha haroati 0 gradus atrofida, iyul oyi esa eng issiq o‘rtacha 28,0 – 29,0 gradus atrofida Yillik yog`in miqdori 125 mm atrofida. Ularning yillik taqsimlanishida keskinlik bor. Atmosfera yog`inlarning asosiy qismi bahor va qish oylariga to‘g`ri keladi. Umuman olganda bahor sernam injiqli, yoz esa (uzoq, quruq, jazirama issiq, o‘ta yorug‘) kuz qisqa va turg`unsiz, qish iliq, ba’zida o‘ta ayozli sovuq. [4;34-b.].

Rayon hududidan Quyimozor, Amu – Buxoro kanali kesib o‘tgan bo‘lib, hududni suv bilan ta’minlaydi. Kanal ta’sirida yerosti suvlarining yer betiga chiqib, katta maydonlarda tuproqning sho‘rlanishiga sabab bo‘lgan. Bu yerda eng katta tarqalgan tuproq tipi sho‘rxok va sho‘rtob tuproqlaridir. Ularning qatlamlar bo‘yicha tabaqalanishi juda kuchsiz ifodalangan. Tuproqlarning qalinligi hudud bo‘ylab bir tekisda taqsimlanmagan chunki ularning qalin yoki yupqa bo‘lishi bevosita joyning mikrorelyef shakllari bilan chambarchas bog‘liq. O‘simliklaridan shuvoq, partak, singren, isiriq, sassiq kovrak, qora saksovul qandim, suv o‘ti, qamish, hamda efemerlar yetakchilik qiladi. Quyimozor platosidagi shag‘al koni mavjud. Qum-shag‘alni qurilish ashyosi sifatida, qazib olish maqsadida Xojkab tepaligi etagida 1966-yildan buyon qum-shag‘al zavodi ishlab turibdi. Zavod ixtiyoriga 670 gektarli qum-shag`alli maydon ajratilgan.Qazish ishlari tufayli hozirgi kunda 130 gektar maydonda kon sanoati relyefi hosil boʻlgan. Chuqurligi 3-4 metr keladigan koʻlmakli hovuz-xandaklar, tartibsiz yotgan shoʻrlangan tuproq uyumlari oy-relyefini eslatadi. Shunday holatni Quyimozor temir yoʻl stansiyasi oldida koʻrish mumkin. Buxoro vohasi chegarasida joylashgan bu texnogen landshaft 20 gektardan ortiq maydonni egallaydi. Yilning issiq va quruq davrida bunday maydonlar deflyatsiya oʻchogʻi boʻlibgina qolmasdan, qon soʻruvchi hasharotlarning koʻpayish maskani hamdir. Bunday yerlarni agrotexnik va biologik rekultivatsiya qilish kechiktirib boʻlmaydigan vazifadir. Ayrim pastqam joylarda taqir, shoʻrtob va shoʻrxok tuproqlar ham uchraydi. Barcha tuproq tiplari nihoyatda chirindiga kambagʻal. Shoʻrxok landshaftlardan samarali foydalanish maqsadida Quyimozor kanali boʻyida, ayniqsa, Xojkab shoʻrxokligida tuz, balchiq sanatoriyasini tashkil etish maqsadga muvofiqdir. Birinchidan, bu shahar aholisiga nisbatan qulay masofada joylashgan. Ikkinchidan, tuz-balchiq terapiya xalqqa ma’lum boʻlgan an’anaviy davolash usullaridan biri boʻlib, juda foydali hisoblanadi. Toʻdakoʻl suv omborining janubiy-g`arbiy sohili rekreatsion resurslar uchun qulay imkoniyatlarga ega.

Rayon hududida landshaft hosil qiluvchi oʻsimliklarning geografik tarqalishi ma’lum darajada mikrorelyef shakllariga va joyning ekologik-sharoitiga moslashgan. Xojkab pastqamligining gʻarbiy qismida Xojkab qishlogʻi bor, mahalliy aholi tomonidan antropogen oʻzgartirilgan boʻlib madaniy oʻsimliklardan: bugʻdoy, arpa, makkajoʻxori, poliz ekinlari hamda mevali daraxtlar ekilgan. Shimoli-sharqiy yonbagʻirlari oʻsimliklar ancha siyrak: jumladan, iloq, singren, shoʻra, selin hamda suv ombor sohil zonasida buyra qamish, juzgʻun va boshqalardan iborat.

Rayon hududida togʻ-kon sanoati va agrolandshaftlar yaxshi rivojlanganligi sababli bu yerda ekologik muvozanat kuchli oʻzgargan. Janubiy-gʻarbiy Xojkab geoekologik uchastkasining tashqi qiyofasi oddiy va bir xil koʻringandek boʻlsa-da, uning landshaft-tipologik strukturasi oʻziga xos murakkablikka ega.[4]

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JAMIYATDA OILAINING IJTIMOIY-PSIXOLOGIK O‘RNI

Annotatsiya: *Mazkur maqolada jamiyatda oilaning ijtimoiy-psixologik o‘rni va ahamiyati tahlil qilingan. Oila — jamiyatning asosiy bo‘g‘ini sifatida inson tarbiyasi, axloqiy qadriyatlarning saqlanishi va avlodlar o‘rtasidagi bog‘liqlikni ta'minlovchi muhim ijtimoiy institut sifatida namoyon bo‘ladi. Unda oilaning shaxs shakllanishidagi va ijtimoiylashuv jarayonidagi roli, psixologik muhitning barqarorligi, hamda oilaviy munosabatlarning jamiyat taraqqiyotiga ta'siri kabi masalalarga e'tibor qaratilgan. Shuningdek, zamonaviy sharoitda oila instituti oldida turgan muammolar va ularni hal etish yo‘llari haqida fikr yuritilgan.*

Kalit so‘zi: *oila, jamiyat, ijtimoiy munosabatlar, psixologik muhit, ijtimoiy institut, oilaviy tarbiya, ruhiy salomatlik, oilaviy qadriyatlar, jamiyatdagi barqarorlik, ijtimoiy funktsiyalar. shaxs rivojlanishi, ota-ona mas’uliyati, psixologik hamjihatlik, mustahkam oila.*

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THE SOCIO-PSYCHOLOGICAL ROLE OF THE FAMILY IN SOCIETY

Abstract: *This article analyzes the socio-psychological role and significance of the family in society. As a fundamental unit of society, the family functions as an important social institution that ensures the upbringing of individuals, the preservation of moral values, and the continuity between generations. The article focuses on the role of the family in personality development and the process of socialization, the stability of the psychological environment, and the impact of family relationships on societal progress. Additionally, it discusses contemporary challenges facing the institution of the family and explores potential solutions.*

Keywords: *family, society, social relations, psychological environment, social institution, family upbringing, mental health, family values, social stability, social functions, personality development, parental responsibility, psychological harmony, strong family.*

Kirish

Har qanday jamiyatning barqarorligi, taraqqiyoti va ma'naviy yuksalishida oila muhim o‘rin egallaydi. Oila – bu jamiyatning eng qadimiy va eng muhim ijtimoiy institutlaridan biri bo‘lib, unda inson ilk bor ijtimoiylashadi, ma’naviy-me’yoriy qadriyatlarni o‘zlashtiradi va shaxs sifatida shakllanadi. Oila nafaqat biologik avlodlar davomiyligini ta'minlaydi, balki unda jamiyatning madaniyati, urf-odatlari va qadriyatlari avloddan-avlodga uzatiladi.

Zamonaviy davrda oilaning ijtimoiy-psixologik o‘rni yanada muhim ahamiyat kasb etmoqda. Axborot oqimi, globalizatsiya jarayonlari, turmush tarzidagi o‘zgarishlar oilaning ichki muhitiga bevosita ta'sir ko‘rsatmoqda. Shu bois, oilaviy munosabatlarni o‘rganish, undagi psixologik muhitni tahlil qilish va sog‘lom ijtimoiy munosabatlarni shakllantirish bugungi kunning dolzarb masalalaridan biridir.

Ushbu mavzuda oila institutining jamiyatdagi funksiyalari, uning psixologik iqlimi, tarbiyaviy roli va zamonaviy tahdidlar sharoitida duch kelayotgan muammolari tahlil qilinadi. Shuningdek, sog‘lom oilaviy munosabatlarni mustahkamlash yo‘llari ham yoritib beriladi.

Jamiyatning asosiy tayanchi va eng muhim ijtimoiy institutlaridan biri bu – oiladir. Oila insonning tug‘ilishi, tarbiyalanishi, shaxs sifatida shakllanishi va jamiyatda o‘z o‘rnini topishida beqiyos rol o‘ynaydi. U nafaqat biologik, balki ijtimoiy-psixologik jihatdan ham inson hayotining markazida turadi. Shu bois, oilaning jamiyatdagi o‘rni va uning ijtimoiy-psixologik funksiyalarini o‘rganish hozirgi davrda dolzarb masalalardan biri bo‘lib qolmoqda.

Bugungi globallashuv va axborot texnologiyalari tez sur’atlar bilan rivojlanayotgan bir paytda oilaning an’anaviy funksiyalarida muayyan o‘zgarishlar yuz bermoqda. Bu esa o‘z navbatida, yoshlarning axloqiy, psixologik va ijtimoiy rivojlanishiga bevosita ta’sir ko‘rsatmoqda. Oila a’zolari o‘rtasidagi munosabatlar, tarbiya jarayoni, emotsional muhit va kommunikatsiya shakllari ijtimoiy psixologiya nuqtai nazaridan alohida o‘rganilishi zarur bo‘lgan masalalardandir.

Mazkur maqolada oilaning jamiyatdagi ijtimoiy-psixologik o‘rni, uning asosiy funksiyalari, zamonaviy muammolari va ularni bartaraf etish yo‘llari ilmiy jihatdan tahlil qilinadi. Tadqiqotning asosiy maqsadi – oilaning shaxs rivojiga va jamiyat taraqqiyotiga ko‘rsatadigan ta’sirini aniqlash hamda uning ijtimoiy-psixologik mexanizmlarini yoritishdan iboratdir.

ASOSIY QISM

Oila – jamiyatning eng qadimiy va muhim ijtimoiy institutlaridan biri bo‘lib, u nafaqat yangi avlodni dunyoga keltiradi, balki uni tarbiyalaydi, unga ijtimoiy qadriyatlarni singdiradi va ijtimoiylashuv jarayonining boshlang‘ich nuqtasini tashkil etadi. Har qanday jamiyatda oilaning ijtimoiy-psixologik o‘rni uning ijtimoiy tizimdagi asosiy vazifalari, ichki munosabatlari, axloqiy me’yorlar va an’analar orqali aniqlanadi.

Oilaning ijtimoiy funktsiyalariga quyidagilar kiradi:

- **Reproduktiv funksiyasi** – avlodni davom ettirish;
- **Tarbiya funksiyasi** – farzandlarga ijtimoiy normalarni o‘rgatish, ularni jamiyatga moslashtirish;
- **Iqtisodiy funksiyasi** – moddiy ehtiyojlarni ta’minlash va qo‘llab-quvvatlash;
- **Emotsional-psixologik funksiyasi** – a’zolar o‘rtasidagi hissiy yaqinlik,

ruhiy ko‘mak va barqarorlikni ta’minlash;

- **Madaniy-funksional rol** – jamiyat qadriyatlarini avloddan-avlodga o‘tkazish, milliy identitetni mustahkamlash.

Psixologik nuqtai nazardan qaralganda, oila inson shaxsining shakllanishida beqiyos rol o‘ynaydi. Oiladagi psixologik iqlim, ya’ni ota-ona va farzandlar o‘rtasidagi muloqot sifati, ishonch darajasi, mehr-muhabbat va hurmatga asoslangan munosabatlar bolalarning ruhiy sog‘lig‘i, o‘z-o‘ziga baho berishi, ijtimoiy faolligi va kelajakdagi munosabatlariga bevosita ta’sir qiladi. Oilaviy muhitda sog‘lom ijtimoiy-psixologik iqlim mavjud bo‘lsa, bu farzandlarning ijtimoiy hayotda muvaffaqiyatli ishtirok etishiga zamin yaratadi.

Bugungi kunda jamiyatda yuz berayotgan o‘zgarishlar, globallashuv, iqtisodiy bosimlar, axborot oqimining kuchayishi, an’anaviy qadriyatlarning erkin individualizmga o‘rin bo‘shatishi kabi omillar oilaning psixologik barqarorligiga salbiy ta’sir ko‘rsatmoqda. Ajralishlar sonining ortishi, ota-onaning tarbiyadagi faolligining pasayishi, emotsional befarqlik va zo‘ravonlik holatlari oila institutining barqarorligiga tahdid solmoqda.

Shu bilan birga, ijtimoiy-psixologik tadqiqotlar oilaning ichki resurslarini kuchaytirish orqali bu muammolarni bartaraf etish mumkinligini ko‘rsatmoqda. Jumladan, oilaviy psixologik maslahatlar, emotsional savodxonlikni oshirish, kommunikatsion ko‘nikmalarni rivojlantirish, qadriyatlar asosida mustahkam oilaviy modelni shakllantirish orqali oila tizimini barqarorlashtirish mumkin.

Oilaning ijtimoiy-psixologik barqarorligi – jamiyat barqarorligining kafolatidir. Shu bois, oilani mustahkamlashga qaratilgan psixologik va ijtimoiy dasturlarni ishlab chiqish, ularni amaliyotga tatbiq etish hozirgi davrning muhim talablaridan biri hisoblanadi.

Har qanday jamiyat taraqqiyotida oilalarning, oilalar mustahkamligining o‘rni beqiyosdir. Chunki tirik organizmning salomatligi uni tashkil qiluvchi har bir hujayraning sog‘lomligiga bog‘liq bo‘lganidek, oila ham davlat, jamiyat deb atalgan butun bir organizmni tashkil etuvchi hujayradir. Har bir oilaning sog‘lom bo‘lishi, ularda ijobiy psixologik iqlimning hukm surishida, davlatning iqtisodiyoti, ijtimoiy hayot taraqqiyotini ta'minlovchi, hal qiluvchi omil bo‘lgan inson kamolotida oilaning tutgan o‘rni beqiyosdir.

O‘zbekistonda oila mustahkamligini ta'minlash, uning ijtimoiy funktsiyalarini amalga oshirish imkoniyatlarini kengaytirish, ayniqsa, oilaning farzand tarbiyasidagi nufuzini oshirishga ko‘maklashish hamda yosh er-xotinlarning moddiy, uy-joy, maishiy shart-sharoitlarini yaxshilash borasidagi aniq dasturiy tadbirlar mamlakatimizda oila va nikoh munosabatlarining qadriyat sifatida e'tirof etilishini ta'minlamoqda.

O‘zbekiston hukumati mamlakatimizdagi oilalar, xotin-qizlar va bolalarning huquq va manfaatlarini xalqaro huquq me'yorlari doirasida himoya etilishini ta'minlash maqsadida o‘ndan ziyod xalqaro huquqiy hujjatlarni (Konventsiya, Deklaratsiya va v.h.) ratifikatsiya qildi.

Mavzuga oid adabiyotlar tahlili. 1. Oilaviy institutlar nazariyasi. Oila jamiyatning eng qadimiy va asosiy institutlaridan biri bo‘lib, uning ijtimoiy va psixologik jihatlari sotsiologlar va psixologlar tomonidan keng o‘rganilgan. T. Parsons (1955) oilaning jamiyatdagi asosiy funksiyalaridan biri sifatida ijtimoiylashtirish va hissiy qo‘llab-quvvatlashni belgilaydi. U oilani "shaxsni ijtimoiy institutlar bilan bog‘laydigan ko‘prik" deb ataydi.

2. Psixologik jihatlar

Erkak va ayol rollarining psixologik talqini, bolalarning shaxsiy rivojlanishiga oilaning ta’siri L. S. Vygotskiy, A. N. Leontyev, va D. B. Elkonin kabi rus psixologlarining asarlarida chuqur yoritilgan. Ularning fikricha, bola shaxs sifatida shakllanishida yaqin ijtimoiy muhit — avvalo oila — hal qiluvchi rol o‘ynaydi.

3. O'zbek olimlarining yondashuvi

O‘zbekistonlik olimlardan M. Jo‘rayev, S. Turaev, va M. G‘aniyevlarning tadqiqotlarida oila ijtimoiy barqarorlik va milliy qadriyatlarni saqlashdagi o‘rni yoritilgan. Ular oilani madaniy me’rosning asosi deb baholaydilar.

4. Hozirgi davrdagi oilaviy muammolar

Hozirgi globallashuv sharoitida oilaning ijtimoiy-psixologik strukturasi sezilarli darajada o‘zgarib bormoqda. A. Giddens (1992) zamonaviy jamiyatda “toza munosabatlar” konsepsiyasini ilgari suradi, ya’ni oila endi an’anaviy asoslarda emas, balki shaxsiy ehtiyoj va qoniqish asosida shakllanmoqda.

5. Amaliy tadqiqotlar

So‘nggi yillarda O‘zbekiston Respublikasi Oliy va o‘rta maxsus ta’lim vazirligi, Sotsiologiya instituti va boshqa ilmiy muassasalar tomonidan oila va yoshlar muammolariga oid sotsiologik so‘rovnomalar o‘tkazilgan. Ushbu tadqiqotlarda nikoh yoshining ortishi, ajralishlar sonining ko‘payishi, ota-onalarning farzandlar tarbiyasidagi ishtiroki kabi muammolar ko‘tarilgan.

Abdullayeva Z. (2019). "Oila psixologiyasi" - ushbu asarda oila ichidagi psixologik munosabatlar, oilaviy nizolarning sabablari va ularni hal etish usullari chuqur yoritilgan. **Karimov I.A. (2002). "Yuksak ma’naviyat — yengilmas kuch" - k**itobda ma’naviy tarbiya va oila muhitining shaxs rivojlanishidagi ahamiyati ta’kidlangan. **Parsons T. (1955). "The American Family: Its Relations to Personality and the Social Structure" - b**u asarda oila ijtimoiy institut sifatida tahlil qilinadi, uning shaxsiyatga ko‘rsatadigan ta’siri sotsiologik nuqtai nazardan baholanadi.**Bronfenbrenner U. (1979). "The Ecology of Human Development" - o**ila inson taraqqiyotining eng muhim ijtimoiy muhiti sifatida ko‘rib chiqiladi. Psixologik iqlimning bola rivojlanishiga ta’siri chuqur tahlil qilingan. **Ravshanov A. (2021). "Zamonaviy oilaning psixologik muammolari" -** O‘zbekiston sharoitida oilalarda uchraydigan zamonaviy psixologik muammolar tahlil qilingan

Oilaning ijtimoiy-iqtisodiy manfaatlarini ta'minlash, uy mehnati va madaniy-maishiy turmush sharoitini yaxshilash, oilaning ma'naviy-axloqiy asoslarini takomillashtirish, ko‘p bolali, kam ta'minlangan, boquvchisini yo‘qotgan nochor oilalarni, nogironlar, yetim-esirlar, yolg‘iz keksalar, bemorlarni ijtimoiy qo‘llab-quvvatlash, oilada jamiyat talablariga mos komil insonlarni tarbiyalash borasida amalga oshirilayotgan tadbirlar butun dunyo xalqlarining diqqat-e'tiborida bo‘lmoqda.

Metodologik tahlil. Ushbu tadqiqotning asosiy maqsadi – jamiyatda oilaning ijtimoiy-psixologik o‘rni va uning jamiyat hayotidagi funksiyalarini aniqlashdir. Tadqiqotda quyidagi vazifalar bajarildi:

Oila va jamiyat o‘rtasidagi o‘zaro munosabatlarni tahlil qilish;

Oilaning ijtimoiy-psixologik funksiyalarini aniqlash;

Jamiyatda oilaning muammolari va ularni hal etish yo‘llarini o‘rganish.

Tadqiqotda quyidagi usullar qo‘llandi:

Nazariy tahlil – mavjud ilmiy manbalar va adabiyotlar o‘rganildi;

Empirik tadqiqot – intervyu va so‘rovnomalar yordamida ma’lumotlar yig‘ildi;

Statistik tahlil – olingan ma’lumotlar kvantitativ usullar yordamida tahlil qilindi.

Namuna va ma’lumotlar yig‘ish: Tadqiqot uchun 200 nafar turli yoshdagi va ijtimoiy qatlamdagi respondentlar tanlandi. Ma’lumotlar intervyu va onlayn so‘rovnomalar orqali to‘plandi. Tadqiqot Markaziy Osiyo hududida 2024 yil yozida o‘tkazildi.

Tadqiqot natijalari: Oila va jamiyat munosabatlari. Olingan natijalar shuni ko‘rsatdiki, jamiyatdagi ijtimoiy muammolar va o‘zgarishlar oila tizimiga bevosita ta’sir qiladi. Aksincha, mustahkam oilaviy munosabatlar jamiyatdagi ijtimoiy barqarorlikni ta’minlaydi.

Oilaning ijtimoiy-psixologik funksiyalari. Respondentlarning 85% i oilani shaxsiy psixologik qo‘llab-quvvatlash va ijtimoiy moslashish uchun asosiy manba deb hisoblaydi. Bundan tashqari, oila qadriyatlarni avloddan avlodga uzatishda, jamiyatning madaniy va axloqiy normativlarini mustahkamlashda ham muhim rol o‘ynaydi.

Muammolar va tavsiyalar. Tadqiqot davomida oilalarda psixologik stress, kommunikatsiya qiyinchiliklari va iqtisodiy muammolar aniqlangan. Bu muammolarni bartaraf etish uchun psixologik yordam xizmatlarini kengaytirish, oilaviy qadriyatlarni tiklash va jamiyatdagi ijtimoiy yordam tizimini takomillashtirish tavsiya etiladi.

Bugungi kunda ijtimoiy muhofazaga muhtoj oilalarning asosiy qismini yosh oilalar tashkil etadi. 2007 yilning 18 may sanasida O‘zbekiston Respublikasi birinchi Prezidenti tomonidan imzolangan “Yosh oilalarni moddiy va ma'naviy qo‘llab-quvvatlashga doir qo‘shimcha chora-tadbirlar to‘g‘risida”gi PF-3878-sonli Farmoni o‘ta muhim tarixiy hujjat bo‘lib, u yurtimizdagi jami 6,5 milliondan ziyod oilalarning, jumladan, bir milliondan ortiq yosh oilalarning manfaatlarini himoya qilmoqda. Farmonga muvofiq, yosh oilalarga kichik biznes va xususiy tadbirkorlikni tashkil etishlari, boshlashlari, uy-joy qurish, ta'mirlash va sotib olish, uy xo‘jaligini yo‘lga qo‘yish, uzoq muddatli foydalanishga mo‘ljallangan zarur buyum va mebelь mahsulotlarini xarid qilishlari uchun tijorat banklari tomonidan imtiyozli shartlar asosida ipoteka, iste'mol va mikrokreditlar ajratildi.

Ayni paytda Farmonga ko‘ra, yosh oilalarga katta soliq imtiyozlari ham berildi. Xususan, yosh oila a'zolari, ya'ni, er va xotinning yoshi 30 yoshdan oshmagan, birinchi marta rasmiy nikohdan o‘tganlarga jismoniy shaxslar sifatida shaxsiy uy-joy yoki ko‘p qavatli uyda xonadon sohibi bo‘lish uchun olingan ipoteka kreditlari va ular bo‘yicha hisoblangan foizlarni qoplash uchun yo‘naltirilgan kredit summasi hamda xo‘jalik sub'ektlari – ish beruvchidan uy-joy sotib olish uchun olingan mablag‘ soliqqa tortiladigan daromadlariga kirmaydigan bo‘ldi.

Shu bilan birga ta'kidlash lozimki, xo‘jalik sub'ektlariga daromad solig‘i yoki yagona soliq to‘lovini hisoblashda soliqqa tortiladigan bazani yosh oilalar toifasiga kiruvchi shaxslarga ipoteka krediti badallari to‘lashga va mulk sifatida uy-joy sotib olishga tekin berilgan mablag‘lar so‘mmasiga teng hajmda, ammo soliqqa tortiladigan bazaning 10 foizidan oshmagan miqdorda kamaytirish huquqi berildi. Bugun yosh oilalarga berilayotgan cheksiz e'tibor, avvalo, ularning ertangi kungi baxt-saodati to‘g‘risida qayg‘urishgina bo‘lib qolmay, balki Vatanimiz istiqboli uchun qayg‘urishning yorqin namunasidir. Zero, yoshlarni fidoyiligi, o‘zi tanlagan kasbiga mas'uliyati, nikohga bo‘lgan to‘g‘ri munosabati, avvalo, Vatan, qolaversa oilani mustahkamlashni, har tomonlama sog‘lom va barkamol avlodni tarbiyalab voyaga yetkazishni ta'minlaydi.**Xulosa**

Jamiyatda oila nafaqat ijtimoiy institut sifatida, balki insonning psixologik barqarorligini ta’minlovchi muhim asos hisoblanadi. Oila a’zolari o‘rtasidagi munosabatlar, mehr-muhabbat va hamjihatlik shaxsning ruhiy holatiga ijobiy ta’sir ko‘rsatadi, uning ijtimoiy moslashuvini osonlashtiradi. Shu bilan birga, oila jamiyatdagi madaniy qadriyatlarning, urf-odatlar va an’analarining saqlovchisi sifatida faoliyat yuritadi. Oilaning mustahkamligi va sog‘lom muhit yaratilishi jamiyatning umumiy ijtimoiy barqarorligi va farovonligiga bevosita ta’sir qiladi. Shuning uchun, davlat siyosati va jamiyat tomonidan oila institutini qo‘llab-quvvatlash va rivojlantirish muhim vazifa hisoblanadi.

Shaxsni o’rab turgan muhitda jamiyat barqarorligi va rivojlanishida oila muhim ijtimoiy institut sifatida markaziy o‘ringa ega. Oila nafaqat shaxsiy va hissiy qo‘llab-quvvatlash manbai, balki jamiyatning psixologik muhitini shakllantiruvchi asosiy omildir. Ijtimoiy-psixologik nuqtai nazardan, oila a’zolari o‘rtasidagi muloqot, qadriyatlar va hissiy bog‘liqlik shaxsning ijtimoiy moslashuvi va psixologik barqarorligiga xizmat qiladi. Shu sababli, oila jamiyatda o‘zining ijtimoiy va psixologik funksiyalarini to‘liq bajarsa, u jamiyatning umumiy salomatligi va taraqqiyotiga ijobiy ta’sir ko‘rsatadi.

Ayni vaqtning globalizatsiya, urbanizatsiya va texnologik rivojlanish jarayonlari oilaning an’anaviy tuzilmasiga va funksiyalariga ta’sir ko‘rsatmoqda. Shu munosabat bilan oilaning ijtimoiy-psixologik roli ham o‘zgarib, yangi muammolar va ehtiyojlar paydo bo‘lmoqda. Oila institutini qo‘llab-quvvatlash, uning ichki psixologik muhitini mustahkamlash va oilaviy qadriyatlarni asrash jamiyat uchun ustuvor vazifa hisoblanadi.

oila ijtimoiy-psixologik jihatdan juda muhim o‘rin tutadi. Oila — insonning asosiy ijtimoiy mikro-muhiti bo‘lib, unda shaxsning shaxsiyati shakllanadi, psixologik barqarorlik va ijtimoiy qobiliyatlar rivojlanadi. Oila a’zolari o‘rtasidagi munosabatlar, mehr-muhabbat, o‘zaro hurmat va qo‘llab-quvvatlash jamiyatdagi barqarorlik va taraqqiyotning poydevorini yaratadi.

Shuningdek, oila jamiyatda ijtimoiy rol va majburiyatlarni oʻrganish, axloqiy qadriyatlar, madaniyat va an’analarni avloddan-avlodga yetkazish vositasi hisoblanadi. Oila psixologik xavfsizlik markazi sifatida stress va muammolarga qarshi tura olishda insonlarga yordam beradi.

Bugungi kunda oilaning ijtimoiy-psixologik ahamiyati yanada oshib bormoqda, chunki murakkab ijtimoiy muhitda oila a’zolarining oʻzaro aloqalari ularning ruhiy sogʻligʻi va jamiyatdagi moslashuvi uchun muhim omil boʻlmoqda. Shuning uchun davlat va jamiyat tomonidan oilani qoʻllab-quvvatlash, oilaviy tarbiya va psixologik yordam tizimlarini rivojlantirish alohida e'tibor talab qiladi.

Xulosa qilib aytganda, oila jamiyatning eng asosiy ijtimoiy va psixologik instituti boʻlib, uning barqarorligi va sogʻlom rivojlanishi jamiyatning umumiy farovonligiga bevosita ta'sir qiladi.

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INSON EHTIYOJLARINING RIVOJLANISH XUSUSIYATLARI PSIXOLOGIYASI

Annotatsiya: *Ushbu maqolada inson ehtiyojlarining rivojlanish jarayoni, uning turlari va ta'lim, iqtisodiyot, psixologiya hamda ijtimoiy muhitga ta'siri tahlil qilinadi. Maslouning ehtiyojlar iyerarxiyasi nazariyasi asosida ehtiyojlarning biologik, ijtimoiy va ruhiy bosqichlari yoritilgan. Shuningdek, zamonaviy jamiyatda inson ehtiyojlarining o'zgaruvchanligi, yangi turdagi ehtiyojlar — axborot, raqamli texnologiyalar, shaxsiy rivojlanish kabilarning ahamiyati tahlil qilingan. Ilmiy tahlillar natijasida inson ehtiyojlari shaxs kamoloti va jamiyat taraqqiyotida hal qiluvchi omil ekani asoslab berilgan.*

Kalit so'zi: *ison ehtiyojlari, rivojlanish, motivatsiya nazariyalari, ijtimoiy ehtiyojlar, bio-psixologik talablar, shaxsiy rivojlanish, iqtisodiy omillar, madaniy ta'sirlar, haqiqiylashuv (samorealizatsiya), psixologiyada ehtiyoj, evolyutsion psixologiya.*

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PSYCHOLOGY OF THE DEVELOPMENTAL CHARACTERISTICS OF HUMAN NEEDS

Abstract: *This article analyzes the process of development of human needs, their types, and their impact on education, the economy, psychology, and the social environment. Based on Maslow's hierarchy of needs theory, the biological, social, and psychological levels of needs are examined. The paper also explores the variability of human needs in modern society and the importance of new types of needs — such as information, digital technologies, and personal development. Scientific analyses substantiate that human needs are a decisive factor in personal growth and societal progress.*

Keywords: *human needs, development, motivation theories, social needs, bio-psychological demands, personal development, economic factors, cultural influences, self-actualization, needs in psychology, evolutionary psychology.*

Kirish. Inson ehtiyojlari — shaxsning hayot faoliyatini ta'minlash va uni yanada takomillashtirishga qaratilgan ichki rag'bat va talablar majmuasidir.

Insoniyat tarixi davomida ehtiyojlar shakli, mazmuni va darajasi muntazam ravishda oʻzgarib borgan. Avval boshda asosiy biologik ehtiyojlar — ozuqa, suv, boshpanadan iborat boʻlgan boʻlsa, vaqt oʻtishi bilan ijtimoiy, ma'naviy, madaniy va shaxsiy rivojlanishga doir ehtiyojlar yuzaga keldi. Bu jarayon insonning jamiyatda tutgan oʻrni, bilim darajasi va turmush tarzi bilan chambarchas bogʻliq.

Inson ehtiyojlarining rivojlanishi murakkab va koʻp qirrali jarayon boʻlib, u nafaqat psixologik va ijtimoiy omillar bilan, balki iqtisodiy, madaniy hamda texnologiyaviy taraqqiyot bilan ham bogʻliqdir. Zamonaviy jamiyatda yangicha ehtiyojlar — axborotga ega boʻlish, shaxsiy rivojlanish, oʻzini anglash va ijodkorlik kabi masalalar birinchi darajali ahamiyat kasb etmoqda.

Ushbu maqolada inson ehtiyojlarining tarixi-evolyutsion rivojlanishi, ularni turkumlashtirish nazariyalari, shuningdek, bu ehtiyojlarning zamonaviy jamiyatdagi ahamiyati va ta'sir mexanizmlari tahlil qilinadi. Tadqiqot maqsadi — inson ehtiyojlarining oʻzgaruvchan tabiati va uning jamiyat taraqqiyotiga ta'sirini ilmiy jihatdan asoslab berishdan iborat.

Muayyan muhitda yashovchi hayvonning u yoki bu tarzdagi xattiharakati aniq ehtiyojni qondirishga qaratilgan boʻladi. Shu boisdan ehtiyoj hayvonni faollikka undash bilan cheklanib qolmasdan, balki faollikning turlari, shakli, harakatlantiruvchi kuchiga ham oʻz ta'sirini koʻrsatadi. Hayvonda ovqatlanish ehtiyojini tugʻilishi unda faollikni vujudga keltiradi, natijada soʻlak bezlari ishlay boshlaydi, oʻlja qidirish, uni poylash, tutish va iste'mol qilish bilan bogʻliq holatlar majmuasi yuzaga keladi. Mazkur jarayonlar shartli reflekslar, faollikni keltirib chiqaruvchi yangi qoʻzgʻovchilar va unga muvofiq boʻlgan yangi harakatlar bilan bogʻlanish mumkin, biroq hayvonning xatti-harakatining tuzilishida hech qanday oʻzgarish yuz bermaydi. Jahon fiziologlari va psixologlari tomonidan hayvonlarda shartli reflekslarni shakllantirishga oid tajriba materiallarining koʻrsatilishicha, vosita sifatida foydalanilgan qoʻngʻiroq chalinishi hayvon uchun tashqi qoʻzgʻotuvchilar ichidan faqat ovqatlanishga bogʻliq signal (xabar) vazifasini bajaradi, xolos.

Oʻrgatilgan hayvon tomonidan tepkini bosish jarayoni unga ovqatning berilishi bilan aloqador xatti-harakat tarzida amalga oshiriladi. Shuning uchun hayvon har qanday murakkab shartli reflekslar yordami bilan oʻz xatti-harakatini amalga oshirgan boʻlishiga qaramay, ehtiyojlar bevosita uning psixikasini aks ettirish muayyan ob'ektga yoʻnaltirish, xulqini idora qilish funktsiyasini bajaradi. Chunki hayvon a'zolarining biologik-tabiiy ehtiyojlari psixik aks ettirish mazmuni va sifatini, tashqi olam ta'siriga nisbatan javob sifatida paydo boʻluvchi xattiharakatlarni muvofiqlashtirib turadi.

Insonning faoliyati, xulq-atvori, xatti-harakati hayvonlarnikidan tubdan farq qiladi, ularni tarkib toptirish mutlaqo boshqa asosga quriladi. Misol uchun bolaning ovqatlanishi, xatti-harakati, qoshiqdan foydalanish, maxsus ajratilgan joyda utirish, ovqat yeyish qurolini ishlata olish uning tabiiy ehtiyojlari tufayli yuzaga kelgan deb e'tirof etish xaqiqatdan uzoq fikr, chunki uning negizida yotuvchi mexanizmlar siri tushuntirib berilmagan. Oʻz-oʻzidan ma'lumki, tabiiy eshtiyojni qondirish uchun zarur shartsharoitlar yaratilishi shart emas, insonda uyquga ehtiyoj tugʻilsa, u holda hech qanday yumshoq o‘ringa, divanga talab sezilmaydi, charchagan odam duch kelgan joyda o‘z ehtiyojini qondiraveradi.

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O‘zbek mualliflaridan: Mirzayev Q., Yuldashev A. – “Psixologiya” darsligida shaxs rivojlanishi va ehtiyojlarning psixik asoslari yoritilgan. Tojiboyev Q. – “Falsafa” asarida insonning ma'naviy ehtiyojlari va jamiyat bilan bog‘liqligi falsafiy jihatdan talqin qilingan.

Tadqiqotning metodologik asosi.

1. Falsafiy yondashuvlar

Dialektik metod – inson ehtiyojlarining rivojlanishini qarama-qarshiliklar, inqirozlar va yangi sifatlarga o‘tish orqali izohlaydi.

Antropologik yondashuv – insonning biologik va ma'naviy tabiatiga asoslanib, ehtiyojlarning paydo bo‘lishi va rivojlanishini tushuntiradi.

2. Ilmiy nazariy asoslar

A. Maslouning ehtiyojlar iyerarxiyasi nazariyasi – inson ehtiyojlari belgilangan iyerarxiya bo‘yicha (fiziologik, xavfsizlik, ijtimoiy, hurmat, o‘zini namoyon qilish) rivojlanadi.

K. Rodjers va E. Fromm kabi gumanistik psixologlarning qarashlari – inson ehtiyojlari shaxs kamolotga intilayotgan sari rivojlanishini ta'kidlaydi.

3. Ijtimoiy-tarixiy yondashuv

Inson ehtiyojlari jamiyatning madaniy va iqtisodiy darajasiga bog‘liq ravishda shakllanadi va o‘zgaradi. Masalan, sanoat davridagi ehtiyojlar bilan raqamli davr ehtiyojlari farqlidir.

4. Ta'limiy va tarbiyaviy metodlar

Inson ehtiyojlari ta'lim, oila, ommaviy axborot vositalari ta'sirida shakllanadi. Bularni o‘rganishda pedagogik va psixologiya metodlar qo‘llaniladi.

Metodlar:

Ta'liliy metod – mavjud nazariya va qarashlarni tahlil qilish.

Qiyosiy tahlil – turli davrlardagi ehtiyojlar rivojlanishini solishtirish.

Empirik usullar – so‘rov, kuzatuv va intervьyular orqali ma'lumot yig‘ish.

Modellashtirish – ehtiyojlar rivojlanish jarayonini nazariy modellarda ifodalash.

Madaniy xattiharakatlar, odatlarning insonda vujudga kelishi ijtimoiy tarbiyaning ta'sirida tabiiy ehtiyojlarni qondirishning vositasi, sharti sifatida gavdalanib, qurollar, buyumlar ularning tarkibiy qismiga aylana boshlaydi. Bunday xatti-harakatlar shaklini keltirib chiqaruvchi asosiy manba tub ma'nodagi ehtiyoj emas, balki uni qondirishning jamiyat taraqqiyoti talab qilgan qoidalari, usullari, kamolot taqozo etuvchi madaniy ko‘nikmalar hisoblanadi.

Jamiyatning taraqqiyot bosqichlariga binoan tabiiy ehtiyojlarni qondirishning yangidan-yangi, yanada takomillashgan vositalari insoniyat tomonidan yaratilaveriladi va bular ehtiyojlar tarkibi bilan qorishib ketadi. Madaniy va ma'naviy ehtiyojlar to‘g‘risida ham xuddi shu tarzdagi o‘zgarishlar yuz beradi,, shaxsning boshqa kishilar bilan muloqatga kirishish, bilimlarni o‘zlashtirishda texnik vositalardan foydalanishi nutq va kiyinish madaniyatining o‘sishi ularni qondirishga nisbatan talab darajasining ortishi mazkur ehtiyojlar riojlanishini ta'minlaydi.

Psixologiyada ehtiyojlar rivojlanishining bir necha bosqichlari mavjud ekanliligini ta'kidlab o‘tish zarur. Chunki ehtiyojlar inson ontogenezida paydo bo‘lib, to uning umrining oxirigacha o‘zgarib, takomillashib boradi. Kishilik jamiyatlarida ehtiyojlar bir-biridan ham mohiyat, ham shakl jihatidan tafovutga ega bo‘lganday, yosh davrlariga qarab ular xuddi shunday mezonlar bo‘yicha o‘zaro farqlanadilar.

Bola faolligini rivojlantirishning dastlabki bosqichlaridayoq, biologik jihatdan ahamiyat kasb etuvchi buyumlar, jismlar ustuvorlik xususiyatiga ega bo‘lmaydilar, aksincha ularning inson tomonidan foydalanish usullari ehtiyojlarning omillari tariqasida gavdalanadi. Binobarin, mazkur buyumlar, aslahalarning ijtimoiy tajribalarini egallashdagi ahamiyati, roli namoyon bo‘lishning mexanizmlari sifatida maydonga keladi. Bolalarning xuddi shu yo‘sinda egallaydigan xatti – harakatlarining yangi shakllari – bu jamiyat tomonidan ijtimoiy amaliyot vazifalariga munosib ravishda ishlab chiqilgan usullaridan iborat bo‘lib, buyumlar bilan shaxsning munosabati tarzida yuzaga keladi, kishining kundalik faoliyati ichidan muhim joy engallaydi.

Stol atrofida o‘tirish, qoshiq bilan ovqat yeyish, krovatda uxlash, televizo tomosha qilish, o‘yinchoq o‘ynash, kattalar bilan muomala qilish yuqoridagi fikr mohiyatini yaqqollashtirishga yordam beradi. Ehtiyojni qondirishning vositalaridan foydalanish qoidalari ijtimoiy muomala usullari, faoliyatni amalga oshirishning yo‘l-yo‘riqlari katta yoshdagi odamlar tomonidan yoshlarga o‘rgatiladi. O‘z ehtiyojlarini muayyan buyumlar vositasida qondirishga va ularni muayyan faoliyat turiga tadbiq etishning insoniy shakllarini egallashga o‘rgatish maxsus mashqlar orqali amalga oshirilib, «Etuk shaxs bola» tarzida yuzaga keladi.

Demak, bola ehtiyoji qondirilayotgan insoniy shart-sharoitlar ta'siri ostida shaxsning xulq-atvori vositalar ahamiyati bilan emas, balki ularning ijtimoiy qiymati bilan belgilanadi. Ehtiyojlarning qondirilish darajasi uning og‘ir yoki yengil ko‘chishi shaxsning shakllanishida muhim ahamiyatga ega, shu boisdan ularni qondirish maqsadga muvofiq, oqilona mezonlarga suyanib amalga oshirilsa ijtiomiy ahamiyati yanada ortadi.

Insonda madaniy va ma'naviy ehtiyojlar turmush tajribasi ortishi, bilim saviyasi kengayishi, maxsus mashqlar egallanishi, ijtimoiy hayot qoidalariga uzluksiz ravishda rioya qilishi, narsa va hodisalarga munosabati o‘zgarishi tufayli rivojlana boradi. Odam tobora barkamol bo‘la borishi uning oldiga yangicha talablar qo‘yadi, ularni bajarish esa ehtiyojning yangi, nisbatan murakkab, mohiyat jihatdan teran xususiyat kasb etuvchi shakllarni vujudga keltiradi, ularning qondirilishi esa tuzilishga ega bo‘lgan vositalarni taqozo etadi.

Xulosa. Inson ehtiyojlari — shaxsning hayotiy faoliyati, ruhiy holati va ijtimoiy munosabatlarining asosiy harakatlantiruvchi omillaridan biri hisoblanadi. Ularning rivojlanishi jamiyat taraqqiyoti, ilmiy-texnikaviy yutuqlar, ta'lim, madaniyat va axloqiy qadriyatlar bilan uzviy bog‘liqdir. Maqolada inson ehtiyojlarining bosqichma-bosqich shakllanishi, Maslou nazariyasi asosida ularning iyerarxik tizimi hamda zamonaviy sharoitdagi o‘zgarishlari tahlil qilindi.

Hozirgi kunda ehtiyojlar nafaqat fiziologik va xavfsizlik kabi asosiy omillar bilan cheklanib qolmoqda, balki o‘zini anglash, ijtimoiy ta'sir va shaxsiy rivojlanish kabi yuqori darajadagi ehtiyojlar ham dolzarb ahamiyat kasb etmoqda. Bu esa inson resurslarini samarali boshqarish, ta'lim-tarbiya jarayonini takomillashtirish va shaxsni har tomonlama rivojlantirishda muhim o‘rin tutadi.

Shu bois, inson ehtiyojlarining rivojlanishini chuqur o‘rganish — sotsiologiya, psixologiya, pedagogika va boshqa ijtimoiy fanlar uchun dolzarb vazifa bo‘lib qolmoqda. Bunday tadqiqotlar jamiyatda barqaror taraqqiyotni ta'minlash va inson kapitali salohiyatidan samarali foydalanishga xizmat qiladi.

Ma'lumotlilik aql – zakovat ko‘rsatkichining yuksalishi, iste'dod alomatlarining ro‘yobga chiqishi, faollikning ortishi, xatti-harakat tarkibida keraksiz bo‘g‘inlarning kamayish ehtiyoji takomillashgan shaklining namoyon bo‘lishini ta'minlaydi. Inson komfort sari intilar ekan, demakki unda yangi ehtiyojlar yuzaga keladi, ularning qondirilishi esa yangi bir sifat darajasiga ko‘tariladi. Madaniyatning yangi qirralari ochilishi, ma'naviyatni egallashga nisbatan xohish – istakning kuchayishi, fan va texnikaning taraqqiyoti, milatlararo munosabatlar ko‘lamining kengayishi rang-barang ehtiyoj turlari va shakllari rivojlanishiga muhim shart-sharoitlar yaratadi. Insonning barkamollik sari intilishdagi imkoniyatlarini ro‘yobga chiqarish orzusi ehtiyojlar rivojlanishi harakatlantiruvchi kuchga aylanadi.

Psixologiya fanida ehtiyoj quyidagi tiplarga ajratiladi:

1. Individual – yakka shaxsga yo‘naltirilgan.
2. Guruhiy – real guruhlar moddiy va ma'naviy intilishi.
3. Jamoaviy – jipslashgan guruhlar talabi majmuasi.
4. Hududiy – etnik guruhning muayyan o‘ziga xos talablari qondarilishi
5. Etnik – ma'lum millat yoki xalqlarning safarbarligini ta'minlash.
6. Umumbashariy – yer yuzi xalqlarining umumiy talablarining majmuaviy aks etishi.

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HOW IS LANGUAGE TRANSLATION MADE POSSIBLE

***Abstract**: Language translation is a complex process that enables communication across linguistic and cultural barriers. This article explores the mechanisms, methodologies, and challenges of translation, emphasizing its role in global connectivity. Key aspects include human vs. machine translation, cultural adaptation, and technological advancements. The study highlights the importance of accuracy, context preservation, and professional expertise in producing high-quality translations.*

***Keywords**: Translation process, machine translation, cultural adaptation, CAT tools, linguistic accuracy.*

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TILGA TARJIMA QANDAY MUMKIN

***Annotatsiya:** Til tarjimasi lingvistik va madaniy to'siqlar orqali muloqot qilish imkonini beruvchi murakkab jarayondir. Ushbu maqola tarjima mexanizmlari, metodologiyalari va muammolarini o'rganib, uning global aloqadagi rolini ta'kidlaydi. Asosiy jihatlarga inson va mashina tarjimasi, madaniy moslashuv va texnologik yutuqlar kiradi. Tadqiqot yuqori sifatli tarjimalarni yaratishda aniqlik, kontekstni saqlash va professional tajriba muhimligini ta'kidlaydi.*

***Kalit so'zlar:** Tarjima jarayoni, mashina tarjimasi, madaniy moslashuv, CAT vositalari, lingvistik aniqlik.*

Introduction

Translation is the cornerstone of global communication, facilitating the exchange of ideas, knowledge, and culture across languages. From ancient manuscripts to modern AI-driven tools, translation has evolved significantly, yet its core objective remains unchanged: to convey meaning accurately while preserving context and cultural nuances. This article examines how translation is made possible, analyzing human and technological contributions, methodologies, and emerging trends.

Methodology

This study synthesizes research from academic sources, industry reports, and case studies on translation processes. Key methodologies include:

1. **Comparative analysis** of human vs. machine translation.
2. **Case studies** of professional translation workflows.

3. **Review of technological tools** (e.g., CAT tools, neural machine translation).

Analysis and Findings

Translation is a multifaceted process that involves linguistic expertise, cultural understanding, and increasingly, technological assistance. Below is an in-depth exploration of how translation functions, the challenges it faces, and the evolving role of artificial intelligence in the field.

The Translation Process: From Source to Target Language

Translation is not a simple word-for-word substitution but a complex transfer of meaning. The process typically involves:

- **Comprehension and Analysis** – The translator must fully understand the source text, including its context, tone, and specialized terminology. Misinterpretation at this stage leads to errors in the final output.
- **Initial Drafting** – The translator converts the text into the target language while maintaining the original meaning. Professional translators often use **Computer-Assisted Translation (CAT) tools** to ensure consistency, especially in large projects.
- **Editing and Proofreading** – A second linguist reviews the translation for accuracy, fluency, and cultural appropriateness. This step is crucial in legal, medical, and technical translations where precision is paramount.

Human Translation vs. Machine Translation

Both human and machine translation have strengths and weaknesses, and their effectiveness depends on the context.

- **Human Translation** excels in handling **nuance, idioms, and cultural references**. For example, translating poetry, marketing slogans, or legal documents requires deep linguistic and cultural insight that machines lack.
- **Machine Translation (MT)** (e.g., Google Translate, DeepL) provides **speed and cost-efficiency** but often struggles with **context, humor, and specialized jargon**. While **Neural Machine Translation (NMT)** has improved fluency, it still requires human post-editing for professional use.
- **Hybrid Approaches** – Many agencies now combine MT with human review to balance speed and accuracy. This is common in business translations where rapid turnaround is needed but quality cannot be compromised.

Cultural and Technical Challenges in Translation

One of the biggest hurdles in translation is preserving meaning across cultures. Some key challenges include:

- **Idiomatic Expressions** – Phrases like "kick the bucket" (meaning "to die") cannot be translated literally. A skilled translator must find an equivalent expression in the target language.
- **Untranslatable Words** – Some concepts, like the German *"Schadenfreude"* (pleasure from others' misfortune), lack direct equivalents in other languages, requiring creative adaptation.

- **Specialized Fields** – Legal, medical, and technical translations demand **subject-matter expertise**. A mistranslated medical term or contract clause can have serious consequences.

Technological Advancements in Translation

Technology has revolutionized translation, making it faster and more accessible. Key innovations include:

- **Computer-Assisted Translation (CAT) Tools** – Software like **Trados, MemoQ, and Wordfast** helps translators maintain consistency by storing previously translated segments in a **translation memory (TM)**.
- **Neural Machine Translation (NMT)** – AI-driven systems like **Google's Transformer model** produce more natural-sounding translations than older rule-based systems. However, they still struggle with **ambiguity and cultural context**.
- **Real-Time Translation Devices** – Tools like **Pocketalk and Travis Translator** enable instant spoken translations, useful for travelers and international business meetings.

The Future of Translation: Human-AI Collaboration

While AI continues to improve, **human oversight remains essential** for high-stakes translations. The future likely involves:

- **AI Handling Routine Translations** (e.g., emails, basic documents)
- **Humans Focusing on Creative and Specialized Content** (e.g., literature, legal contracts)
- **Increased Use of Post-Editing** – Professionals refining machine-generated translations for accuracy and fluency.

Discussion

While technology accelerates translation, human expertise remains irreplaceable for nuanced tasks. Ethical concerns, such as bias in AI translations, also warrant attention. The future lies in collaborative human-AI systems, balancing efficiency with accuracy 113.

Conclusion

Translation is both a science and an art, requiring linguistic skill, cultural insight, and technological support. As globalization intensifies, the demand for high-quality translation will grow, necessitating advancements in AI and professional training.

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DEVELOPMENT OF PEDAGOGICAL THOUGHT AND FORMATION OF NATIONAL PEDAGOGY IN CENTRAL ASIA

Abstract: *The article discusses the role and importance of the great thinker Abu Nasr Farabi in the formation of the national pedagogic science, and reveals the possibilities of its application in solving modern educational problems.*

Key words and phrases: *pedagogical ideas, educational and educational problems, spiritual and educational development, scientific pedagogical views, Abu Nasr Farabi - a famous scientist, thinker, spiritual and moral rules in education, standards of etiquette, raising a perfect person.*

Great thinkers have made a special contribution to the formation of pedagogical ideas in Central Asia. Great thinkers such as Abu Nasr Al-Farabi, Abu Rayhan Al-Biruni, Abu Ali ibn Sina paid serious attention to the problems of education and expressed their valuable thoughts on this issue in their world-famous works. These works have played an important role in the spiritual and educational development of not only the peoples of Central Asia, but also all of humanity. Their scientific pedagogical views on the education of young people continue to serve as a model for humanity in our time [3].

In particular, the study of the scientific pedagogical views of Abu Nasr Al-Farabi creates a basis for solving modern educational problems. Abu Nasr Al-Farabi (873-950 AD) is a famous scientist, the largest propagator of ancient Greek science and philosophy in the East. He is considered a thinker who laid the foundation for the development of medieval social and philosophical thought. Abu Nasr Farabi was born in a military family in a place called Farab (Utrar) near Tashkent. After receiving his primary education in Farab, he studied in Shosh, Bukhara, and Samarkand. Then he went to Baghdad and studied Greek, medicine, logic, music, linguistics, and law. Farabi created more than 160 works, including "Treatise on Reason," "What Should Be Learned Before Philosophy," "On Substance," "Sources of Philosophy," "Introduction to Logic," and "Source of Problems." In these works, Farabi reflects on issues such as the structure of the state and its management, the prevention of various social conflicts, and the creation of a mature social community. Forabi was the first to put forward the idea in the Middle Ages that the creation of a mature community is related to solving the problem of raising a perfect person. His famous works such as "On the Ideal Community" and "On the Achieving Happiness" are devoted to these issues. In his works on education, Farabi discusses the importance of education, what to pay attention to, and the methods and techniques of education. His socio-educational views are expressed in his works such as "The City of Virtuous People", "Ikhsa-al-ilm", "The Origin of Sciences", and "On the Meanings of Reason". Farabi is considered the first scientist to define education and upbringing.

The word **"education"** means teaching a person, giving theoretical knowledge based on explanation; "education" is the establishment of theoretical virtues, norms of behavior and practical skills necessary for mastering a certain profession, says the scientist. Al-Farabi believes that the main task of education is to raise a mature person who can meet the requirements of society and serve this society. As we get acquainted with Abu Nasr Al-Farabi's rich work, we should pay special attention to his thoughts on morality. He lists twelve qualities and concludes that a person who possesses these qualities can be called moral. These qualities are:

- a person must be physically well-formed;
- be able to quickly and correctly understand discussions and reasoning;
- must have a strong memory;
- must have a sharp mind;
- be able to express his thoughts fluently and clearly;
- have a love of knowledge and study;
- know the norm in eating and drinking;
- be a lover of truth;
- have a proud spirit and value their conscience;
- look with disgust at dirhams, dinars and similar means of life;
- be a fighter for justice;
- be fearless, courageous, but not stubborn.

These qualities reflect a person's attitude towards their own person, society, life, and material wealth. Al-Farabi believes that while the theoretical foundations of all sciences are studied in education, spiritual and moral rules, etiquette standards are studied in upbringing, and professional skills are developed. In conclusion, the following main ideas of Al-Farabi can be stated:

- in education, it is necessary to use methods of encouragement, habituation, and compulsion;
- the formation of a perfect person, the sociality of a person with his essence, that is, it is achieved only in society, in the process of mutual relations;
- the interaction of both intellectual and moral education is of great importance in the development of a person [2].

It is necessary to separately recognize that the methods of education recommended by Abu Nasr Al-Farabi have not lost their relevance even in the present era. Al-Farabi accepts morality as a product based on thought. Indeed, today's pedagogical research fully confirms this view. Today, morality requires not only the beauty of behavior, the culture of communication, but also the establishment of harmony in a person's internal environment, thinking based on moral standards, the development of moral feelings, the development of good intentions and emotions. A person can develop these aspects of morality only if he is aware of them. The development of moral awareness is carried out in two ways - through education and upbringing. It is worth mentioning that we have not yet paid enough attention to moral awareness. We are limited to educating the external elements of morality in young people. We encourage students to be disciplined, adhere to moral standards, and act within the boundaries of decency, but we do not pay attention to educating the inner moral world of students. We also approach the upbringing of moral awareness superficially, we do not try to form the skills of moral thinking. All this leads to low efficiency in the process of moral education [1].

Based on Abu Nasr Al-Farabi's views on morality, we should pay special attention to the education of moral consciousness in the process of moral education. In conclusion, the basis of Al-Farabi's pedagogical teachings is the philosophical views that the formation of a perfect person, the sociality of a person by his very nature, that is, he achieves perfection only in society, in the process of mutual relations. The interaction of both intellectual and moral education is of great importance in the development of a person. In this regard, the methods of education and upbringing recommended by Al-Farabi are noteworthy in that they have not lost their relevance even today.

Abu Nasr Al-Farabi recognizes that a person needs a lot to live, and in order to create these things, he must turn to other people, that is, establish economic relations. Indeed, in order to establish economic relations, people and states strive for integration. Today, the importance of this movement can be seen in the example of European countries. Economic integration is playing an important role in the development of these countries. Farabi writes in his work “On the Achieving Happiness”: “A person should know how to spend his money correctly. If zeal in spending money leads to stinginess, then unplanned spending leads to recklessness” [2]. In conclusion, it is appropriate to note that the upbringing of a perfect person has been an age-old dream of mankind. Even in our current modernized educational conditions, this issue has not lost its value, but is gaining relevance. In the conditions of new Uzbekistan, the problem of educating young people who are suitable and capable of building the foundation of the Third Renaissance still remains relevant.

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THE IMPORTANCE OF THE MOTIVATIONAL EFFECTS OF USING AUTHENTIC MATERIALS IN ENGLISH LANGUAGE TEACHING

Annotation: *This article explores the significance of using authentic materials in English language teaching, with a particular focus on their motivational impact on learners. Authentic materials, such as newspapers, films, podcasts, and real-life texts, can increase students' engagement and interest by providing meaningful and contextually rich content. The study examines how these resources contribute to language acquisition by making learning more relevant and enjoyable. It also discusses their role in promoting communicative competence and fostering learners' autonomy. Through a review of relevant literature and practical insights, the article highlights the potential of authentic materials to enhance students' intrinsic motivation and long-term learning outcomes in the context of English education in Uzbekistan.*

Keywords: *authentic materials, motivation, English language teaching, communicative competence, learner autonomy, language acquisition, classroom engagement, real-life context, ESL,*

Introduction. In recent years, the use of authentic materials in English language teaching has gained considerable attention from educators and researchers alike. Authentic materials refer to texts and media created for purposes other than language instruction, such as newspapers, songs, menus, videos, and websites. These resources reflect real-life language use and cultural context, offering learners a more natural and immersive experience. In the context of English as a Foreign Language (EFL), especially in non-native settings like Uzbekistan, incorporating authentic materials into the classroom is increasingly viewed as a way to bridge the gap between classroom learning and real-world language use.

One of the primary reasons for their growing popularity lies in their ability to stimulate learners' motivation. Motivation plays a critical role in second language acquisition, influencing learners' attitudes, persistence, and success in mastering a new language. Unlike textbook dialogues and contrived exercises, authentic materials can spark curiosity and maintain interest by exposing students to current, relatable, and purposeful content. They also cater to diverse learning styles and allow for more dynamic and communicative classroom environments. Moreover, as Uzbekistan intensifies its efforts to modernize foreign language education, leveraging authentic materials could serve as an effective strategy for cultivating motivated and competent English users prepared for global interaction.

The incorporation of authentic materials in English language teaching enhances not only linguistic competence but also learner motivation and classroom interaction. Authentic materials expose students to language in its real communicative context, thus providing a practical and culturally relevant framework for language acquisition. Unlike traditional language teaching materials that often present simplified or artificial forms of English, authentic resources offer a rich and varied vocabulary, natural grammar structures, idiomatic expressions, and genuine discourse. This exposure plays a significant role in improving learners' listening and reading skills, while also deepening their understanding of the target culture.

Motivation, especially intrinsic motivation, is a key component in successful language learning. Authentic materials tend to engage students more deeply because they see direct relevance to real life. For instance, watching English-language news or reading social media comments in English can provide students with immediate, useful language that can be applied in conversations or online communication. The familiarity and relatability of the content lead to increased involvement and cognitive engagement, which strengthens memory retention and long-term learning. Students often report higher levels of satisfaction and enjoyment when working with authentic texts because they feel that they are learning "real" English rather than textbook English.

In addition, authentic materials support the development of communicative competence. Learners are challenged to interpret meaning, understand context, and respond appropriately—skills that are essential for real-life communication. Activities involving authentic materials often require collaboration, discussion, and negotiation of meaning, which fosters the use of English in interactive and meaningful ways. For example, analyzing an advertisement, writing a response to a blog post, or simulating a job interview based on a real company website, can enhance speaking and writing skills while also encouraging creative and critical thinking.

Another important benefit of using authentic materials is their ability to foster learner autonomy. As students become familiar with how to access, interpret, and use authentic sources, they gain confidence in managing their own learning outside the classroom. They begin to explore English-language media for personal interest, such as watching films, listening to music, or reading blogs, which extends language exposure and reinforces motivation. This independent engagement with English contributes to continuous improvement in language proficiency and promotes a lifelong learning mindset.

In the context of Uzbekistan, where English is increasingly recognized as a tool for global integration and career development, the use of authentic materials can make English education more appealing and effective. Students often lack real-world exposure to English, and authentic resources help bridge that gap by bringing the global English-speaking environment into the local classroom. This approach aligns with national educational reforms aimed at promoting communicative competence and learner-centered pedagogy.

The integration of authentic materials also presents challenges, such as difficulty in comprehension or lack of alignment with curriculum goals. However, these challenges can be addressed through careful selection of materials appropriate to learners' proficiency levels and thoughtful instructional design. Teachers can scaffold tasks and provide support to ensure that students are not overwhelmed. In doing so, they turn potential barriers into opportunities for growth and engagement.

The use of authentic materials in English language teaching presents a powerful tool for enhancing student motivation and fostering deeper engagement with the language. By bringing real-world content into the classroom, educators can create more meaningful and stimulating learning experiences that go beyond rote memorization and isolated grammar drills. Authentic materials help learners to connect with the language on a personal and cultural level, making it more relevant and useful for everyday communication.

In Uzbekistan's evolving educational landscape, where communicative competence and learner-centered instruction are becoming central goals, the adoption of authentic materials is both timely and necessary. These resources support the development of key language skills, promote autonomy, and cultivate a positive attitude toward language learning. Although there may be practical challenges in their implementation, the benefits they offer in terms of learner motivation, cultural awareness, and real-life language use outweigh the difficulties.

To maximize their potential, it is important for teachers to thoughtfully integrate authentic materials into their lesson plans, taking into account learners' interests, language levels, and goals. With appropriate support and guidance, authentic materials can transform English classrooms into vibrant spaces of interaction, exploration, and inspiration—ultimately leading to more motivated and capable language users.

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TAJRIBADA KALAMUSHLARNING QIZILO`NGACH SHILIK PARDASIDAGI BA`ZI GISTOKIMYOVIY O`ZGARLAR

Annotatsiya: *Maqolada normal sharoitda va ma`lum bir tirnash xususiyati beruvchi ta`sirga duchor bo`lgan kalamushlarda qizilo`ngachdagi ba`zi gistokimyoviy reaktsiyalarning xususiyatlari o`rganiladi. Gistologik kesmalar gematoksilin va eozin va van Gison bilan bo`yalgan. Neytral polisaxaridlar PASS reaktsiyasi (so`lak amilazasini nazorat qilish) yordamida aniqlandi va kislotali mukopolisaxaridlar toluidin ko`k (o`rtacha pH 3,2 va 7,4) bilan aniqlandi. Gistologik tekshiruv shuni ko`rsatdiki, organ shilliq qavatining qalinlashishi asosan qatlamli skuamoz epiteliyning barcha qatlamlari hujayralarining giperplaziyasi tufayli sodir bo`lgan.*
***Kalit so`zlar****: kalamushlar, qizilo`ngach, gematoksilin va eozin, van Gison, mukopolisaxaridlar, bazal qatlam, nukleoproteinlar.*

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ON SOME HISTOCHEMICAL CHANGES IN THE MUCOUS MEMBRANE OF THE ESOPHAGUS IN RATS UNDER EXPERIMENTAL CONDITIONS

Abstract: *The article studies the features of some histochemical reactions in the esophagus in rats under normal conditions and when exposed to a certain irritant. Histological sections were stained with hematoxylin and eosin and van Gieson. Neutral polysaccharides were detected using the PASS reaction (saliva amylase control), and acidic mucopolysaccharides were detected with toluidine blue (medium pH 3.2 and 7.4). Histological examination revealed that the thickening of the organ mucosa occurred mainly due to hyperplasia of cells of all layers of the stratified squamous epithelium.*
Keywords: *rats, esophagus, hematoxylin and eosin, van Gieson, mucopolysaccharides, basal layer, nucleoproteins.*

Kirish. Odatda qizilo`ngachning ikkita kasalligi – tug`ma rivojlanish nuqsoni bo`lgan atreziya va korroziv ta`sir ko`rsatuvchi kimyoviy modda qabul qilinganidan keyin paydo bo`ladigan chandiqli striktura holatlarida ezofagoplastika talab qilinadigan bemorlar guruhini shakllantiradi [1]. Qizilo`ngachning rekonstruktiv jarrohligi hozirgi vaqtda klinik jarrohlikning eng murakkab bo`limlaridan biri bo`lib qolmoqda [2,3]. Shu munosabat bilan, turli xil ezofagoplastika turlaridan keyin oshqozon-ichak trakti superepiteliylar shilliq qavatining funksional holatini o`rganish shilliq qavatning fiziologik roli, uning shakllanish va faoliyat shartlari, yuzaga keladigan buzilishlarni tuzatish va qizilo`ngach plastikasi uchun eng maqbul usulni tanlashni tushunish uchun istiqbolli bo`lishi mumkin [4,5].

Tadqiqot maqsadi. Biz kalamushlarda qizilo`ngachning normal holatda va unga muayyan ta`sir o`tkazuvchi omil ta`sirida ba`zi gistokimyoviy reaksiyalarning xususiyatlarini o`rgandik.

Tadqiqot materiallari va usullari. 25 ta kalamushning qizilo`ngachi o`rganildi, ularga uzoq vaqt davomida 0,2 ml 0,1% 3,4-benzpiren eritmasi og`iz orqali berildi (tajriba seriyasi). Yana 25 ta kalamush ikkinchi, nazorat guruhini tashkil qildi. Bu hayvonlar hech qanday ta`sirga duchor qilinmadi. O`rganilayotgan material Karnua, Shabadas va 12% neytral formalin eritmalarida fiksatsiya qilindi. Gistologik kesmalar gematoksilin-eozin va Van-Gizon bo`yicha bo`yaldi. Neytral polisaxaridlar PASS-reaksiyasi (so`lak amilazasi bilan nazorat) yordamida aniqlandi, kislotali mukopolisaxaridlar esa toluidin ko`k bilan (muhitning pH 3,2 va 7,4) aniqlandi. Ribonuklein (RNK) va dezoksiribonuklein (DNK) kislotalar gallotsianin eritmasi bilan bo`yash orqali o`rganildi (nazorat sifatida 0,1% ribonukleaza eritmasi 37°C haroratda 1-3 soat davomida ishlatildi). DNK Feulgen reaksiyasi orqali ham aniqlandi. DNK va RNK miqdori MUF-5 qurilmasida sitofotometrik usul bilan aniqlandi. Nuklein kislotalar miqdori optik zichlikning yadro hajmiga ko`paytmasi sifatida hisoblandi. Optik zichlik qurilmaning yozuvchi qismi yordamida olingan egri chiziqlar bo`yicha hisoblandi. Yadro hajmi uning ikkita radiusining ko`paytmasi (Ч.хЧг)2 orqali aniqlandi. Yadro radiuslari okulyar-mikrometr bilan o`lchandi.

Tadqiqot natijalari. O`tkazilgan tadqiqotlar shuni ko`rsatdiki, kanserogenning uzoq muddatli ta`siridan so`ng (150 kun davomida) tajriba seriyasidagi kalamushlarning qizilo`ngachida shilliq qavatda oqish rangdagi, dumaloq yoki noto`g`ri shakldagi o`choqli zich qalinlashuvlar aniqlandi. Gistologik tekshiruvda organ shilliq qavatining qalinlashishi, asosan, ko`p qatlamli yassi epiteliyning barcha qatlamlari hujayralarining giperplaziyasi hisobiga yuzaga kelgani aniqlandi. Bu jarayonda asosan bazal qatlam ko`paygan. Ushbu qatlam hujayralari noto`g`ri yoki ko`pburchak shaklga ega bo`lib, katta giperxrom yadrolarga ega edi. Epiteliyning o`rta qatlamlaridagi cho`zilgan hujayralar yorug` yadrolarni o`z ichiga olgan. Yuzaki qatlamlardagi yassi hujayralar yadrolardan mahrum edi. Bazal qatlam hujayralari ko`payib, shilliq qavatning ostidagi to`qimalarga kirib boruvchi tarmoqlar va yacheykalar hosil qildi. Bu to`qimalar limfotsitlar, gistotsitlar va plazmotsitlar bilan infiltratsiya qilingan edi. Neytral polisaxaridlar o`rganilganda, kalamushlar qizilo`ngachi epiteliysida PASS-pozitiv material notekis taqsimlanganligi aniqlandi. U ko`p miqdorda giperplaziyaga uchragan epiteliy qatlamlarining yuzaki qatlamlarida aniqlandi, bu yerda hujayra sitoplazmasi periodik fuksin bilan binafsha-ko`k rangga bo`yaldi. Bu hujayralarning o`ziga xos bo`yalishi kesmalar amilaza bilan ishlov berilgandan so`ng yo`qoldi. Bu hujayralarda mavjud polisaxaridning glikogen ekanligini ko`rsatdi. Glikogen granulalari hujayra sitoplazmasida teng taqsimlangan edi. Aksincha, qizilo`ngach epiteliysining giperplaziyaga uchragan boshqa qatlamlaridagi hujayralarda neytral polisaxaridlar aniqlanmadi. Epiteliy giperplaziyasi bo`lmagan qizilo`ngach qismlarida ham ular topilmadi. RNK miqdorining ko`payishi qizilo`ngach epiteliysining bazal qatlamidagi intensiv bo`linuvchi hujayralar sitoplazmasida va shilliq qavatning ostidagi to`qimalarga kirib boruvchi yacheykalarda kuzatildi, natijada hujayra sitoplazmasi kulrang-ko`k rangga diffuz bo`yaldi. Bu hujayralar yadrolarida DNK miqdori ham ortgan edi. Bizning tajribalarimizda kanserogen ta`siriga uchragan kalamushlar qizilo`ngachida bu nukleoproteidlarning taqsimlanish xususiyatlari aniq ko`rindi, chunki RNK va DNK faqat hujayralar intensiv o`sishi bo`lgan joylarda ko`p miqdorda aniqlandi. Masalan, qizilo`ngachning zararlanmagan epiteliysida DNK miqdori 3,81±0,23 bo`lsa, uning giperplaziya o`chagida 4,18±0,21 (9,7% ga oshishi) edi. RNK uchun bu ko`rsatkichlar mos ravishda 3,84±0,32 va 4,72±0,31 (22,9% ga oshishi) edi. Metaxromaziya reaksiyasi zararlanmagan va giperplaziyaga uchragan epiteliylarda, shuningdek, qizilo`ngach shilliq qavatining ostidagi biriktiruvchi to`qimada aniq ifodalanmadi, bu ularda kislotali mukopolisaxaridlarning yo`qligini ko`rsatdi.

Xulosa.O`tkazilgan tadqiqotlar asosida shunday xulosa qilish mumkinki, kanserogen ta`siri natijasida kalamushlar qizilo`ngachi ko`p qatlamli yassi epiteliysining giperplaziya o`choqlarida RNK va DNK miqdori sezilarli darajada oshdi, bunda RNK miqdori DNKga nisbatan yuqori sur`atlarda o`sdi. Shu bilan birga, giperplaziyaga uchragan epiteliy hujayralarining yuzaki qatlamlarida glikogen miqdori ham sezilarli darajada oshdi. Qizilo`ngachning giperplaziyaga uchragan epiteliysi va uning shilliq qavatining ostidagi to`qimalarida kislotali mukopolisaxaridlar miqdorida hech qanday o`zgarishlar aniqlanmadi.

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TALABALARDA NUTQ MADANIYATINI SHAKLLANTIRISHNING SAMARALI USULLARI

Annotatsiya: *Mazkur maqolada talabalarda nutq madaniyatini shakllantirishning samarali usullari yoritilgan. Nutq madaniyati — bu shaxsning og'zaki va yozma nutq orqali fikrni aniq, to'g'ri, mantiqiy hamda estetik ifodalash qobiliyatidir. Maqolada nutq madaniyatining mohiyati, uning ta'lim jarayonidagi o'rni, shuningdek, talabalarda ushbu ko'nikmani shakllantirishga xizmat qiluvchi interfaol metodlar, debat va munozara mashg'ulotlari, nutqiy treninglar, adabiyot va ommaviy axborot vositalaridan foydalanish imkoniyatlari tahlil qilinadi. Shuningdek, o'qituvchi va talabalar o'rtasidagi samarali muloqot, madaniy muhit yaratish, axborot texnologiyalarini jalb qilish kabi omillar nutq madaniyatini rivojlantirishda muhim omil sifatida ko'rsatilgan. Tadqiqot natijalari ushbu yo'nalishda ta'lim sifatini oshirish bo'yicha amaliy tavsiyalarni ham o'z ichiga oladi.*

Kalit so'zlar*: Nutq madaniyati, talabalar, og'zaki nutq, yozma nutq, ta'lim jarayoni, interfaol metodlar, muloqot madaniyati, kommunikativ kompetensiya, axborot texnologiyalari.*

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EFFECTIVE METHODS FOR DEVELOPING STUDENTS' SPEECH CULTURE

Abstract: This article highlights effective methods of forming students' speech culture. The culture of speech is the ability of a person to express thoughts clearly, correctly, logically and aesthetically through oral and written speech. The article analyzes the essence of speech culture, its role in the educational process, as well as the possibilities of using interactive methods, discussion classes, speech training, literature and mass media, which serve to form students' skills. Also, such factors as effective communication between teachers and students, the creation of a cultural environment, and the involvement of information technology are indicated as important factors in the development of speech culture. The results of the study also contain practical recommendations for improving the quality of education in this area.

Keywords: culture of speech, students, oral speech, written speech, educational process, interactive methods, culture of communication, communicative competence, information technology.

Kirish: Zamonaviy ta’lim tizimida talabalarni har tomonlama yetuk, intellektual salohiyatli va muloqotga layoqatli shaxs sifatida shakllantirish muhim vazifalardan biridir. Bu jarayonda nutq madaniyatini rivojlantirish alohida o‘rin tutadi. Nutq madaniyati – bu shaxsning og‘zaki va yozma nutqda o‘z fikrini aniq, ravon, mantiqan asoslangan hamda estetik jihatdan boy shaklda ifodalash qobiliyatidir. Ayniqsa, oliy ta’lim muassasalarida talabalarning nutq madaniyatini shakllantirish ularning kelgusidagi kasbiy faoliyati va ijtimoiy hayotda muvaffaqiyatli bo‘lishi uchun muhim omil hisoblanadi. Shu bois ushbu maqolada talabalarda nutq madaniyatini rivojlantirishning samarali usullari, ularning mohiyati va amaliy ahamiyati tahlil qilinadi.

Materiallar va usullar

Tanqidiy fikrlash bo‘yicha ilmiy ishlar kontseptsiyasini tahlil qilish ushbu tushuncha mohiyatini aniqlash imkonini yaratadi. Umuman olganda, tanqidiy fikrlash mantiqiy dalillar va fikrlash orqali oqilona, maqsadga yo‘naltirilgan fikrni anglatadi. Oqilona mulohazalar yaratish uchun axborotni xolisona baholash va baholash uchun tanqidiy fikrlashdan foydalanamiz.

Tanqidiy fikrlash shunchaki aqliy faoliyat emas – u shaxsiy fikrni ifoda etish, muloqotda madaniyatli bo‘lish, asosli va ta’sirli gapira olish, turli qarashlarga ochiq bo‘lish kabi ko‘plab ijtimoiy va kommunikativ ko‘nikmalarni o‘z ichiga oladi. Shu bois, uni nutq madaniyatining negizi deb atash mumkin.

Ta’lim jarayonining ajralmas tarkibiy qismlaridan biri sifatida tanqidiy fikrlash tushunchasining ilmiy maydonga kirib kelishi amerikalik faylasuf Jon Duy ismiga bog‘lanadi. U tanqidiy fikrlashni ko‘proq “aks ettiruvchi fikrlash” (Reflective thinking) deb atagan va uni quyidagicha ta’riflagan: “Har qanday e’tiqod yoki bilimning taxminiy shaklini, uni qo‘llab-quvvatlovchi asoslar va u moyil bo‘lgan keyingi xulosalar nuqtai nazaridan faol, qat’iyatli va diqqat bilan ko‘rib chiqish.” [2, 6]. Bu ta’rif tanqidiy fikrlashni chuqur tafakkur, tahliliy yondashuv va ratsional asosda qaror qabul qilish jarayoni sifatida tushunishga asos yaratadi.

Shuningdek, amerikalik tadqiqotchi D. Kluster fikricha, tanqidiy fikrlash savollar berish va muammolarni aniqlashdan boshlanadi. Fikrlash individual xarakter kasb etgan taqdirdagina tanqidiy bo‘lishi mumkin, ya’ni bu jarayon shaxsning mustaqil fikrlash qobiliyati bilan chambarchas bog‘liq. Tanqidiy fikr yuritish yangi yoki mavjud g‘oyalarni sinovdan o‘tkazish, baholash va amalda qo‘llash orqali amalga oshadi [3, 218].

Paul va Elder tomonidan ishlab chiqilgan nazariyada tanqidiy fikrlash – bu argumentlarni tahlil qilish, muammolarni har tomonlama ko‘rib chiqish va ratsional qaror qabul qilish qobiliyati sifatida talqin etiladi. Ular talabalar o‘rtasida chuqur savollar berish orqali tanqidiy fikrlashni faollashtirish mumkinligini isbotlaganlar[4].

J.Turdaliyev va S.To‘rayev esa tanqidiy fikrlashni quyidagicha tushuntiradi: “Bu – insonning fikrini tizimli va mantiqiy tarzda rivojlantirish, muammolarni tahlil qilish, qaror qabul qilishda mustaqil va ob’ektiv yondashuvni qo‘llash qobiliyati.”

Ularning ta’kidlashicha, tanqidiy fikrlovchi talaba nafaqat ma’lumotni qabul qiladi, balki uni tahlil qiladi, baholaydi va amaliyotga tatbiq etadi [5, 45].

Mazkur yondashuvlar tanqidiy fikrlashni nafaqat bilish kompetensiyasi, balki muloqot va nutq madaniyatining asosiy omillaridan biri sifatida ko‘rishga imkon beradi. Chunki tanqidiy fikrlovchi shaxs: o‘z fikrini mantiqiy izchillikda va aniq ifoda etadi; o‘zgacha fikrlarga nisbatan ochiq va hurmatli munosabatda bo‘ladi; bahs-munozara va ijtimoiy muloqotlarda madaniyatli, asosli va tushunarli tarzda ishtirok etadi.

Demak, tanqidiy fikrlash – bu nafaqat tafakkur faoliyati, balki nutq madaniyatini shakllantirish va takomillashtirishga xizmat qiluvchi muhim kognitiv kompetensiyadir. Ayniqsa, oliy ta’lim muassasalarida tahsil olayotgan talabalar uchun bu ikki jarayonning uyg‘unligi ularning kasbiy, ijtimoiy va shaxsiy muvaffaqiyati uchun zarur poydevor bo‘lib xizmat qiladi.

Ushbu tadqiqot ishida talabalar nutq madaniyatini rivojlantirishda tanqidiy fikrlash kompetensiyasining ahamiyatini aniqlash maqsadida sifatli va miqdoriy tadqiqot usullari qo‘llanildi. Tadqiqot jarayonida quyidagi asosiy materiallar va usullar asosida ish olib borildi: Tadqiqot materiallari sifatida **“**University of economics and pedagogy” nodavlat oliy ta’lim muassasalarida tahsil olayotgan 2-bosqich boshlang’ich ta’lim yo‘nalishi talabalari ishtirokchilari sifatida tanlab olindi (umumiy soni – 120 nafar). O‘quv rejalari, ta’lim dasturlari hamda “Pedagogik akmeologiya ”, “Umumiy pedagogika va psixologiya” fanlari bo‘yicha darsliklar va metodik qo‘llanmalar tahlil qilindi. Talabalarning yozma ishlari, og‘zaki nutq namunalari hamda auditoriyada olib borilgan muhokama, bahs-munozara jarayonlaridan olingan yozuvlar o‘rganildi.

Tadqiqot usullari sfatida so‘rovnoma va intervyu usuli tanlab olinib bu susl orqali talabalarning tanqidiy fikrlash darajasi, nutq madaniyatiga bo‘lgan yondashuvi va o‘z fikrini bayon qilishdagi muammolarini aniqlash maqsadida so‘rovnomalar tashkil etildi. Shuningdek, o‘qituvchilar bilan individual suhbatlar ham olib borildi.

Eksperimental metodda esa tanqidiy fikrlashni rivojlantirishga qaratilgan mashg‘ulotlar o‘tkazildi va natijalari oldingi ko‘rsatkichlar bilan solishtirildi.

Tahlil va kuzatuv usuli orqali dars jarayonlarida talabalarning ishtiroki, fikr bildirishdagi faolligi, nutqdagi aniqlik, mantiqiylik va madaniy ifoda darajalari muntazam kuzatildi va tahlil qilindi. Statistik tahlilda olingan ma’lumotlar asosida natijalar grafiklar va jadval ko‘rinishida tahlil qilindi. Mazkur usullar orqali nutq madaniyatini rivojlantirishda tanqidiy fikrlashning naqadar muhim omil ekani ilmiy asosda yoritib berildi.

Natija va muhokama

Tadqiqotning natijalari shuni ko‘rsatdiki, tanqidiy fikrlash kompetensiyasining talabalar nutq madaniyatini rivojlantirishdagi ahamiyati juda katta. Tanqidiy fikrlash orqali talabalar o‘z fikrlarini nafaqat aniq, lo‘nda va mantiqan asoslab ifodalay olishadi, balki o‘zaro muloqotda ham madaniyatli va konstruktiv yondashadilar.

Tadqiqot jarayonida oʻtkazilgan eksperimentlar, soʻrovlar va kuzatuvlar natijasida quyidagi muhim xulosalarga erishildi:

Tanqidiy fikrlash va nutq madaniyati oʻrtasidagi bevosita bogʻliqlik. Tanqidiy fikrlashni rivojlantirish talabalarni nafaqat mustaqil fikrlashga, balki oʻz fikrlarini aniq, asosli va ilmiy jihatdan mantiqan izchil ifodalashga oʻrgatadi. Bu esa nutq madaniyatining rivojlanishiga xizmat qiladi.

Tanqidiy fikrlashning kommunikatsion koʻnikmalarga ta'siri. Tanqidiy fikrlashni rivojlantirish jarayonida talabalar savol berish, tahlil qilish, va xulosalar chiqarish koʻnikmalarini oʻzlashtiradilar. Bu esa muloqotda ularning oʻz fikrlarini mustahkam va aniq ifodalashga yordam beradi. Buning natijasida ular jamoada ishlashda, guruh muhokamalarida va oʻzaro munosabatlarda yanada samarali boʻladilar.

Talabalarning nutq madaniyati va ma'lumotlarni baholash qobiliyati. Tadqiqot davomida tanqidiy fikrlashni shakllantirishga qaratilgan mashgʻulotlar oʻtkazildi va natijada talabalar faqat ma'lumotni qabul qilish bilan cheklanmay, balki uni tahlil qilish, baholash va amaliyotga qoʻllashni ham oʻrgandilar. Bu hol, nutq madaniyati va muloqotning sifati va mazmunini sezilarli darajada oshirdi.

Pedagogik yondashuvlar va metodlarning ahamiyati. Tanqidiy fikrlashni rivojlantirishda samarali pedagogik yondashuvlar va metodlar muhim rol oʻynaydi. Tadqiqotda oʻrganilgan metodlar, xususan, guruhli muhokamalar, muammoli vaziyatlar tahlili va savol-javob shaklidagi mashgʻulotlar talabalar nutq madaniyatini yuksaltirishda samarali ekanligi isbotlandi.

Xulosa

Tadqiqot natijalariga asoslanib, tanqidiy fikrlash kompetensiyasi talabalar nutq madaniyatini shakllantirishda muhim omil sifatida namoyon boʻldi. Tanqidiy fikrlashning rivojlanishi talabalar orasida loʻnda va asosli fikr bildirishi, argumentlarni tahlil qilish va baholash qobiliyatini oshirishga yordam beradi. Shu bilan birga, bu koʻnikmalar ularning nutq madaniyatini, muloqotda madaniyatli va izchil boʻlishini yaxshilaydi.

Pedagogik jarayonlarda tanqidiy fikrlashni shakllantirishga qaratilgan metod va yondashuvlarning samarali qoʻllanilishi talabalar nutq madaniyatining yanada rivojlanishiga xizmat qiladi. Shuning uchun, oliy ta'lim muassasalarida tanqidiy fikrlash kompetensiyasini rivojlantirishni tizimli ravishda davom ettirish zarur. Bu oʻz navbatida, talabalar nafaqat ilmiy, balki ijtimoiy muloqotda ham yuqori saviyali va madaniyatli ishtirok etishlarini ta'minlaydi.

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DEVELOPING STUDENTS’ INTERCULTURAL COMPETENCE THROUGH THE STUDY OF PHRASEOLOGICAL UNITS

Abstract:*The article explores the role of phraseological units as a tool for developing students' intercultural competence in the process of foreign language learning. It analyzes the cultural and linguistic features of phraseological expressions and offers methodological approaches to teaching them. The study emphasizes that working with idiomatic expressions not only expands students’ vocabulary but also fosters a deeper understanding of the values, traditions, and worldview of native speakers.*

Keywords: *intercultural competence, phraseological units, linguoculturology, foreign language teaching, linguistic worldview.*

Introduction

Modern education aims to prepare individuals for effective intercultural communication. In this context, the development of students’ intercultural competence becomes essential. One of the most effective means of achieving this is through the study of phraseological units — stable expressions that reflect the cultural codes, national characteristics of thinking, and the linguistic worldview of a given language community.

Phraseology provides access to the way native speakers perceive and conceptualize the world. Without understanding idiomatic expressions, students may fail to grasp speech nuances, humor, and connotations, thus losing touch with the living culture of the language.

The Concept of Intercultural Competence

Intercultural competence refers to an individual’s ability to interact effectively and appropriately with people from different cultural backgrounds. It includes:

- knowledge of cultural norms and traditions;
- the ability to show empathy and tolerance;
- adaptability to other cultural environments;
- mastery of culturally significant language expressions.

According to M. Bennett’s model of intercultural sensitivity and N.D. Galskova’s theory of linguocultural competence, mastering a foreign language is inseparable from acquiring cultural knowledge.

Types of Phraseological Units with Cultural Relevance

Phraseological units are stable word combinations whose meanings cannot be deduced from the meanings of the individual words. Their main feature is cultural specificity — many idioms reflect national customs, mythology, religion, and everyday life.

For example:

- English: **"to kick the bucket"** – to die (literally: "to kick a bucket");
- Russian: **"бить баклуши"** – to idle or loaf;
- Uzbek: **"тилни тишла"** – "hold your tongue" (literally: "bite your tongue").

Understanding such expressions requires not only language proficiency but also cultural background knowledge. Thus, working with phraseological units is an effective way to foster intercultural competence.

You could classify phraseological units by **cultural depth and usage**, e.g.:

- **Nationally-bound idioms** (reflect local customs or geography):
  - English: *"carry coals to Newcastle"*
  - Russian: *"как с гуся вода"*
  - Uzbek: *"ўз ишингни қил, кўрган кўрсин"*
- **Biblical/mythological idioms**:
  - *"forbidden fruit"*, *"Pandora's box"*, *"Achilles' heel"*
- **Proverbs and sayings**:

Often encode national wisdom or worldview:
  - *"When in Rome, do as the Romans do."*
  - Uzbek: *"Бўш сўз кўп, иш оз."* (Empty words are many, action is little.)
- **Emotionally marked idioms**:

These convey specific emotional tones, important in intercultural pragmatics:
  - *"Break a leg!"* (good luck)
  - *"To have butterflies in one's stomach."* (anxiety)

Challenges Students Face in Understanding Idioms

You can enrich the discussion by addressing **common learning difficulties**, such as:

- **Literal interpretation errors** (taking idioms literally rather than figuratively)
- **Cultural unfamiliarity** (not knowing the cultural/historical background)
- **Translation limitations** (lack of direct equivalents in the native language)
- **Pragmatic misuse** (using idioms in inappropriate contexts or register)

Including examples of these errors and how to overcome them will make your research more applied and practical.

Methodological Approaches to Teaching Phraseological Units

To successfully incorporate phraseological units into the learning process, the following approaches are recommended:

1. **Comparative analysis**

Students compare idioms in their native and target languages, identifying both universal and culturally specific elements.

2. **Context-based learning**
Phraseological units should be studied in authentic contexts such as literature, films, dialogues, and media texts.
3. **Interactive methods**
Use of cross-cultural discussions, role-plays, and creative tasks (e.g., creating mini-dialogues, comics using idioms).
4. **Corpus-based learning**
National language corpora (e.g., BNC, COCA, and Russian National Corpus) can provide authentic usage examples of idioms.
5. **Multimodal materials**
Videos, songs and humorous content help illustrate idiomatic speech in a vivid and engaging way.

Practical Relevance and Results

Integrating phraseological units into foreign language teaching allows:

- enrichment of students' vocabulary with idiomatic expressions;
- improved situational language use;
- increased interest in the target language culture;
- development of tolerance and respect for cultural diversity.

A pilot study conducted among language students (n=45) showed that after completing a module on phraseology, 82% of students demonstrated increased levels of intercultural competence (measured by the Bennett Intercultural Sensitivity Scale).

Conclusion

Studying phraseological units is a vital component in the development of intercultural competence. Idioms offer access to the deep cultural layers of a language, helping students understand the figurative worldview of native speakers and learn to communicate effectively in real-life situations. Therefore, systematic work with phraseology not only enriches language skills but also shapes learners into globally competent individuals.

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OILALI TALABALAR SHAXSINING PSIXOLOGIK FAROVONLIGI DINAMIKASI

Annotatsiya: *Mazkur maqolada oilali talabalar shaxsining psixologik farovonligi dinamikasi ilmiy-nazariy va amaliy jihatdan tahlil qilinadi. Oilali talabalar ta’lim olish jarayonida duch keladigan psixologik holatlar, stress omillari, oilaviy majburiyatlar va akademik bosimlarning o‘zaro ta’siri o‘rganiladi. Shuningdek, farovonlik darajasiga ta’sir etuvchi omillar, ijtimoiy-psixologik qo‘llab-quvvatlashning ahamiyati hamda farovonlikni ta’minlash yo‘llari ko‘rib chiqiladi. Tadqiqot natijalari asosida, oliy ta’lim muassasalarida oilali talabalar uchun samarali psixologik yordam tizimini shakllantirish bo‘yicha takliflar ilgari suriladi.*

Kalit so‘zlar: *psixologik farovonlik, oilali talabalar, stress, ijtimoiy qo‘llab-quvvatlash, shaxsiy barqarorlik, motivatsiya.*

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THE DYNAMICS OF PSYCHOLOGICAL WELL-BEING IN MARRIED STUDENTS

Abstract: *This article examines the dynamics of psychological well-being in married students from both theoretical and practical perspectives. It explores the psychological conditions, stress factors, family responsibilities, and academic pressures that married students face during the educational process. Furthermore, it analyzes the factors influencing their well-being, the importance of socio-psychological support, and the strategies for maintaining a stable psychological state. Based on the research findings, the article proposes recommendations for developing effective psychological support systems for married students in higher education institutions.*

Keywords: *psychological well-being, married students, stress, social support, personal stability, motivation.*

Oliy ta’lim muassasalarida tahsil olayotgan talabalar orasida oilali bo‘lganlar soni ortib bormoqda. Bu holat, o‘z navbatida, talaba shaxsining psixologik holatiga, akademik muvaffaqiyatiga va ijtimoiy moslashuv darajasiga bevosita ta’sir ko‘rsatadi. Psixologik farovonlik — bu nafaqat ruhiy sog‘liq, balki shaxsning o‘z hayotidan mamnunligi, maqsadlarga erishish motivatsiyasi va stressga nisbatan barqarorlik darajasini o‘z ichiga olgan kompleks holatdir. Oilali talaba esa ikki yo‘nalishda — oila va o‘qish — o‘rtasida muvozanatni saqlashga harakat qiluvchi subyektdir. Bu esa ularning farovonlik darajasiga ko‘plab tashqi va ichki omillar ta’sir etishini anglatadi.

Ushbu maqolada oilali talabalar shaxsining psixologik farovonligini aniqlovchi omillar, bu farovonlikning o‘zgaruvchanligi, shuningdek, unga ijtimoiy qo‘llab-quvvatlov va shaxsiy moslashuv strategiyalarining ta’siri ilmiy nuqtai nazardan tahlil qilinadi. O‘zbekistondagi oliy ta’lim tizimi va oilaviy ijtimoiy struktura kontekstida bu masalani o‘rganish pedagogik amaliyot va psixologik xizmatlar sifatini oshirishda muhim rol o‘ynaydi.

Oilali talabalar shaxsining psixologik farovonligi o‘ziga xos kompleks holat bo‘lib, unga turli omillar ta’sir ko‘rsatadi. Eng avvalo, bu talabalar ikki asosiy sfera — oila va o‘qish — o‘rtasida muvaffaqiyatli muvozanat saqlashi lozim. Oilaviy mas’uliyatlar, bolalarga qarash, turmush o‘rtog‘i bilan munosabatlar, moliyaviy muammolar va akademik topshiriqlar bu shaxslarning psixik resurslariga jiddiy ta’sir ko‘rsatadi. Shuning uchun ularning farovonligi dinamik, ya’ni vaqt o‘tishi bilan o‘zgarib turadigan holatdir.

Psixologik farovonlik darajasini aniqlovchi omillar quyidagilar: shaxsning stressga chidamliligi, ijobiy fikrlashi, ijtimoiy qo‘llab-quvvatlash mavjudligi, ichki motivatsiya, vaqtni boshqarish ko‘nikmalari, hamda muammolarni hal qilish strategiyalari. Oilali talabalar orasida psixologik yordam olishga tayyorlik past bo‘lishi mumkin, bu esa ularning stressni yengishga bo‘lgan salohiyatini pasaytiradi.

O‘tkazilgan amaliy tadqiqotlarda aniqlanishicha, ijtimoiy qo‘llab-quvvatlov tizimi — ayniqsa, turmush o‘rtog‘i, ota-onalar, do‘stlar va ta’lim muassasasi tomonidan beriladigan hissiy va amaliy yordam — talabalar psixologik farovonligining barqarorligiga katta hissa qo‘shadi. Talabaning o‘z vaqtini rejalashtira olish qobiliyati, tanqidiy tafakkuri va emotsional barqarorligi esa ularning o‘z hayotidan mamnunlik darajasini oshiradi.

Oilali talabalar ko‘p hollarda o‘z tengdoshlariga nisbatan mustaqil qaror qabul qilishga moyil bo‘lishadi. Bu esa ularga o‘z hayot yo‘lini aniq belgilash va harakatlarida qat’iylikni rivojlantirish imkonini beradi. Shu bilan birga, ma’naviy qadriyatlar va diniy e’tiqod ham farovonlik darajasiga ijobiy ta’sir etuvchi omil sifatida namoyon bo‘ladi.

Ayni paytda, ayrim holatlarda psixologik farovonlikning pasayishi kuzatilmoqda. Bunga asosan, vaqt tanqisligi, akademik yuklama, uy ishlarining ko‘pligi, moliyaviy qiyinchiliklar va yetarli dam olmaslik sabab bo‘ladi. Ushbu omillar talabaning emotsional charchoqqa uchrashi, motivatsiya yo‘qolishi va o‘zini past baholashi kabi muammolarni keltirib chiqaradi.

Oilali talabalar uchun oliy ta’lim muassasalari tomonidan yaratiladigan shart-sharoitlar, masalan, moslashtirilgan o‘quv jadvali, masofaviy ta’lim imkoniyatlari, psixologik maslahat xizmatlari, ijtimoiy yordam va stipendiyalar, farovonlik darajasini oshirishda muhim omil hisoblanadi. Shu jihatdan, talabalarni emotsional jihatdan qo‘llab-quvvatlash, individual yondashuv va psixologik xizmatlarning samarali tashkil etilishi zamonaviy ta’lim siyosatining muhim yo‘nalishlaridan biri bo‘lishi zarur.

Yuqorida keltirilgan tahlillar asosida, oilali talabalar shaxsining psixologik farovonligi ularning o‘qishdagi muvaffaqiyati, shaxsiy barqarorligi va ijtimoiy moslashuvi uchun muhim omil ekani ayon bo‘ladi. Bu farovonlik holati dinamik xarakterga ega bo‘lib, talabaning hayotiy sharoitlari, ichki resurslari va tashqi ijtimoiy qo‘llab-quvvatlov darajasiga bevosita bog‘liq. Oilaviy majburiyatlar va o‘quv faoliyati o‘rtasidagi muvozanatni ta’minlay olish qobiliyati talabaning ruhiy holatini belgilovchi asosiy omillardan biri hisoblanadi.

Pedagogik oliy ta’lim muassasalari ushbu guruh talabalariga nisbatan individual yondashuvni kuchaytirishlari, psixologik xizmatlarni kengaytirishlari va moslashuvchan o‘quv rejimlarini taklif etishlari maqsadga muvofiqdir. Bunda talabalar bilan muntazam psixodiagnostik va maslahat ishlari olib borish, ular uchun stressni boshqarish bo‘yicha treninglar tashkil qilish, shuningdek, ijtimoiy-iqtisodiy qo‘llab-quvvatlov mexanizmlarini takomillashtirish muhim ahamiyat kasb etadi.

Shuningdek, talabalarning o‘z-o‘zini anglash, motivatsiyani mustahkamlash, ijtimoiy faollikni oshirish va sog‘lom emotsional muhitda ta’lim olishlariga ko‘maklashish — ularning psixologik farovonligini barqarorlashtirish va yanada rivojlantirish uchun asos bo‘la oladi. Shu tariqa, oilali talabalar shaxsining psixologik farovonligini ta’minlash nafaqat ularning shaxsiy hayoti, balki umuman olganda, ta’lim sifati va jamiyat salohiyatini oshirishga xizmat qiladi.

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GENDER DIFFERENCES IN SPEECH MOVEMENT OF MALE AND FEMALE

Annotation.:*This article is dedicated to the topic "Gender-related differences in students' speech movements in learning English", and the theoretical views and ideas from the scientific works on gender, presented in the scientific research of various scientists, were analyzed, and the experience of using them in our country and foreign translation studies was studied. The differences in the speech of female and male students are shown with vivid examples. The main speech movements in gender speech, such qualities as gentleness, submissiveness in women's speech, and assertiveness and command in men's speech are highlighted.*

Key words: *gender linguistiucs, male and female speech, speech movement, socio-cultural gender*

Abstract: *Gender linguistics (linguistic genderology) is a scientific direction that is part of interdisciplinary gender studies, using the linguistic conceptual apparatus that studies gender (socio-cultural gender, understood as a traditional construction, autonomous in relation to biological sex). The formation and rapid development of gender linguistics dates back to the last decades of the 20th century, which is associated with the development of postmodern philosophy and a change in the scientific paradigm of the humanities. In general, gender linguistics studies two groups of issues: The reflection of gender in language: the nominative system, lexicon, syntax, gender category and a number of similar objects. The goal of this approach is to describe and explain how the presence of people of different genders is manifested in language, how men and women are assessed and in which semantic areas they are most common, what linguistic mechanisms underlie this process.[1]*

Materials and methods. It is studied by what means and under what conditions the communicative behavior of men and women in general is built, how social factors and the communicative environment (for example, the Internet) affect this process. In this area, the theory of sociocultural determinism and the theory of biodeterminism are still competing. Since the mid-90s of the 20th century, the rapid development of gender theory in the humanities begins with the development of new theoretical relations. At the initial stage, research did not develop differentially; the focus of scientists was on general methodological issues. In recent years, there have been various methodological approaches to gender studies, which are rooted in different understandings of its essence and the debates of supporters of bio- and social determinism. The features of the concept of gender in different languages and cultures, their incompatibility with each other, as well as the consequences of this incompatibility in intercultural communication are also of interest to scientists.

The data obtained in a number of studies allow us to draw conclusions about the unequal degree of androcentrism of different languages and cultures and the different degrees of accuracy of gender expression. In the middle of the 20th century. attention was paid to the influence of extralinguistic factors on the language of some peoples. In the works of linguistic anthropologists of the 40s and 50s, it was noted that the gender of the speaker plays an important role in various linguistic situations. In particular, E. Sapir's work "Language, Culture and Personality" ("Language, Culture and Personality"), published in 1949, analyzed the language of the Yan tribe Indians, studied the oral speech of men and women and their relationship to the concept of "gender". He found that the men of this tribe used male speech to communicate with each other, women used female speech to communicate with both sexes, and men used female speech to communicate with women. Therefore, the question arises as to how justified it is to speak of the existence of two parallel and equally important subsystems in the Yang language. It is clear that in this case there is a standard language widely used by all native speakers and a special "masculine" jargon.[3]

Another type of gender-based language division was discovered by M. Haas in 1978 while studying the language of the Muscojin Indians of southwestern Louisiana, America. In modern times, the female subsystem of the language of this tribe has been preserved only in the speech of the older generation of women. Young people have completely mastered male speech, as they began to engage in the same activities as men. This phenomenon is especially interesting against the background of changes in their speech.[2]

However, the first fundamental linguistic studies of this phenomenon were carried out only in the 60s. XX century. with the development of sociolinguistics. Attention was paid to socio-cultural factors influencing the formation of speech and language. As mentioned above, such characteristics as the age, gender, social status of the speaker and the interlocutor began to be highlighted among them.

Differences in the speech of representatives of different gender groups are explained by the fact that the male psyche is different from the female one and different representations of the world in different genders, that is, the processes of perception and, accordingly, the processes of expression. At the same time, we have identified a feature that contradicts the theory.

Both men and women, relying on their own experience, evaluate this or that situation, although the specifics of speech are often attributed to the female gender. The study of male and female speech shows that there is a difference between speaking and writing between men and women. To study the influence of gender on language, it is necessary to consider gender characteristics in combination with status, social group, level of education, context of the situation, etc., as well as taking into account the changing situation in society.

V. Labov (1966) conducted a detailed study analyzing the distribution of five phonetic variants of the combination "ing" among men and women in New York. He studied the influence of social status, ethnicity, gender, age, and environmental factors. This study is very important because the respondents were representatives of the middle class, ordinary city dwellers, carefully selected for gender, age, and social status. The speech of each respondent was analyzed in various situations, from formal to informal, from several factors at once - linguistic, sociological, and situational. This study gave scientific recognition to the hypothesis that gender is one of the factors influencing speech.[4]

M. Key also studied the gender aspect of speech behavior. The linguist considered women's language to be the language of apology, and men's language to be the language of explanation.[5]

It is understood that differences are observed in the speech of women and men in different nations. This is due not only to their style of creating speech and transmitting it to the interlocutor, their attitude to the use of language units in the process of communication, but also to gender characteristics, in particular, character, worldview, attitude to the outside world, religious and moral views.

Conclusion. In general, gender, as a component of collective and individual consciousness, should be studied as a cognitive phenomenon, manifested both in stereotypes in language and in the speech behavior of people who, on the one hand, recognize themselves as a representative of a particular gender, and, on the other hand, feel the pressure of the axiologically significant structures of language that reflect collective views of gender.

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DESIGNING ROLE-PLAYING GAMES FOR PRESCHOOL CHILDREN

Annotatsiya. *Ushbu maqolada Maktabgacha yoshdagi bolalar uchun syujetli rolli o'yinlarni loyihalashtirishning ahamiyati, maqsad vazifasi hamda mazmun mohiyati yoritilgan. Maktabgacha yoshdagi bolalar uchun syujetli rolli o'yinlarni loyihalashtirish qanday bosqichlar asosida amalga oshirish yo'llari bayon etilgan.*
Kalit so'zlar: *loyiha, syujetli rolli o'yinlar, individual, jarayon, psixologik, ijtimoiy, ma'naviy, xayoliy vaziyat, ta'lim, maqsad, mazmun, ijodiy qobiliyatlar.*

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DESIGNING ROLE-PLAYING GAMES FOR PRESCHOOL CHILDREN

Annotation. *This article covers the importance, purpose and essence of the design of plot role-playing games for preschool children. The ways in which the design of plot role-playing games for preschool children is carried out on the basis of what stages are described.*
Keywords: *project, plot role-playing games, individual, process, psychological, social, spiritual, imaginary situation, education, purpose, content, creative abilities.*

Designing thematic role-playing games for preschoolers is an important process aimed at planning and managing the educational process in order to promote the psychological, social, and spiritual development of children. This process takes into account each child's age, individual characteristics, and specific needs, while also providing appropriate upbringing and education.

The purpose of developing thematic role-playing games for preschoolers is to plan and monitor the educational process in order to support the psychological, social, and spiritual development of children. Based on this goal, several objectives are set, which include:

- to develop imagination and the ability to create simple storylines within imaginary situations;
- to enrich active vocabulary and develop skills in dialogic speech;
- to foster children's creative abilities;
- to form the ability to independently assign roles, work as a team, and take responsibility for one's actions.

The design of thematic role-playing games for preschoolers is carried out based on the following stages:

1. Determining educational goals: Goals are set to ensure both general and specific development of children. These goals should focus on educational materials, physical development, creative activities, and social skills.

2. Choosing content and form: Educational content is selected based on the children's age and interests. This is achieved through various activities, games, practical exercises, and creative tasks.

3. Selecting methods and techniques: Interactive methods, game-based methods, physical, and social activities are used in the learning process. It is important to apply modern methods to engage children and ensure their active participation.

4. . Professional development of educators: It is necessary to continually develop the knowledge and skills of educators in the fields of pedagogy, psychology, and working with children.

5. Monitoring and evaluation: Through the process of monitoring and assessing children's development, the results of educational plans can be analyzed.

Additionally, it is important to collaborate with parents during the design process. Providing them with supportive materials and information about child development positively impacts the overall growth of children.

The design of thematic role-playing games plays a significant role in education and upbringing, as they contribute to the development of life skills in children and young people, the formation of social relationships, and the promotion of creative thinking. Such games encourage participants to take on different roles and explore specific situations during the game, rather than solely relying on their own life experiences.

Role-playing games have the following essential aspects:

- Development of life skills: Games provide participants with the opportunity to learn about different roles and the typical behaviors associated with them. Through these games, skills such as problem-solving, decision-making, and a sense of responsibility are developed.
- Social relationships and teamwork: Thanks to role-playing games, children can communicate with others, work in teams, manage their emotions, and develop affective relationships.
- Enhancement of experiences and creative abilities: Thematic games stimulate imagination, helping participants visualize themselves in various situations. This develops creative thinking and showcases the individual abilities of each participant.
- Emotional learning: Through role-playing games, children can learn to better understand and manage their emotions. This develops their emotional intelligence and promotes emotional stability.

Thematic role-playing games play an important role in the process of raising children. "There can be no full intellectual development without play, and it is impossible. Play is a huge bright mirror through which a stream of ideas and concepts flows, giving life to the child's spiritual world," describes V.A. Sukhomlinsky.

Such games have a significant impact on the social, spiritual, and intellectual development of children. Through these games, children learn to play various roles and navigate situations they encounter in daily life, which helps develop their social skills.

1. Development of social skills: Thematic role-playing games teach children to interact in a group and communicate with others. For example, through games such as "doctor and patient" or "teacher and student," children learn mutual assistance, listen to each other, and collaborate. This enhances their social adaptation and helps them integrate into society in the future.

2. Formation of spiritual values: Through thematic role-playing games, children absorb spiritual values such as kindness, help, and respect. While performing different roles, children try to put themselves in others' shoes, understand their feelings, which strengthens their sense of empathy.

3. Development of thinking and intellectual abilities: Thematic games also have a strong impact on children's intellectual development. In these games, children create the game plan themselves and perform various roles, which enhances their ability to solve problems, think critically, and find new approaches.

4. Development of imagination and creativity

Through thematic games, children imagine various situations and approach them creatively. For example, when building a house or carrying out a specific task, children demonstrate their creative approach.

The significance of designing thematic role-playing games for preschoolers lies in the fact that children are not yet able to independently identify contradictions in their environment, construct problems, or define goals (ideas). Activating cognitive processes involves fostering children's interest in creatively solving problems, as well as developing and enriching their emotional experiences.

The design of thematic role-playing games for preschoolers contributes to the development of the following areas in children:

- Social development: In the process of playing, children learn to interact with other children, work together, and follow rules.
- Cognitive development: Thematic role-playing games enhance children's thinking, memory, attention, speech, and problem-solving skills.
- Emotional development: Games help children develop empathy, compassion, and the ability to express their emotions.
- Physical development: In these games, children move, learn to control their bodies, which contributes to the development of their physical activity and coordination.

Thus, thematic role-playing games make a significant contribution to the social, spiritual, intellectual, and creative development of children and play an important role in their full maturation as individuals.

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METHODS OF TEACHING INTERESTING GEOMETRIC PROBLEMS

Annotation. *The methodology of teaching geometric material is aimed at developing students' interest in geometry, developing logical and spatial thinking, as well as practical skills in applying geometric knowledge. The article discusses the use of interactive methods in teaching geometric problems.*
Keywords: *mathematics, geometry, polygon, shapes, program, figure*

In our country, the modernization of the education system, its structural restructuring, the introduction of innovations into the teaching process taking into account the modern achievements of education, science, engineering and technology, economy and culture at the global level, as well as the creation of necessary and sufficient conditions for the participants of the educational process in terms of their capabilities and needs, are becoming increasingly urgent.

The main task of studying geometric materials in primary grades is to form clear concepts and ideas about geometric figures, points, straight lines, sections, broken lines, polygons, angles, circles. Therefore, the system of exercises and the content of geometric problems should be focused on the formation of knowledge, skills in spatial representations, observations, comparisons, abstractions and generalizations. First of all, it is necessary to give students the skills of measuring and drawing geometric figures, as well as drawing and measuring tools, as well as using the eye, hand, etc. It also includes making various figures from paper, sticks of different lengths, and various weapons. The classroom must have a ruler, a triangle, and a compass. Geometric materials should be taught appropriately.

Each lesson at school should contain clearly formulated objectives. In order for a geometry lesson to be held at the proper level, a clear understanding and consistent implementation by the teacher of the general educational, educational and developmental goals and objectives of the lesson is necessary. During the lesson, in the process of solving a problem, each student masters a system of mathematical knowledge, special and general educational skills and abilities, a certain level of development and upbringing - his creative thinking develops. Each lesson objective should be specific, since it expresses certain qualitative changes in knowledge, skills, in the development of creative thinking of students, in the improvement of moral qualities of the individual. The content of the lesson should include material that contributes to the solution of specific problems for the development of creative thinking of students. Teaching methods, as ways of joint activity of the teacher and students, are chosen with the expectation of maximum involvement of students in the cognitive process.

Geometric materials in primary grades are related to the materials taught in preschool institutions, and are somewhat more complicated. Even in preschool, they become familiar with a sphere, cube, circle, square, triangle, and right-angled triangle.

In primary grades, it is necessary to give clear knowledge and imagination to concepts. It is necessary to be able to show, name, draw and even make figures of a given length on paper and a board. Already in the 1st grade, they get acquainted with points. They put dots in a checkered notebook and give the task of connecting them. They take the points and connect them with a straight line. After that, students understand how to write points, a straight line, or connect them using cuts.

It is also of particular importance for a primary school teacher to teach “Geometric materials” according to a program developed for mathematics. It will be especially effective and interesting for students if it is taught to students through a creative approach.

Studying geometric materials: - To accumulate (expand) the stock of ideas about geometric figures; – helps develop spatial thinking, analysis, generalization, and imagination skills; – helps develop important practical skills; – prepares children for later study of geometry.

The concept of a polygon, angle, and circle is taught sequentially in all grades of primary education. In grades 1-10 (decimal), these are used as didactic materials. With their help, students use them to count, compare numbers, and solve problems. Later, they also get acquainted with the shapes of a circle, triangle, and square. Gradually, they become familiar with the elements of a polygon: sides, angles, and vertices.

In the first grade, the initial acquaintance with geometric shapes and their properties is largely completed, in the second grade, students reach a much higher level of geometric development, children's measuring skills improve, geometric imagination is defined and expanded. Students' mathematical vocabulary increases and strengthens. Just as in the first grade, in the methodology for studying geometric material, a large place is given to the method of comparing and contrasting, to the method of using the relationship of their mutual location to determine the properties of shapes. In the formation of geometric ideas, a creative approach is used, using methods such as observing geometric shapes, cutting out geometric shapes, gluing them, making models, folding a sheet of paper to make shapes, dividing a shape into pieces and constructing new shapes from pieces.

In the second grade, geometric material is distributed throughout the school year and should be allocated a few minutes in each lesson. The number of lessons devoted solely to the study of geometric, algebraic, and arithmetic material is very small. This allows geometric facts to be studied through algebraic facts and, conversely, algebraic facts through geometric facts. In the second grade, not only is what was covered in the first grade repeated, but a number of new materials are also studied, including: using letters to designate points and intersections, representing numbers with intersections, comparing the lengths of intersections using a compass, getting to know a circle and a circle, a broken line, the perimeter of shapes, and millimeters. We will look at the content of geometric material and the specific aspects of its study.

It is known that the formation of geometric ideas in children is significantly influenced by the activities of students related to the formation of geometric ideas. One of the main activities for mastering concepts is definitions (description). However, the boundaries of the use of definitions in the initial grades when familiarizing with geometric concepts have not yet been determined, since they can be different in different versions. In primary school practice, there are two types of deviations: an excess of definitions or a complete absence of definitions. Both of them make education ineffective (unproductive). How can a teacher be protected from these deviations? Methodologists believe that in the process of forming concepts such as a right rectangle, square, acute and obtuse angles, etc., the need to reflect the content of these concepts is satisfied, and their pedagogical and psychological properties are strengthened in the process of mastering geometric concepts.

The following methods in teaching geometric elements, for example: using geometric modeling, making models of figures (shapes) from paper, sticks, plates and wires, drawing geometric shapes on paper - can be a factor in the development of geometric imagination in children's minds. In such conditions, regardless of the type of material, color, size, position on the plane, shapes should be selected in such a way that children can determine their main features (shape, geometric qualities). Attention should be paid to this so that students can distinguish all the qualities of geometric figures. These shapes help to make the imagination correct. For example, in the process of studying a right-angled rectangle, children should understand its two main qualities - that it is a rectangle and that its angles are right. The teacher should explain it in such a way that it is understandable and interesting to students.

The methodology for forming primary school students' ideas about geometric shapes is set separately for the above-mentioned tasks and includes the following stages:

Stage 1 (preparatory) - identifying general ideas about geometric shapes that children have (children's life experience, practical work).

Stage 2 - forming ideas about geometric figures in them based on practical work with students.

Stage 3 - performing specially selected exercises and tasks related to the construction of shapes in order to firmly retain the studied material in memory.

During the lesson, students will be introduced to another basic geometric shape, the straight line, and its properties. In this lesson, a straight line is not defined as a geometric shape, but is explained with examples such as a point, and it is an infinite, unbounded line that continues in both directions, and it is important to teach that we can draw it in a drawing.

In conclusion, during the lessons on solving geometric problems, the shortcomings and shortcomings in the process of teaching multiplication and division operations in the previously carried out educational work with primary school students were taken into account. The methodological and methodological foundations of the approach to performing arithmetic operations were used in the organization of the work. A layered approach to students during the lessons on solving problematic problems expands the opportunity to develop practical skills and competencies, psychologically and pedagogically, and choose different forms and methods of education. Solving geometric problems can also be used in work on educating students as patriots through arithmetic operations.

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DEVELOPING STUDENTS' SPEECH COMPETENCE THROUGH SYNTACTIC EXERCISES IN NATIVE LANGUAGE LESSONS

Annotation. *This article discusses the ways and methods of developing the speech competence of primary school students through syntactic exercises. It discusses the types and means of syntactic exercises that are initially taught to primary school students. It also discusses the structure of sentences, word combinations, and their skills in separating.*

Key words. *speech methods, speech competence, syntactic exercises, word combinations, sentences, exercises and tasks, linguistic concepts, language structure, communicative competence, text comprehension.*

Enterence. Today, in our Republic, the National Curriculum for General Secondary Education states that "The subject of the mother tongue is aimed at developing the student's ability to think, to form independent thinking skills, to understand and comprehend the opinions of others, to be able to express one's thoughts correctly and fluently in oral and written form in accordance with the circumstances of the speech. One of the reforms being carried out in the field of education is the development of students' speech (communicative) competence; the ability to express thoughts orally and in writing, to develop practical knowledge of language construction, lexical, word composition, spelling, syntax, and spelling skills.

In primary grades, working on text through syntactic exercises is considered the most effective tool for developing students' speech competence. In particular, reading, perceiving, and understanding the text are based on students' syntactic knowledge. Syntactic knowledge is, as indicated in the program, a set of student knowledge related to words, word combinations, sentences and their types, text and its structure.

Literature review. Today, speech is not only a means of fully expressing thought, but also a tool for its formation. In particular, the process of speech development is described by A.N. Leontiev as follows: "The process of growing and developing speech is not only a quantitative change, expressed in the increase in the child's vocabulary and the associative connection of words, but also a qualitative change, since it is a real developmental process that encompasses all the functions, aspects and connections of speech, being internally connected with the development of thinking and consciousness."

K.D. Ushinsky, justifying the need to teach children in their native language and developing a methodology for the initial teaching of children's native language, expresses his views on the philosophical, self-development, and educational characteristics and laws of children's language acquisition, the relationship between language and thinking.

Discussion and results. In primary grades, it is important to develop students' oral and written speech through syntactic exercises. In particular, in the process of completing syntactic exercises given in textbooks, students' skills of cognition, perception, perception, and understanding are developed. The main goal of teaching students based on new generation textbooks is to develop linguistic knowledge, life skills, and speech skills.

Speaking competence involves the development of the following 4 components of language learning

1. Listening comprehension

(understanding the speech heard and heard, the main information in the text listened to, radio and television programs on current topics); In the 1st grade mother tongue textbook, topic 35, pages 12-15, the student is given exercise 4 to explain the noun phrase, in which the student is given the task of giving a title to the text based on the text he listened to. Read the words given in part 2, exercise 19, page 19 of the 2nd grade mother tongue textbook. Listen to the audio text of the words. Connect the words using questions.

This exercise directly develops the student's listening and memorizing skills.

Examples of the given words:

cavalary	was built
Ziyoda	was began
fruits	was opened
vocation	riped

In this order, the student begins to complete the exercises in sequence. By completing these exercises, the student's listening and speaking skills are developed

2. Speaking (develop the skills of expressing personal views and opinions in monologic and dialogic oral speech, and making presentations within the scope of the topic);

Copy the text from exercise 5, page 46 of the 1st grade native language textbook, identifying the sequence of sentences. Write the copied text in a dialogic manner. Retell the text you read, explaining its meaning

1. The comedian came out on stage with his dog Bim, his cat Malla and his mare Kashka
2. We returned from the circus in a cheerful mood
3. We went to the circus on Sunday.

Part 3 of the 2nd grade native language textbook, topic 18, is a text in the form of a dialogue on the topic “The future is in your hands”. Read the dialogue and tell me what you understand by heart.

Part 3 of the 2nd grade native language textbook, topic 18, "The future is in your hands," contains a text in the form of a dialogue. Read the dialogue and tell me what you understand by heart.

3.Reading. Topic-related materials, literary and artistic texts, popular materials

reading (newspapers, stories, personal and electronic letters);

So, today, almost all primary school textbooks provide audio versions of texts, and the student is asked to listen to them and write or recite the text they have heard.

Part 1 of the 2nd grade native language textbook, page 38, exercise 8, contains a text about Amur Temur, and the task is to read and understand the literary text. The student can also listen to this text in audio text form.

In exercise 85, page 66, part 2 of the 3rd grade native language textbook, a literary text is given. Explain the meaning of the highlighted words in the text. Also, describe the text with your own understanding. The student tries to explain what he or she understood after reading the text

4. Writing (ability to write dictations, statements, essays, compose creative texts, know how to maintain official working papers)

Today, primary school textbooks include project work to further develop the student's creative abilities, and such assignments are mainly aimed at developing the student's independent thinking.

Exercise 13 is given on page 59 of Part 4 of the 2nd grade native language textbook, in which students are given the procedure for making a wall newspaper and completing this wall newspaper as a project work.

Part 2, page 20, topic 6 of the 3rd grade native language textbook, the project work "Creativity Hour" is given, and this project work is aimed at directly developing the student's creative abilities.

Also, in the primary grades, the following exercises are used to analyze the student's syntactic exercises and use them in the student's speech

-read the sentence in the tone of interrogative, indicative, command and desire

– turn a simple sentence into a compound sentence;

– turn a simple sentence into a compound sentence;

-– put the necessary punctuation marks instead of periods

– explain the reasons for the use of punctuation marks in the text

– shorten the text without compromising the content

– turn wisdom into a text;

– combine proverbs and sayings on different topics into one common content;

– turn a biography text into a description

By completing these exercises given in textbooks, students will develop their speaking skills.

Conclusion. In conclusion, it can be said that the beautiful speech of a student also serves as the basis for his correct and grammatical construction of sentences. Especially in primary school mother tongue lessons, there are wide methodological opportunities for teaching syntactic concepts, and it is necessary to use them only with the aim of achieving effective and high results. Because if a student has mastered his mother tongue thoroughly in primary education, and if his oral and written speech is fluent, he will have no difficulty in constructing sentences in higher grades

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PRIMARY PREVENTION OF CARDIOVASCULAR COMPLICATIONS IN TYPE II DIABETES PRACTICAL INDICATORS AND RECOMMENDATIONS

Annotation: *This paper focuses on the importance of primary prevention of cardiovascular complications in individuals with type 2 diabetes mellitus. Given that cardiovascular disease remains the leading cause of morbidity and mortality among diabetic patients, early and effective intervention is critical. The article outlines key pathophysiological mechanisms linking type 2 diabetes and cardiovascular disorders, such as insulin resistance, endothelial dysfunction, and chronic inflammation. It discusses evidence-based clinical guidelines from major health organizations, recommending lifestyle modifications, strict glycemic control, blood pressure regulation, lipid management, and the use of cardioprotective medications such as SGLT2 inhibitors and GLP-1 receptor agonists. The paper also evaluates the role of patient education and multidisciplinary care in improving adherence to preventive strategies. By analyzing current data and expert consensus, the study aims to provide healthcare professionals with practical recommendations to minimize cardiovascular risks and enhance the quality of life in patients with type 2 diabetes.*

Keywords: *Type 2 Diabetes Mellitus, Cardiovascular Complications, Primary Prevention, Insulin Resistance, Endothelial Dysfunction, Atherosclerosis, Glycemic Control, SGLT2 Inhibitors.*

Introduction

Type 2 diabetes mellitus is one of the most serious chronic diseases affecting global public health. The prevalence of this condition has significantly increased over the past decades, posing a major challenge to healthcare systems worldwide. Type 2 diabetes mellitus is characterized primarily by insulin resistance and relative insulin deficiency, which lead to a persistent elevation of glucose levels in the blood. This pathological state exerts adverse effects on various body systems over time, particularly the cardiovascular system. Cardiovascular diseases represent the most common and severe complications associated with type 2 diabetes mellitus, and they are among the leading causes of mortality in affected individuals. Patients with type 2 diabetes experience accelerated atherosclerosis, increased incidence of arterial hypertension, and abnormal lipid profiles. As a result, the risk of ischemic heart disease, myocardial infarction, stroke, and other severe cardiovascular events is substantially elevated. Therefore, preventing cardiovascular complications and reducing their risk is a critical clinical priority in the management of patients with type 2 diabetes.

Primary prevention refers to the set of measures applied during the early stages of the disease, before serious complications have developed. The main goal of primary prevention is to maintain cardiovascular health and minimize the negative outcomes associated with diabetes mellitus. This approach includes lifestyle modifications such as changes in diet and physical activity, pharmacological interventions, and systematic monitoring of risk factors related to diabetes and cardiovascular diseases. Practical guidelines and recommendations play a crucial role in organizing effective primary prevention for cardiovascular complications in patients with type 2 diabetes mellitus. These tools provide healthcare professionals, including physicians and diabetes specialists, with evidence-based protocols for regular patient assessment, development of individualized treatment plans, and optimization of preventive measures. Additionally, these guidelines contribute to the efficient allocation of healthcare resources and improvement of population health outcomes. This article aims to comprehensively analyze existing practical guidelines and recommendations for the primary prevention of cardiovascular complications in patients with type 2 diabetes mellitus. It will review current scientific evidence and discuss their application in clinical practice, ultimately supporting the delivery of high-quality and effective care for patients with diabetes.

Main Part

Type 2 diabetes mellitus represents a major global health concern due to its increasing prevalence and association with significant morbidity and mortality. Cardiovascular diseases constitute the leading cause of death among patients with type 2 diabetes. This increased risk is related to the complex interplay of metabolic disturbances including insulin resistance, chronic inflammation, endothelial dysfunction, and dyslipidemia. Primary prevention aims to intervene before the onset of clinical cardiovascular disease, reducing the incidence and severity of complications. Effective prevention requires a multidisciplinary approach combining lifestyle modifications, pharmacological treatments, and regular monitoring. Understanding the underlying pathophysiology and risk factors is essential for tailoring preventive strategies. This article explores the epidemiology, risk factors, and evidence-based interventions for primary prevention of cardiovascular complications in type 2 diabetes. It emphasizes the role of clinical guidelines in facilitating standardized and effective care. The ultimate goal is to improve patient outcomes and reduce the burden of cardiovascular disease in this vulnerable population.

Cardiovascular complications are highly prevalent in individuals with type 2 diabetes mellitus and are responsible for the majority of diabetes-related deaths. Epidemiological studies consistently show that the risk of myocardial infarction and stroke is two to four times higher in diabetic patients compared to non-diabetic counterparts. The pathophysiology involves several mechanisms: chronic hyperglycemia promotes the formation of advanced glycation end products, which induce oxidative stress and vascular inflammation. Endothelial dysfunction, characterized by impaired nitric oxide availability, contributes to vascular stiffness and hypertension. Additionally, insulin resistance leads to dysregulation of lipid metabolism, resulting in atherogenic dyslipidemia. These combined factors accelerate the development of atherosclerosis, plaque instability, and thrombosis. Understanding these mechanisms is vital for identifying targets for intervention and designing preventive strategies aimed at reducing cardiovascular morbidity and mortality in patients with type 2 diabetes.

The risk of cardiovascular disease in type 2 diabetes is multifactorial and includes modifiable and non-modifiable factors. Traditional risk factors such as hypertension, dyslipidemia, smoking, and obesity are highly prevalent among diabetic patients and substantially increase cardiovascular risk. Glycemic control also plays a critical role, as poor glucose regulation exacerbates vascular damage. Additionally, novel risk factors such as chronic low-grade inflammation, prothrombotic state, and microalbuminuria have been identified as important contributors. Genetic predisposition and age further modify individual risk profiles. Comprehensive risk assessment should include evaluation of these factors to enable personalized preventive approaches. Early identification and management of risk factors are crucial to prevent the onset and progression of cardiovascular complications in this high-risk group.

Primary prevention involves interventions targeted at reducing risk factors before cardiovascular disease develops. The fundamental principles include early risk identification, aggressive management of modifiable risk factors, and patient education. Multidisciplinary collaboration between endocrinologists, cardiologists, dietitians, and primary care providers enhances care effectiveness. Prevention strategies should be individualized based on patient risk profiles and comorbidities. Evidence supports the use of both lifestyle changes and pharmacotherapy to achieve optimal cardiovascular protection. Regular follow-up and monitoring ensure adherence and allow timely adjustments. Emphasizing patient empowerment and self-management skills is essential for long-term success. Effective primary prevention not only reduces cardiovascular events but also improves overall quality of life and reduces healthcare costs.

Lifestyle modification is the cornerstone of primary prevention in type 2 diabetes. A balanced diet rich in fruits, vegetables, whole grains, lean protein, and healthy fats can improve glycemic control and lipid profiles. Reducing intake of saturated fats, trans fats, and simple sugars is critical to decrease cardiovascular risk. Regular physical activity enhances insulin sensitivity, aids weight management, and improves blood pressure. Both aerobic and resistance training have demonstrated cardiovascular benefits. Weight loss, even modest, significantly reduces risk factors such as hypertension and dyslipidemia. Behavioral interventions, including goal setting and motivational interviewing, support adherence to lifestyle changes. Education on healthy habits should involve the patient’s family and community resources. Sustainable lifestyle changes require ongoing support from healthcare providers to maintain long-term cardiovascular health.

When lifestyle modifications are insufficient, pharmacological treatment is indicated to manage cardiovascular risk factors. Antihypertensive agents, particularly angiotensin-converting enzyme inhibitors and angiotensin receptor blockers, provide cardiovascular and renal protection in diabetic patients. Statins effectively reduce low-density lipoprotein cholesterol and have been shown to decrease cardiovascular events in type 2 diabetes. Emerging evidence supports the cardiovascular benefits of certain glucose-lowering medications such as sodium-glucose cotransporter-2 inhibitors and glucagon-like peptide-1 receptor agonists. Antiplatelet therapy may be considered in selected high-risk individuals for primary prevention. Individualized therapy based on patient comorbidities and risk profile optimizes outcomes. Regular evaluation of therapeutic efficacy and adverse effects is necessary to adjust treatment plans. Integrating pharmacological and lifestyle interventions maximizes the preventive potential.

Effective primary prevention requires regular monitoring of cardiovascular risk factors and early detection of subclinical disease. Biomarkers such as glycated hemoglobin, lipid profiles, high-sensitivity C-reactive protein, and microalbuminuria provide valuable information about metabolic control and inflammation. Non-invasive diagnostic tools including electrocardiography, carotid intima-media thickness measurement, and echocardiography help identify early structural and functional changes in the cardiovascular system. Risk calculators and scoring systems facilitate comprehensive risk stratification. Continuous glucose monitoring and ambulatory blood pressure monitoring enable better disease management. Implementation of standardized protocols for periodic assessment ensures timely interventions. Integration of these tools in routine care improves risk prediction and patient outcomes.

Clinical guidelines synthesized from large-scale studies and expert consensus offer practical frameworks for primary prevention. Leading organizations such as the American Diabetes Association and the European Society of Cardiology provide evidence-based recommendations addressing glycemic control, blood pressure management, lipid lowering, and lifestyle modifications. Guidelines emphasize individualized care, taking into account patient preferences and comorbidities. They highlight target goals for risk factors and suggest specific therapeutic options. Implementation of guidelines in clinical practice improves standardization and quality of care. However, barriers such as limited resources and patient adherence challenges remain. Continuous updating of recommendations based on emerging evidence is necessary to optimize preventive strategies.

Despite advances, challenges persist in the primary prevention of cardiovascular complications in type 2 diabetes. Patient adherence to lifestyle and pharmacological interventions is often suboptimal due to socioeconomic factors, psychological barriers, and limited health literacy. Healthcare system limitations including access to care and provider training affect prevention efforts. Emerging research focuses on personalized medicine approaches using genetic and molecular profiling to tailor interventions. Novel therapeutic agents and technologies such as digital health tools offer promising avenues to enhance prevention. Greater emphasis on multidisciplinary collaboration and patient-centered care models is essential. Future directions include improving risk prediction accuracy and developing cost-effective, scalable prevention programs. Addressing these challenges will be key to reducing the global burden of cardiovascular disease in diabetes.

Primary prevention of cardiovascular complications in patients with type 2 diabetes mellitus is vital to improving survival and quality of life. A comprehensive approach involving lifestyle modification, pharmacological treatment, and regular monitoring is essential. Practical guidelines provide valuable frameworks to support evidence-based care. Continued research and innovation are needed to overcome current challenges and enhance prevention effectiveness. Healthcare providers must prioritize individualized patient care and empower patients through education and support. By implementing these strategies, the incidence of cardiovascular complications can be significantly reduced, leading to better health outcomes and reduced healthcare costs worldwide.

Discussion

The primary prevention of cardiovascular complications in patients with type 2 diabetes mellitus represents a complex and multifaceted challenge in modern medicine. Despite substantial advances in understanding the pathophysiological mechanisms and the development of effective interventions, cardiovascular disease remains the leading cause of morbidity and mortality among diabetic patients worldwide. This underscores the urgent need for optimized prevention strategies. Our review highlights that early identification and aggressive management of cardiovascular risk factors are paramount. The multifactorial nature of cardiovascular disease in type 2 diabetes demands an integrated approach that includes lifestyle modifications, pharmacological treatment, and continuous monitoring. Lifestyle interventions, such as dietary changes and increased physical activity, have proven benefits but face challenges related to patient adherence and socioeconomic barriers. Consequently, health systems must prioritize patient education and behavioral support to sustain these changes.

Pharmacological strategies have evolved significantly, with newer classes of antidiabetic drugs demonstrating cardiovascular protective effects beyond glucose lowering. The incorporation of these agents into clinical practice guidelines reflects a shift toward comprehensive risk reduction. However, variability in patient response and potential adverse effects necessitate individualized treatment plans. The role of clinical guidelines in translating evidence into practice cannot be overstated. They offer standardized recommendations that improve care consistency and outcomes. Yet, gaps between guideline recommendations and real-world application remain, often due to resource limitations, healthcare disparities, and provider knowledge gaps. Emerging technologies, including digital health tools and biomarkers for risk stratification, present promising avenues to enhance primary prevention. Personalized medicine, utilizing genetic and molecular profiling, may further refine risk assessment and tailor interventions, thereby improving efficacy.

Conclusion

Cardiovascular complications remain the leading cause of death and disability among patients with type 2 diabetes mellitus. Primary prevention through early identification and management of risk factors is essential to reduce this burden. A combination of lifestyle interventions, including healthy diet, regular physical activity, and weight management, alongside pharmacological treatment tailored to individual patient profiles, provides the most effective strategy for cardiovascular risk reduction. Clinical guidelines offer valuable frameworks to guide healthcare providers in implementing evidence-based practices, although challenges in real-world application persist. Advances in monitoring technologies and personalized medicine hold promise for enhancing prevention efforts in the future. Ultimately, a multidisciplinary and patient-centered approach is crucial to improving outcomes and quality of life for individuals living with type 2 diabetes, thereby reducing the global impact of cardiovascular disease.

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NAMANGAN ERGONIMLARINING TAMOYILLARIGA MUVOFIQ TASNIFI

Annotatsiya. *Maqolada O'zbekiston Respublikasida Namangan shahri ergonimlarining yasalish usullari haqida so'z yuritiladi, o'rganilayotgan hudud ergonimlarida leksik-semantik, ramziy va metonimik onimizatsiya xususiyatlari ochib beriladi. Yangi ergonimlarni shakllantirishda transonimizatsiya usuliga alohida e'tibor beriladi. Mualliflar zamonaviy ergonimlarda lingvistik vositalar majmuasidan foydalanish va til belgilarining aralashishini tahlil qiladilar.*

Tayanch so'zlar: *ergonim, so'z yasalishi, leksik, sintaktik, onimizatsiya, antroponim, toponim, mifonim, gemeronim, fitonim, abbreviatsiya.*

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CLASSIFICATION OF ERGONYMS OF NAMANGAN ACCORDING TO NOMINATION PRINCIPLES

Abstract. *This article discusses the methods of ergonym formation in the city of Namangan, Republic of Uzbekistan. It reveals the features of lexical-semantic, symbolic, and metonymic onymization in the ergonyms of the studied region. Special attention is given to the method of transonymization in the creation of new ergonyms. The authors analyze the use of a complex of linguistic means and the blending of language signs in modern ergonyms.*

Keywords: *ergonym, word formation, lexical, syntactic, onymization, anthroponym, toponym, mythonym, commeronym, phytonym, abbreviation.*

Namangan shahri ergonimlarni hosil qilinishda barcha usullari qo'llanilgan: so'z yasalish, leksik, sintaktik usullar. Leksik-semantik onimizatsiya bu eng keng tarqalgan usuldir. Bizning tadqiqotimizda F. F. Alistanova[30] tomonidan taklif

[30] Алистанова Ф. Ф. Эргонимы современного русского языка как микросистема: автореф. дисс. ... к. филол. н. Махачкала, 2011. 23 с.

qilingan leksik-semantik onimizatsiya tipologiyasiga asoslanib tahlil qilamiz. Leksik-semantik nomlash usuli yangi ergonimlar yaratish boʻyicha eng samarali usul hisoblanadi. Ushbu usul qoʻllanilganda, tanilgan soʻz oʻzining mavjud ma’nosida ishlatiladi, lekin uning formal tuzilishi oʻzgarmaydi.

Onomastikada leksik-semantik usuli uch turga ajratiladi: semantik onimizatsiya, transonimizatsiya va oʻzlashtirish. Bizning tadqiqotimizda semantik onimizatsiya va transonimizatsiya e`tibor qaratilgan, oʻzlashtirilgan nomlar boshqa maqolada batafsil oʻrganiladi.

Semantik onimizatsiyani, ya’ni yangi ergonim tilimizda allaqachon mavjud boʻlgan soʻzning semantik ma’nosini koʻchirish orqali hosil boʻladigan holatni, koʻrib chiqamiz. N. V. Podolskaya ta’kidlaganidek, semantik onimizatsiya uch turga boʻlinadi [31] : oddiy semantik onimizatsiya, metaforik onimizatsiya va metonimik onimizatsiya.

Ta’kidlash joizki, Oʻzbekiston Respublikasi Prezidentining «Oʻzbek tilini yanada rivojlantirish va mamlakatda til siyosatini takomillashtirish chora-tadbirlari toʻgʻrisida»gi Farmoni ijrosini ta’minlash maqsadida «Yoʻl xaritasi» ishlab chiqilgan [32]. Ushbu hujjatda 2022-yil 1-avgustdan boshlab joy nomlari, koʻcha nomlari, tashkilot nomlari, yozuvlar, ommaviy tashviqot vositalari, reklama va e’lonlar toʻliq oʻzbek tiliga tarjima qilinishi va lotin alifbosida yozilishi kerakligi belgilangan.

Shunga qaramay, Namangan shahrida hanuzgacha koʻplab yozuvlar kirill alifbosida saqlanib qolgan. Bu shuni koʻrsatadiki, 100 dan ortiq millat vakillari istiqomat qiladigan megapolis aholisi uchun, rus tili xalqaro muloqot tili boʻlib qolmoqda. Bizning tadqiqotimizda kirill alifbosida berilgan ergonimlarni lotincha variantda ham keltiramiz hamda rus tilidagi nomlarning ma’nolarini tarjima qilib taqdim etamiz.

Oddiy leksik-semantik onimizatsiya obyektni nomi sotilayotgan mahsulot nomi bilan ataladi. Oddiy leksik-semantik onimizatsiyaga misollar: «Mebel», «Optika», «Aviakassa», «Турагенство» («Turagentlik»), «Kanstovarlar», «Market», «Med klinika», «Xalq tabobati markazi», «Medtexnika», «Kafe», «Oshxona», «Goʻsht», «Baliq», «Non», «Sirli idishlar», «Salon» (odatda goʻzallik saloni) va boshqalar. Bunday obyektlar asosan kichik tijorat tashkilotlari boʻlib, ular roʻyxatdan oʻtmagan yoki internet tarmoqlarida reklama qilinmagan, shuningdek, shahar markaziy hududlarida emas balki chekka hududlarida joylashgan.

Bir-biriga yaqin joylashgan ikki bir xil obyektning yozuvlarida oʻzbek va rus tillari yoki lotin va kirill yozuvi ishlatilishi mijozlarni jalb qilish usuli hisoblanadi. Bu esa oʻz navbatida raqobatni shakllantirishga yordam beradi. Misollar: «Doʻkon/Магазин», «Stomatologiya/Стоматология», «Mehmonxona/Гостиница», «Dorixona/ Аптека» va boshqalar.

[31] Подольская Н. В. Словарь русской ономастической терминологии. М.: Наука, 1978. 198 с.
[32] Мирзиеев Ш.М. О мерах по дальнейшему развитию узбекского языка и совершенствованию языковой политики в стране. № УП-6084. Ташкент, 20.10.2020.

Yangi ergonimlar yaratish vositalaridan biri ramziy nomlash (simvolik nominatsiya) bo‘lib, u metafora va metonimiya orqali ifodalanadi.

Metonimik onimizatsiya – eng keng tarqalgan ergonim yaratish usullaridan biri hisoblanadi. Metonimik ko‘chirish asosida yaratilgan obyekt va uning nomi orasidagi bog‘liqlikni eng yaxshi ifodalaydi. Metonimik ko‘chirish orqali yaratilgan ergonim kasb-hunar, joylashuv, faoliyat sohasi, etnik mansublik, milliy taom va boshqa jihatlarni ifodalashi mumkin.

Ushbu usul bo‘yicha quyidagi ergonim turlari aniqlangan:

- shaxs nomlari asosida motivatsiyalangan ergonimlar: – «Doctor A» тibbiyot klinikasi, «Vunderkindlar», «Umniki (Умники)», «Aqilvoy», «Jajji akademiklar», «Bilag‘onlar» вolalar bog‘chalari, «Akademiklar», «Pochemucki(Почемучки)» bolalar ta’lim markazlari, «Baby Plaza» xususiy maktabi, «Pahlavon» sport majmuasi, «Sulton» fitnes-klubi, «Sulton» kafesi, «Bolajon» bolalar kiyim do‘koni, «Mezbon Hotel» mehmonxonasi, «Mezbon» tantanalar uyi, «Aligarx», «Sponsor» do‘konlari va boshqalar.

- konkret otlar asosida motivatsiyalangan ergonimlar (korxona faoliyati haqida axborot beruvchi nomlar):– «Azbuka», «Quyoshcha», «Yulduzcha», «Бусинка/Businka» bolalar bog‘chasi, «Kozinka» supermarketi, «Delfin» suv havzasi (basseyn), «Asia Trans» kompaniya va boshqalar.

- sinekdoxa («qism–butun» munosabati): asosida shakllangan ergonimlar: «Tort Land» konditer mahsulotlari do‘kon-kafesi, «Glyukoza Farm», «Tabletka/Таблетка», «Vitamino/ Витамино» dorixonalari, «Lagman Haus» oshxona-restorani, «Bolajon» bolalar markazi va boshqalar.

- mavhum (abstract) otlar asosida motivatsiyalangan ergonimlar:– «Afsona» ko‘ngilochar markazi, «Ishonch» mikrokredit banki, «Hamkor Bank» banki, «Ixlos» tibbiyot markazi, «Tegen» (tegen – «bepul, tekin» ma’nosida) supermarketi, «Ixlos Medical» xususiy tibbiyot klinikasi, «Nur» kafesi, «Hayat Med Sentr» tibbiyot markazi, «Zamon Beton» kompaniyasi, «Mir detstva/Мир детства» (mir - «tinchlik, dunyo» ma’nosida) bolalar bog‘chasi, «Dunyo» oshxonasi, «Diydor Tabaka» kafe, «Meros» restorani «Shodlik Market», «Meyor Farm» dorixonasi va boshqalar.

Ma’nolarni ko‘chirish orqali yangi ergonim shakllariga yorqinlik va ekspressivlik beriladi. Tijorat obyektiga metaforik nom tanlashda, nom beruvchilar o‘z muassasasining nufuzi, obro‘si va ixtisoslashuvini hisobga oladilar. Biz quyidagi metaforik nomlangan ergonimlarni aniqladik: «Afsona» fitnes-klubi, «Makon» restorani, «Azbuka Vkusa/ Азбука вкуса» kafesi, «Everest» o‘quv markazi, «Diamond» (diamond – «olmos» ma’nosida) stomatologiyasi, «Avesto» o‘quv markazi, «Okean» restorani va b.

Yangi ergonimlarni yaratishda nom beruvchilar tomonidan transonimizatsiya usuli ko‘pincha qo‘llaniladi. "Transonimizatsiya" atamasi ismning bir toifadan boshqasiga o‘tishini anglatadi. Mavjud onim asosida til modellari bo‘yicha o‘ziga xos nomning yangi kreativ shakllarining yaratilishi turli toifadagi onimlar o‘rtasidagi yaqin munosabatni tasdiqlaydi.

Biz olib borgan Namangan shahridagi ergonimlarning leksik-semantik tahlili natijasida transonimizatsiya orqali shakllangan quyidagi modellarga ega ergonimlar aniqlandi:

a) antroponim asosida paydo bo`lgan ergonimlar (antropoergonim) :– «Ibn Sino» xususiy tibbiyot klinikasi, «Abdurahmon Plast Invest» kompaniyasi, «Safia Bakery» novvoyxona, «Zuhro Shirin Bolajon» bolalar bog'chasi, «Zarina Restaurant» restorani, «Ahmadbek» turk restorani, «Muqaddas» kafe, «Bilol Avtoservis» va boshqalar. Ta'kidlash joizki, eng katta ergonimlar guruhi antroponimlarga asoslangan nomlardan iborat. Ko'pincha bu mashhur tarixiy yoki zamonaviy shaxslar emas, balki o'rta darajadagi tijorat tashkilotlari egalari o'z bizneslarini o'z oilasi a'zolari nomiga atab nomlashadi. Bu ayniqsa kichik do'konlar, kafelar, go'zallik salonlari va xususiy tibbiyot klinikalari uchun xosdir. Biz o'rgangan xususiy klinika nomlarining 30% onasi, singlisi, qizi yoki klinika egasining o'z ismi bilan atalgan bo'lib, erkak ismlari esa kamroq uchraydi. Misollar: «Ranomed», «Maxliyo Shifo», «Dildora Shifo» xususiy tibbiyot klinikalari. Ushbu nomlar tijorat tashkilotlari asoschilarining onalari sharafiga qo'yilgan. Xususiy tijorat korxonasi asoschilarining nomi bilan «E'tibor Shifo», «Marhabo Shifo», «Saida Allergo Servis Med Central», «Dilbaroy Malham Shifo Servis» klinikalar nomlangan. Erkaklarning ismlari asosida «Shuxrat Shifo», «Murod Darmon Shifoxonasi», «Ne'matjon Shifo» ergonimlar tashkil etilgan.

b) toponim asosida paydo bo`lgan ergonimlar (topoergonim):

- *davlat nomlari asosida*: «Xitoy Shop» do'koni, «Uzbekistan Travel» sayohat agentligi, «Uzbekistan Hotel» mehmonxonasi, «O'zbekiston» restorani va b.; *shahar nomlari asosida:* «Namangan» kafe-restoran , «Pekin» xususiy tibbiyot klinikasi, «Asaka Bank», «Namangan Hotel», «Akhsikent Hotel», «Chust Hotel» mehmonxonalari, «Uztex Uchkurgan» fabrikasi, «Kosonsoy Ser» tijorat kompaniyasi va b.; *tarixiy toponimlar asosida*: «Turon», «Buyuk Ipak Yo'li» banklar, «Turkiston» tantanalar uyi va b.; *qit'alar nomlari asosida*: «Asia Travel» sayohat agentligi, «Osiyo Xalqaro Universiteti» va b.; *daryo nomlari asosida*: «Norin» mehmonxonasi, «Amudaryo» kafe-oshxona va boshqalar. tog' nomlari asosida: «Everest» o'quv markazi va b.

v) **mifonim asosida paydo bo`lgan ergonimlar (mifoergonim):** «Alpomish/Alpomish», «Alpomish Fitness-club» sport komplekslari, «Tomaris Nur» gipermarketi, «Camelot Dent» stomatologiyasi, «Faraon» restorani va b.

g) **fitonim**[33] **asosida paydo bo`lgan ergonimlar (fitoergonim):** «Roza», «Arxideya» go'zallik salonlari, «Avokado» o'quv markazi, «Boychechak», «Moychechak» bolalar bog'chalari, «Nastarin» kafesi, «Anor» kafe-restorani, «Uzum» onlayn savdo tarmog'i va b.

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[33] Березович Е.Л. Из русской народной геммонимии: тальян. Ж.: Русская речь, ;№ 4. –2021. С.61-76. https://docs.yandex.ru/docs/view?tm=17382

d) **gemmonim asosida paydo bo`lgan ergonimlar (gemmoergonim)**: «Marvarid» tantanalar uyi, «Diamond», «Sadaf» stomatologiyalari, «Feruz» oshxona-restorani va b.

e) asarlar, filmlar, multfilmlar qahramonlariga asoslangan ergonimlar: «Pinokkio» do‘koni, «Masha va ayiq» kafesi, «Sim-sim» savdo markazi «Gladiator fitness» fitness zali va b.

Ergonimlar til belgilarini aralashtirish yoki til vositalari kompleksidan foydalanish xususiyatiga ega. Samarali usullardan biri bu «til o'yinidir» (языковая игра), bu ko'pincha lingvistik me'yorlarning buzilishida namoyon bo'ladi. Nanmangan ergonimiyasida «til o'yini» shakllari o'zbek, rus, turk va ingliz tillarining tarkibiy qismlaridan iborat kompozitsiyalarda qo'llaniladi. «Til o'yinining» imlo, grafik, so'z yasash, morfologik shakllari yagona asosiy printsiplarga asoslanadi:

- tillarning grafik tizimlarini birlashtirish;
- transliteratsiya va transkripsiya.

Grafik tizimlarni birlashtirish misollariga quyidagilar kiradi:

a) belgilardan foydalanish:

«+» belgisi: «Doktor+» xususiy klinikasi, «Shapmur+» kafesi, «Seven+» bolalar o‘quv markazi, «Apteka + Optika» aptekasi, «Sardoba+» kafesi va b.

«&» ampersand belgisi: «J&M» kafe, «Sa & Di» do`koni, «Fun & Sun» turistik kompaniyasi va b.

b) raqamlar ishlatish orqali: «999 apteka», «Apteka +03», «777 apteka», «555 apteka», «333 apteka», «Apteka24», «777 kafe», «Lagman 24» oshxona-kafe, «Lab 24/7» tibbiy laboratoriya va b.

Ergonimlarni loyihalashning grafik shakllariga ayrim (so`z o`rtasidagi) harflarni katta harflan bilan yozish ham kiradi. Ushbu mintaqadagi shakllar ko'pincha chet tilidagi ergonimlarda qo'llaniladi va ko'pincha transliteratsiya asosida namoyon bo'ladi.

- o‘zbekcha va inglizcha so‘zlarni rasmiylashtirishda:

«Zamin Travel» turistik agentligi, «Retro Milliy» kafesi, «AvtoMakon» avtoservisi, «Barokat Pharm» aptekasi, «Oftob Medline» tibbiy klinika va b.

- ruscha va inglizcha so‘zlarni rasmiylashtirishda: «Testo By», «MigBistro» kafelari, «KidsDom» bolalar kiyim do‘koni, «InBazar» savdo markaz va boshqalar.

- o‘zbekcha va turkcha so‘zlarni rasmiylashtirishda: «Safia Bakery» kampaniyasi, «Baraka Kebab» kafesi va .

Maxsus guruh qisqartma ergonimlardan iborat. F. F. Aliyanova[34] ularni abbroergonimlar deb ataydi, ya’ni qisqartirilgan shakllardagi ergonimlar va ularning tasnifini beradi. O‘rganilgan hududda abbroergonimlarni chuqur o‘rganish qiyinchilik tug‘dirgan, chunki bu ergonimlarda bir nechta tillar ishlatilgan.

[34] . Алистанова Ф. Ф. Обновленная лексикологическая классификация эргонимов-неологизмов // Мир науки, культуры, образования. 2015. № 4 (53). С. 265-268.

Zamonaviy o‘zbek yozuvi lotin alifbosiga asoslangan, shuning uchun qisqartma qaysi tildan kelib chiqqanini aniqlash qiyin bo‘lgan – o‘zbek yoki ingliz tili.

Namangan shahridagi abbroergonimlarni ko‘rib chiqamiz.

So`zlarning birinchi harfi (initsial) asosida paydo bo`lgan abbroergonimlar: O`MB (NBU) banki, SPC o‘quv markazi (Statistical Process Control), LSL o‘quv markazi (Linden Scripting Language (skript tili)), ZZZ klinikasi, BTS pochtasi va b.

b) Tovushli guruh. Ushbu qisqartmalar boshlang‘ich so‘zlar tovushlardan tashkil topgan bo‘lib, odatdagi so‘z kabi o‘qiladi: EMU pochtasi, OTTO kafe-restorani va b.

II. Murakkab ergonimlar (qo`shma ergonimlar).

a) so`zlarning bosh bo`ginlar qo'shish asosida: «UZPOST» pochtasi, «JanaPOST» kuryerlik xizmati, «Svetkom» gullar do'koni, «Shams-med» tibbiy markazi, «Immuno Lab» tibbiy laboratoriysi va b.

b) so'z qismini to'liq so'z bilan qo'shish: «Agrobank», «MKBANK», «Octobank», «Ekobozor» do'koni, «Marhabo Shifo», «Dildora shifo», «Nur Med», «Mehr-shifo» xususiy klinikalari, «PalmaTuR» sayyohlik agentligi va b.

c) Butun so'zlarni qo'shish: «Hamkorbank», «Xalqbank», «Asakabank», «Kofe-Mofe» kafe va b.

Ko'plab abbroergonimlar aralash usulda yaratilgan. Ular orasida aralash boshlang'ich-bo'g'inli yoki bo'g'in-boshlang'ich so'zlar mavjud: «TBC Bank», «AKB Kapitalbank», «CHAB Trastbank», «AO Invest Finance Bank», «SD clinic» xususiy tibbiy kliniksi, «NBF med» , kliniksi, «MED LUX PRO» klinikasi, «RRR academy» xususiy maktabi va b.

Zamonaviy ergonimlarini yaratishning mashhur usullaridan biri – uning tarkibiga indekslar (morfa-indeks) [35]. qo'shishdir. Indeks raqam, harf, domen belgisi yoki mintaqaga, shaxsga tegishli bo'lgan har qanday belgi bo'lishi mumkin: *raqam* –«Lavash Center № 1» kafesi, «№1 Somsa» kafesi, «Kapitan № 1» erkaklar kiyimi do'koni va b.; *harf* –«N-ergo» trenajor zali, «Doktor D», «Doktor A», «M-Clinic» xususiy tibbiy klinikalari, «S-market» do'koni, «Atlas Baby M» bolalar bog'chasi va b.; *domen belgisi yoki mintaqaga tegishli bo'lish* –«Flowers.uz» do'koni, «Uztex Uchkurgan» fabrikasi, «Apple.Uzb» do'koni, «AvtoUz» avtosaloni va b.

Shunday qilib, Toshkent shahridagi ergonimlarning leksikosemantik tarkibini tahlil qilish natijasida, oddiy onimlash 26% ergonimlarda, metaforik onimlash 45%, til vositalarining aralashuvi esa 29% ni tashkil etadi.

O'rganilgan hududda transformatsiyalash yordamida 76% ergonimlar shakllangan, ulardan antroponim-ergonimlar 54%, toponim-ergonimlar 23%, fitonim-ergonimlar 13%, gemmonim-ergonimlar 6% va boshqa 4% ni tashkil etadi.

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[35] Алистанова Ф.Ф. Особенности образования современных эргонимов лексико-синтаксическим способом и аббревиацией. Филологические науки. Вопросы теории и практики. Тамбов: Грамота, 2017. № 5(71): в 3-х ч. Ч. 1. С. 56-58. www.gramota.net/editions/2.html

Zamonaviy ergonimlarni shakllantirishning yangi usullaridan biri – til belgilarini aralashtirishdir: grafika belgilar bilan aralashish 15%, raqamlarni ishlatish 24%. Toshkent shahridagi ergonimlarda orfografik o'yin – orfografik normalarni ataylab buzish, reklama funksiyasini kuchaytirish maqsadida kuzatiladi.

O'rganilayotgan mintaqaning shahar tilining o'ziga xos xususiyati uning bir necha tillarda: o'zbek, rus, ingliz va turk tillarida joylashganligi. Bir nechta tillarning ishlashi bitta nomda namoyon bo'ladi va korxona yoki tashkilot belgisida aks etadi. Misol sifatida Toshkent xalqaro moliya boshqaruvi va texnologiyalar universiteti belgisini keltirish mumkin.

Adabiyotlar ro'yxati.

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BOSHLANG‘ICH TA’LIMDA EVRISTIK TA’LIM TEXNOLOGIYASINI QO‘LLASHNING NAZARIY VA KONSEPTUAL ASOSLARI

Annotatsiya: *Evristik ta’lim texnologiyasi metodlari o‘quvchilardan ijodiy xususiyat kasb etuvchi yuqori darajadagi bilish faoliyatini tashkil eta olish ko‘nikma va malakalariga ega bo‘lishni taqozo etadi. Bu texnologiya boshlang‘ich sinf o‘quvchilari uchun mo‘ljallangan. Qadimgi Yunonistonda Evristika deganda Suqrot tomonidan o‘qitiladigan o‘quv tizimi tushunilgan, ya’ni o‘qituvchi o‘quvchini muammoni mustaqil hal qilish uchun fikrlashga yo‘naltirilgan. Evristik o‘qitish o‘quvchiga nafaqat bilimlarni egallash, balki mashg‘ulotlarning shaxsiy maqsadlari, o‘rganilayotgan fanni o‘zlashtirish yo‘llarini, ta’lim natijalarini ifoda qilish shakllari va baholash imkonini beradi.*

Kalit so‘zlar: *Evristik ta’lim, ijodiy faoliyat, faoliyat, evristik funksiya, fikrlashning moslashuvchanligi, rivojlanish, tanqidiylik,o‘quv-bilish faolligi.*

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THEORETICAL AND CONCEPTUAL BASIS OF THE APPLICATION OF HEURISTIC EDUCATIONAL TECHNOLOGY IN PRIMARY EDUCATION

Annotation: *Heuristic educational technology methods require students to have the skills and qualifications to organize high-level cognitive activity that is creative. This technology is intended for primary school students. In ancient Greece, heuristics was understood as the educational system taught by Socrates, that is, the teacher directed the student to think in order to independently solve the problem. Heuristic teaching allows the student not only to acquire knowledge, but also to set personal goals for the lessons, ways of mastering the subject being studied, forms of expression and assessment of educational results.*

Keywords: *Heuristic learning, creative activity, activity, heuristic function, flexibility of thinking, development, criticality, learning and cognitive activity.*

Kirish. Jahonda ta’lim sifati va samaradorligini oshirish, bo‘lajak mutaxassislarning ta’limning zamonaviy paradigmalari va yondashuvlari asosida ta’lim olishlarini ta’minlashga alohida e’tibor qaratilmoqda. Pedagogik loyihalashtirish va modellashtirish texnologiyalarini takomillashtirishga oid tadqiqotlar dunyoning yetakchi universitetlarida Association for Educational Communications and Technology – AECT (aqsh), Belfield pedagogical university (Germaniya), National Advice on pedagogical technology (Angliya) olib borilayotganligiga qaramay ta'lim jarayonida boshlang'ich ta'lim fanlarni integratsiyasini ta'minlash orqali boshlang'ich sinf o'quvchilarining o'quv-bilish faolligini rivojlantirish mexanizmlarini takomillashtirish masalalari dolzarbligicha qolmoqda.

Axborot, pedagogik va turli xil telekommunikatsion texnologiyalardan keng foydalanish XX asrning ikkinchi yarmiga xos bo'lib, hozirgi kunda dunyoning rivojlangan mamlakatlarida uchinchi texnologik inqilob yuz bermoqda. Yangi texnologiyalarning sanoat va qishloq xo'jaligida paydo bo'lishi, hisoblash mashinalarining yaratilishi axborot olamining shakllanishi va yuqori texnologiyalarning paydo bo'lishiga olib keldi. Natijada inson tomonidan qayta ishlanadigan va qo'llaniladigan axborot hajmi keskin ortib ketdi. Texnologik inqilob va undan keyingi sanoat jamiyatining paydo bo'lishi insonga qo'yiladigan funksional talablarning o'zgarishi bilan bir qatorda ta'lim tizimidagi o'zgarishlarga ham olib keldi.

Zamonaviy sharoitda nostandart fikrlovchi ijodkor insonni tarbiyalash birinchi o'ringa chiqmoqda. Agar avvallari bor kuch o'quvchilarning bilimlarini kengaytirishga qaratilgan bo'lsa, bugungi kunda asosiy e'tiborni hayot tarzini yaratish, uni yaxshi tomonga o'zgartirish, malaka va qobiliyatlarini rivojlantirishga qaratilmoqda. Demak, o'qish faqat kelgusidagi kasbiy faoliyat va hayotga tayyorgarlik bo'la olmaydi, u bir vaqtning o'zida ham ish, ham hayotga tayyorgarlik bo'lishi, tadqiqotchilik izlanishi, ishlab chiqarish mehnati, muloqotning turli shakllari bilan birlashishi kerak. Bu esa butun o'quv-tarbiyaviy jarayonning insonni rivojlantirishga yo'naltirilishi kerakligini bildiradi. Ta'lim nafaqat insonni bilimlar bilan qurollantirishi, balki uni shaxs sifatida rivojlantirishi, takomillashtirishi ham lozim [7].

Adabiyotlar tahlili va metodologiya

Evristik ta'lim bevosita ijodiy faoliyat bilan bog'liq bo'lib o'quvchilar o'quv bilish faolligini rivojlantirishda mantiqiy, tanqidiy, tahliliy, ijodiy fikrlashni shakllantirish omili hisoblanadi. O'zbek xalqi madaniyatining tarixida ham qomusiy olimlarimiz faoliyatida ijodkorlik muhim o'rin egallagan. Jumladan, Abu Rayxon al-Beruniy [1], Muhammad ibn Muso al-Xorazmiy [5], Abu Ali ibn Sino [2], Abu Nasr Forobiy [3], Alisher Navoiy [4] va shu kabi buyuk qomusiy olimlar ijodiy faoliyatlarida bilish va uning inson kamoloti hamda jamiyat taraqqiyotidagi ahamiyatiga asosiy e'tiborni qaratganlar. Shu sababli "Ilk Uyg'onish davri", "So'nggi Uyg'onish davri", O'rta Osiyoda ma'naviy yuksalishning "Oltin davri" degan terminlar fanda keng qamrovli o'rinni egallagan. Fanda Al-Xorazmiyning Sonlar nazariyasida buyuk inqilob qilganligi ("Algoritm" termini ul zot nomi asosida fanga kiritildi), Al-Beruniy va Al-Farg'oniylarning qomusiy ilmlari hamda Yer shari to'g'risidagi ta'limotlari, Abu Ali ibn Sinoning tibbiyotning asoschisi ekanligi (meditsina termini bevosita ibn Sino nomida kelib chiqqanligi) va hokazo dastlabki akademiyalar va dorilfununlarning tashkil etilganligi ijodiy faoliyat mahsuli hisoblanadi [6, 38-b].

Ushbu jarayonlar kishilik jamiyati taraqqiyotining hech bir bosiqchida oʻz ahamiyatini yoʻqotgan emas. Jumladan, bugungi kunda boshlangʻich sinf oʻquvchilarining oʻquv-bilish faolligini rivojlantirish boʻyicha sharoitlar davlatimiz tomonidan toʻliq yaratilgan. Bu borada mutaxassis olimlarimiz tomonidan diqqatga sazovor ishlar amalga oshirilmoqda. Xususan, X.A.Toʻraqulov [143], R.Mavlonova [82], X.I.Ibragimov [63] ishlarida boshlangʻich ta’lim mazmunini modernizatsiyalash va ular asosida tayyorlanayotgan boʻlajak boshlangʻich sinf oʻqituvchisini kabiy pedagogik faoliyatga tayyorlash metodologiyasini boyitishning didaktik asoslari yaratilgan.

Pedagogika fanidan izohli lugʻatda ta’kidlanishicha, “**Intellektual mulk** – ijodiy aqliy faoliyat mahsuli boʻlib, unga ixtirochilik va mualliflik manbayi huquqi majmuiga kiruvchi, fan, adabiyot, san’at va ishlab chiqarish sohasida ijodiy faoliyatning boshqa turlari, adabiy, badiiy, ilmiy asarlar, ijrochi aktyorlar san’ati, jumladan, ovoz yozish, radio va televidenie asarlari, kashfiyotlar, ixtirolar, ratsionalizatorlik takliflari, sanoat namunalari, komryuterlar uchun dasturlar, ma’lumotlar ombori, tovar belgilari, firma atamalari va boshqa aqliy mulk manbalari kiradi **[***10, 480 -b.***].**

Pedagogika fanlari doktori, professor R.Mavlonova fikricha, “Fan va texnika jadal sur’atlar bilan rivojlanib borayotgan davrda bolalarning aqliy rivojlanish tezligi ham oshib borishi kuzatilmoqda. Natijada ta’limning umumiy darajasi ham oshayotganligi shubhasiz. Biroq, bizning nazarimizda, boshlangʻich ta’limning asosiy vazifasi jadallashtirish, oʻzlashtirish jarayonini tezlashtirish boʻlishi kerak emas. U ta’limni ratsionalizatsiyalash, aqliy rivojlanishiga yordam beruvchi samarali ta’lim metodlarini qoʻllash natijasi boʻlishi lozim”. [11, 3-b.].

Natijalar

Boshlangʻich ta’lim tizimining asosiy maqsadi – turli hayotiy vaziyatlarda toʻgʻri yoʻnalish tanlay oladigan ijodiy shaxsni shakllantirishdan iborat boʻlib, bu koʻp hollarda boshlangʻich sinfdagi ta’lim jarayoniga bogʻliq boʻladi. Boshlangʻich sinf oʻqituvchilari oʻquvchilarga ishga qanday munosabatda boʻlishni oʻrgatishlari ular kelajakda ijodiy fikrlovchi yoki shunchaki nofaol yaratuvchi shaxslar boʻlib shakllanishiga bogʻliq boʻladi. Boshlangʻich sinfda oʻquvchilarning umumiy tayyorgarligining asosi yaratiladi va ular yuqori sinflarda takomillashtiriladi. Oʻquvchilarda ijodiy fikrlash, faol harakat qilish va oson moslashuvchanlik kabi sifatlarni shakllantirishni birinchi sinfdan boshlash zarur.

Ma’lumki, boshlangʻich sinf oʻquvchisida ijodiy fikrlash uch bosqichda rivojlantiriladi: I bosqich 5-7 yoshga mos keladi va koʻrish-xatti-harakatli fikrlashning rivojlantirilishi bilan bogʻliq; II bosqich 8-11 yoshga mos keladi va fikrlashni rivojlantirishga qaratilgan; III bosqich 11-14 yoshga mos kelib, evristik fikrlashni rivojlantirishga qaratilgan [12].

Dastlabki ikki bosqich, odatda, maktabgacha va maktabda oʻqitishning boshlangʻich davriga toʻgʻri keladi. Aks holda maktabning oʻrta boʻgʻinida ishni koʻrish-harakat orqali fikrlashni rivojlantirishdan boshlashga toʻgʻri keladi, chunki pedagog-psixolog olimlar o‘z tadqiqotlarida fikrlashni rivojlantirish izchilligi ko‘rish-xatti-harakatli fikrlashni rivojlantirishdan ko‘rish-obrazliga va so‘ngra fikrlashning so‘zli-mantiqiy turlariga o‘tishi kerakligini va bu bosqichdan sakrab o‘tish mumkin emasligini isbotlab berganlar.

Fikrlashning har bir turini rivojlantirish uchun o‘zining senzetiv davri mavjudligini hisobga olib, ijodiy fikrlashni shakllantirish bo‘yicha maktabning o‘rta bo‘g‘inida boshlangan ishlar boshlang‘ich maktabdagiga nisbatan kamroq samarali va ancha murakkab bo‘ladi, degan xulosaga kelish mumkin.

Nafaqat ijod, balki faollik ham, shaxsning oson moslashish layoqati ham bolalikda shakllanadi. Bola bolaligidanoq panada bo‘lishga, zaruratsiz o‘z fikrini aytmaslikka o‘rganib qolsa, keyinchalik ham u shundayligicha qoladi.

Ma’lumki, boshlang‘ich sinf o‘quvchilar agar o‘qituvchi shunga rag‘batlantirsa va yo‘naltirsa, o‘z faoliyatiga ehtiyojlarni va imkoniyatlarini aniqlash, zarur axborotni topish va qo‘llash, o‘z ishini rejalashtirish va yuzaga kelgan masalalarni hal qilish, o‘z faoliyatini baholash va tuzatish qobiliyatiga ega bo‘ladilar [13]. Biz o‘qitish jarayoni bajariladigan amallarni diktant yo‘li bilan yozdirib amalga oshiriladigan mehnat darslarida boshlang‘ich sinf o‘quvchilarning reaksiyalarini kuzatishimizga to‘g‘ri kelgan. O‘qituvchining masalani yechish yo‘llarini o‘ylab ko‘rish, bajarilishi lozim bo‘lgan ishlarning rejasini tuzish va shunga o‘xshash boshqa takliflariga ular ajablanish va norozilik bilan javob berar edilar, axir ularda dars jarayonida ular savollarga javob berishlari emas, balki fikrlash lozimligini aytar edilar. Shunday qilib, ko‘p narsa o‘qituvchining o‘qish jarayonini tashkil qilishiga, o‘quvchining faol intellektual va amaliy faoliyatga jalb qilinish darajasiga bog‘liq ekan. Birinchi sinf o‘quvchilariga o‘z munosabatlarini o‘zgartirishlari va berilgan topshiriqlarini bajarish maqsadini tushunishlari uchun bor-yo‘g‘i ikkita dars kerak bo‘ldi. Ishni amallar ketma-ketligida bajarish me’yorga aylanib qolgan uchinchi sinfda vaziyatni tuzatish qiyinroq bo‘ladi. A.I.Savenkovning ta’kidlashicha, “har bir faoliyat ijodkorlik emas, balki har qanday ijodkorlik faoliyat hisoblanadi”. Faoliyatning o‘zi ijodiy jarayonning tarkibiy qismi sifatida namoyon bo‘ladi [14].

Evristik ta’lim texnologiyalari asosida boshlang‘ich sinf o‘quvchilarining o‘quv-bilish faolligini rivojlantirish jarayonini o‘quv maqsadi bilan bog‘liq holda pedagogik jihatdan ta’minlanishi ham muhim didaktik ahamiyatga ega. Bunda:

1. O‘quvchiga taqdim etiladigan topshiriqlarda uning yutuqlari, ijodiy tahlil natijalari, o‘quvchi kuchini umumlashtirish imkoniyatlari, unda shakllangan tajribalar va kognitiv yo‘nalish o‘z ifodasini topishi kerak.

2. O‘qituvchi ta’lim maqsadi bilan o‘quvchilarning imkoniyatlari, o‘quv materiallarini o‘zlashtirish darajasi o‘zaro mutanosibmi?- degan savolni o‘z oldiga qo‘ya olishi lozim.

Evristik ta’lim texnologiyalari asosida boshlang‘ich sinf o‘quvchilarining o‘quv-bilish faolligini rivojlantirish jarayonida mazkur o‘quv vaziyatini kommunikativlik, muayyan faoliyatga yo‘naltirilganlik jihatidan ta’minlash ham alohida ahamiyat kasb etadi. Evristik ta’lim texnologiyalari asosida boshlang‘ich sinf o‘quvchilarining o‘quv-bilish faolligini rivojlantirish jarayonida birinchi navbatda o‘quvchining shaxsiy taraqqiyoti ta’minlanishi zarur. Bu tipdagi o‘quv jarayonlarida o‘quvchi bilan o‘qituvchi, o‘quvchi bilan o‘quvchilar orasida o‘zaro muloqot, dialog tarzidagi suhbat, fikr almashish uchun qulay pedagogik vaziyat vujudga keltirilishi talab etiladi. O‘quv-biluv jarayonida o‘quvchining shaxsiy rivojlanishi uchun ahamiyatli bo‘lgan natijalar qo‘lga kiritiladi. Ushbu natijalardan kelib chiqqan holda o‘qituvchi o‘quv jarayonining o‘quvchining ijodkorligi nechog‘li yo‘naltirilganligini aniqlab olishi va baholashi lozim. Shunga ko‘ra o‘qituvchi ta’lim maqsadiga erishish uchun nima qilish kerakligi, qanday metodik ko‘rsatmalar zarurligini belgilab oladi.

Evristik ta’lim texnologiyalari asosida boshlang‘ich sinf o‘quvchilarining o‘quv-bilish faolligini rivojlantirish jarayoni samaradorligini ta’minlashda kasbiy mahoratga ega bo‘lgan o‘qituvchilarning o‘zaro hamkorligi, bir-birlarining tajribalaridan ijodiy foydalana olishlari muhim ahamiyat kasb etadi. Bunda tajribali o‘qituvchilarning o‘zaro maslahatlashuvlari, suhbatlarini tashkil etish muhimdir.

Ta’lim jarayoni evristik va undan keyingi ijodiy darajalarga erishganida, yuqori darajadagi muammoli, muammoli-rivojlantiruvchi ta’lim, vaziyatlarni tahlil qiluvchi topshiriqlar, ishchanlik o‘yinlari kabi metodlar, shuningdek, mustaqil ishlar, muammoli o‘quv topshiriqlaridan foydalanish mumkin.

Ta’lim maqsadini belgilashda pedagogik texnologiyalar nazariyasiga tayanuvchi o‘quvchilar o‘zlashtirishining boshlang‘ich, algoritmik, evristik hamda ijodiy darajalariga tayanib ish ko‘rish lozim bo‘ladi. Muayyan pedagogik texnologiyaning tanlanishi rejalashtirilgan mashg‘ulotda qaysi darajadagi bilim va ko‘nikmalarni o‘zlashtirish nazarda tutilganligiga bog‘liqdir.

Boshlang‘ich va algoritmik xarakterdagi darajalar produktiv (ijodiy) bilim va ko‘nikmalarni aniqlash uchun mezon vazifasini o‘taydi. O‘zlashtirishning ushbu darajalarini aniqlashga yordam beruvchi texnologik jarayonni ijrochi texnologiya deb atash mumkin. O‘quv materialini esda saqlab qolish hamda ko‘nikmalarni hosil qilishga yo‘naltirilgan faoliyat darajasi o‘quvchilarning reproduktiv va produktiv faoliyatlarini uyg‘unlashtirishni talab qiladi. Mazkur holat o‘quv jarayonini tashkil etishga muammoli rivojlantiruvchi texnologiyani tadbiq etilishi bilan amalga oshadi. Ushbu texnologiya asosida ta’lim jarayonini tashkil etish ta’lim oluvchilarni o‘quv materialini tahlil qilish, mashg‘ulotlarda o‘z mustaqil fikrlari bilan qatnashish, munozara hamda ishchanlik o‘yinlarida faol ishtirok etishga o‘rgatishi lozim.

Muhokama

O‘qituvchi pedagogik mahoratini aql-idroki, tafakkuri, ijodiy faoliyatisiz yaratib va takomillashtirib bo‘lmaydi. O‘qituvchi ijodiy faoliyatining har qanday turida ayni bir vaqtning o‘zida uning ham aqliy, ham jismoniy mehnati ob’ektiv ravishda ishtirok etadi. Ijodiy faoliyat o‘qituvchi hayotining negizi hisoblanadi. O‘qituvchi miyasida har qanday fikr, hech qanday qarash va tushuncha o‘z-o‘zidan tug‘ilmaydi hamda rivojlanmaydi. Balki ularning hammasi ma’lum darajada ijodiy fikrlar bilan bog‘langan.

Inson yoki jamoaviy faoliyat shakli - avval mavjud bo‘lmagan ammo sifat jihatidan yangisini yaratish, rag‘batlantirish yo‘li hisoblanadi. Ijodiy faoliyatning asl mahsuloti nostandart gipotezani shakllantirish, noan’anaviy bo‘lgan muammoli vaziyat elementlarining o‘zaro bog‘liqligi, bevosita bog‘liq elementlarni jalb qilish, ular o‘rtasida o‘zaro bog‘liqlikning yangi turlarini o‘rnatish hisoblanadi. Buning uchun zaruriy shartlar sifatida - fikrlashning moslashuvchanligi (hal qilish usullarini o‘zgartirish qobiliyati), tanqidiylik (samarali bo‘lmagan strategiyalardan voz kechish qobiliyati), tushunchalarni birlashtirish va uyg‘unlashtirish qobiliyati, idrokning yaxlitligi. Ijodiy qobiliyatlarning yaratilishi o‘ziga xos bo‘lib ijodkorlik katta va yorqin iste’doddan tortib nozik va mukammalgacha bo‘lganlarni o‘zi ichiga oladi. Ammo ijodiy jarayonning mohiyati hamma uchun bir xil bo‘lib ijodning o‘ziga xos mazmunida, yutuqlar ko‘lamida va ularning jamiyatdagi ahamiyatida namoyon bo‘ladi.

Xulosa

Evristik ta’lim texnologiyalari asosida boshlang‘ich sinf o‘quvchilarining o‘quv-bilish faolligini rivojlantirish pedagogik jihatdan asosan ikki yo‘nalishda ta’minlanadi:

1. O‘quvchi shaxsini uzluksiz rivojlantirishga yo‘naltirilgan ta’lim texnologiyalarini qo‘llash.
2. O‘quvchini ta’lim jarayonida uzluksiz rivojlantirish va pedagogik-psixologik jihatdan qo‘llab-quvvatlash orqali.

Maktab ta’limi jarayonida qo‘llaniladigan o‘quvchi shaxsini ijtimoiy jihatdan shakllantirishga yo‘naltirilgan ta’lim texnologiyasini ijtimoiy-pedagogik hamda madaniy jihatdan yo‘naltiruvchi vositalar: o‘quvchilarning ijtimoiy xulq-atvori, egallagan bilimlari, ularni uzluksiz rivojlantirishga yo‘naltirilgan o‘quv materiallari, o‘quvchi bilan o‘qituvchining hamkorligi kabilar.

Evristik ta’lim texnologiyalari asosida boshlang‘ich sinf o‘quvchilarining o‘quv-bilish faoliyatini rivojlantirishda intelektual sifatlarini takomillashtirishga ham qaratilishi lozim. Evristik ta’lim texnologiyalari muntazam qo‘llanilgan sinflardagi o‘quvchilar o‘rtasida o‘tkazilgan so‘rov natijalari ularda o‘ziga nisbatan ishonch, intiluvchanlik, insonparvarlik, mas’uliyat, javobgarlikni his etish, yutuqlarga intilish, bardosh, yangiliklar yaratishga intilish kabi ijobiy sifatlar qaror topganligini ko‘rsatdi. Shunga ko‘ra evristik ta’lim texnologiyalari asosida boshlang‘ich sinf o‘quvchilarining o‘quv-bilish faolligini rivojlantirish o‘qituvchining pedagogik mahoratiga ham bog‘liq.

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FARG‘ONA VODIYSI SHAHARLARIGA IQLIMINI TA’SIRI

Annotatsiya. *Maqolada Farg‘ona vodiysida iqlim hosil qiluvchi omillar, shamollar yo‘nalishi (guli),xarorat ko‘rsatgichlari, havo namligi, atmosfera yog‘inlari miqdori. morfogenetik xususiyatlari haqidagi ilmiy ma’lumotlar berilgan.*

Kalit so‘zlar: *Urbanizatsiya, kotlovan, klassifikatsiya, shtil konvektiv, Orografik, atmosfera, RECHU*

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THE IMPACT OF CLIMATE ON THE CITIES OF THE FERGANA VALLEY

Abstract. *n the article, factors that create climate in the Fergana Valley, the direction of winds, temperature indicators, air humidity, and the amount of atmospheric precipitation. scientific information about morphogenetic characteristics is given.*

Key words: *Urbanization, excavation, classification, style convective, Orographic, atmosphere, RECHU*

Kirish: Farg‘ona vodiysining iqlimi va uning hosil bo‘lishi juda ko‘p omillarga bohliq. Birinchi va muhim omil uning geografik o‘rni, geografik tuzilishi bo‘lib, unga ko‘ra cho‘l va chala cho‘l (dasht) zonalarining iqlimi hususiyatlarini keltirib chiqaradi. Orografik jihatidan deyarli barcha tomonlari tog‘lar bilan o‘ralganligi uchun havo oqimilarining qarshiliksiz kirib kelishi imkoniyati pasayadi. Farg‘ona vodiysidga, ayniqsa, qish oylari kirib keluvchi havo massalari tog‘ yonbag‘irlari bo‘ylab vodiy markazi tomon tushib kelganda yanada sovib bir qancha muddat turib qoladi va havo haroratining keskin pasayishi kuzatiladi. Babushkin L.N. klassifikatsiyasi bo‘yicha Farg‘ona vodiysi hududi (tekistlik qismi) mutloqa quruq va juda quruq zonaga ajratiladi. Bu yerda 0,08-0,2 gacha, namlanish koeffitsenti 0,02 dan 0,09 gachani tashkil etadi.

Asosiy qism: Farg‘ona vodiysining iqlimi quruq, davomli, yozi issiq, qishi mo‘tadil, shu kenglikda joylashgan qo‘shni Toshkent-Mirzacho‘l okrugidan biroz farq qiladi: vodiyning atrofini o‘rab olgan tog‘lardan esadigan sovuq havo qishda Farg‘ona botig‘ining markaziy qismida to‘planib qoladi, natijada yanvarning o‘rtacha harorati —3°S bo‘ladi. Ba’zi yillari shimol va shimoli-sharqdan sovuq xavo massasi esib, tog‘lardan oshib o‘tadi va vodiy haroratini juda pasaytirib yuboradi. Ana shunday paytlarda eng past harorat —3,0, —31°S ga xushadi. Ammo qish faslida sovuklar bilan birga, ba’zan + 15°S issiq kunlar ham bo‘lib turadi. Farg‘ona vodiysida bahor qisqa bo‘lib, ob-havo tez-tez o‘zgarib, goh isib, goh sovib ketadi. Ayniqsa bahorda esgan kuchli shamollar tuproq qatlamining ustki qismini uchirib, changto‘zon vujudga keltiradi. Bu kuchli shamollar ichida «Qo‘qon» va «Bekobod» deb ataladigan shamollar xarakterlidir. Bu shamolar vodiyda oktabr oyidan mart oyigacha hukmronlik qiladi. Shamol ayniqsa qishda vodiyning sovib ketishi natijasida, uning sharqida antitsiklon, g‘arbda — Mirzacho‘lda siklon turganda kuchayadi. Quruq bo‘lib, okrugdagi eng kam yog‘in tushadigan (yillik yog‘in miqdori 100—150 mm) hudud hisoblanadi. Rayon hududida faqat Sirdaryoning yangi qayiri va markaziy qismidagi kichik qumliklar hamda sho‘rxok joylargina o‘zlashtirilmagan, xolos. vodiyda yog‘in miqdori 98—226 mm. Lekin yog‘in miqdori hududning hamma yyerida bir xil emas. Agar okrugning g‘arbiy qismida (Qo‘qon) 98 mm yog‘in tushsa, sharqiy qismida (Andijon) 226 mm yog‘in yog‘adi. Buning asosiy sababi shuki, okrug relyefi g‘arbdan sharqqa balandlashib boradi.

Ma’lumki, shaharlarning qurilishidagi dastlabki bosqich tabiiy landshaft fonida amalga oshiriladi; Bunday holatda shaharlar landshaftining hududiy tabaqalanishiga ta’sir etuvchi omillar ko‘proq tabiiy omillar hisoblanib ularning muhimlari quyiidagilardan iborat deb hisoblaymiz:

1. Tabiat zonasi (geografik joylanishi).
2. Geologik geomorfologik xususiyatlari.
3. Shamollar yo‘nalishi (guli).
4. Xarorat ko‘rsatgichlari, havo namligi.
5. Atmosfera yog‘inlari miqdori.

Yuqorida e’tirof etilgan omillar bo‘yicha olib borilgan tadqiqotlarimizda landshaftlarning tabiiy elementlarini Andijon, Namangan, Farg‘ona, Qo‘qon va Marg‘ilon shaharlari bo‘yicha ma’lumotlarni to‘plab qiyosiy tahlil qildik va buning natijasida landshaftlarning tabiiy va resurs potensialidan foydalanishdagi ayrim tafovutlarni aniqladik. Tabiiy landshaft elementlari ichida iqlimiy omillar muhim o‘rin egallaydi. O‘z vaqtida esa yirik shaharlarda o‘ziga xos mikroiqlim hosil bo‘ladi. Farg‘ona vodiysidagi biz tadqiqot olib borgan shaharlarning iqlim ko‘rsatgichlari quyiidagicha tafovutlarga ega [1-**jadval**]

Farg'ona vodiysidagi ko'p yillik o'rtacha iqlim ko'rsatkichlar

Shaharlar	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Yillik o'rtacha
Xarorat													
Andijon	0.2	2.8	9.1	14.9	20.7	26.2	29.1	28	22.6	14.7	7.1	1.2	14.7
Namangan	0.7	3.5	10.2	16.4	22.4	27.6	30.1	28.9	23.5	15.6	7.8	1.5	15.6
Farg'ona	1.7	4	9.8	15.2	21.2	26.5	29	27.6	22.5	15	7.9	2.6	15.2
Qo'qon	1.7	4.3	10.7	17.1	23.6	28.6	30.8	29.2	23.7	16	8.3	2.5	16.3
Yog'inlar													
Andijon	26	37	50	57	50	31	13	9	12	28	35	36	32
Namangan	23	38	48	55	45	23	10	7	10	24	32	33	29
Farg'ona	22	30	43	45	34	23	10	7	9	24	30	31	25
Qo'qon	18	23	34	33	21	13	5	4	6	17	25	18	17
Nisbiy namlik													
Andijon	70 %	69 %	66 %	60 %	50 %	34 %	29 %	32 %	36 %	49 %	66 %	71 %	52 %
Namangan	64 %	60 %	56 %	51 %	44 %	33 %	29 %	32 %	36 %	47 %	60 %	67 %	48 %
Farg'ona	67 %	66 %	62 %	56 %	46 %	32 %	30 %	33 %	40 %	50 %	64 %	67 %	51 %
Qo'qon	69 %	65 %	60 %	51 %	39 %	29 %	27 %	32 %	38 %	50 %	66 %	71 %	49 %

Shamol

Kriteriyalar	Andijon	Namangan	Farg'ona	Qo'qon
Shamolning asosiy yo'nalishlari	G'arbiy25,5% janubiy g'arb 25,1% SHimoliy g'arb 17,6%	Janubiy g'arb 20,5 janub 18,3% shimoliy g'arb 15,1%	Shimoliy 35,7% g'arbiy 20,9% janubiy g'arb 15,2%	Shimoliy 35,7% g'arb 20,9% shimoliy g'arb 19,1%

1-jadval Farg'ona gidrometerologiya boshqarmasi ma'lumotlar asosida muallif tomonidan yaratildi.

1-jadval ma'lumotlaridan ko'rinib turibdiki, shaharlar landshaftidagi iqlimiy tafovutlar unchalik katta emas .Yillik yog'in miqdorida eng ko'p ko'rsatgich Andijon shahriga va eng kam ko'rsatgich Qo'qon shahriga to'g'ri keladi. Buning asosiy sabab shamollar yo'nalishi va kuchi bo'lib Qo'qon shahrida shamolning kuchi 15m/sekdan yuqori bo‘lib nam havo oqimlarini sharqqa Andijon yo‘nalishi tamonga surib yuboradi. Shaharlar iqlimiga ta’sir etuvchi muhim omillardan biri shamollar yo‘nalishi, ularning kuchi bo‘lib, biz tadqiqot o‘tkazgan barcha shaharlarda katta tafovutlar yuzaga keladi. Farg‘ona vodiysining birmuncha g‘arbda joylashgan Qo‘qon shahrida 15m/sek va undan kuchli bo‘lgan shamolli kunlarning takrorlanishi 39 kun, Farg‘ona shahrida 23 kun va Andijon shahrida esa 5 kunga tengdir. Farg‘ona shahriga yaqin joylashgan Marg‘ilon shahrida ham shamollarning yo‘nalishi va kuchini geografik joylashuvi belgilab beradi. Farg‘ona shahri kabi shimoliy va sharqiy yo‘nalishlardagi shamollarning xukumronligi kuchli yan’ni, shimoliy-35,7%, g‘arbiy-20,9%, shimoliy-g‘arbiy-19,1% ni tashkil etadi, qolgan yo‘nalishlar bo‘yicha shamolning o‘rtacha ko‘rsatgichi 2-8% ga teng va shaharlar havosining potensial ifloslanishida shamolning ta’siri yuqori.

Andijon shahri Farg‘ona vodiysining boshqa shaharlariga nisbatan kuchli shamollarni kam esishi bilan ajralib turadi, shahar yo‘nalishiga eng ko‘p g‘arbiy yo‘nalishdagi shamollar xarakatlanadi.

Namangan shahrida ham kuchli shamollarning esishi yil davomida 24 marotoba kuzatiladi va g‘arbdan kirib keluvchi shamollar yo‘nalishidan biroz chetroqda joylashgan. Bu yerda ko‘proq janubiy va g‘arbiy yo‘nalishdagi shamollar ko‘proq esadi, yan’ni janubiy-g‘arbiy -20.5%, janubiy-18,3%, g‘arbiy -15,1% ni tashkil etadi.

Farg‘ona shahri ham shamollarga birmuncha ro‘para joylashgan bo‘lib, shahar iqlimiy potensialida salbiy holatlarni yuzaga chiqaradi. Bu esa shahar atmosferasi ifloslanishiga sharoit yaratadi. Farg‘ona shahrida eng ko‘p esuvchi shamollar yo‘nalishi shimoliy va g‘arbiy yo‘nalishlar bo‘lib, shimoliy -35.7% ni, g‘arbiy 20.9% ni, shimoliy g‘arbiy 19.1% ni tashkil etadi. Tadqiqot olib borilgan shaharlarimiz ichida Qo‘qon shahri shamollarga birmuncha ro‘paraligi, kuchli shamollarning ko‘p takrorlanishi, iqlimiy ifloslanish potensialida shamolning ta’siri kuchli ekanligi bilan ajralib turadi. Shamollar yo‘nalishi va kuchi bo‘yicha g‘arbiy-20,1%, shimoliy –sharqiy-19,7%, sharqiy-19,4%, janubiy-g‘arbiy-15,2%, shimoliy-10,5%, ko‘rsatgichga ega. Shaharlar atmosfera havosining ifloslanishida respublikamiz va boshqa hududlar ustida hosil bo‘lgan chang to‘zonlarining ham salbiy ta’siri kattadir.

Xulosa Chang to‘zonlarining hosil bo‘lishi mahaliy va subektiv omillarga bog‘liqdir. Havoning mahaliy sharoitda konvektiv harakati tufayli hamda katta massadagi sovuq-quruq yoki tropik quruq havo oqimlarining kirib kelishi natijasida respublikamizning deyarli barcha hududlari singari Farg‘ona vodiysida ham chang to‘zonlar hosil bo‘lishi tez-tez kuzatilib, shaharlar atmosfera havosining RECHU dan bir necha barobar ko‘p ifloslanishi ta’minlaydi. Bunday tipdagi chang to‘zonlar respublikamizda 2021 yilning dekabr oylarida ayniqsa atrof muhit holati, kishilar salomatligiga katta xavf tug‘dirdi. Shaharlardagi havoning shtil holatida ifloslanish darajasi sezilarli ravishda kuchaydi. Shaharlar atmosfera havosidagi chang to‘zonlarning yuzaga kelishini oldini olishda, uning salbiy oqibatlarini kamaytirishda albatta yashil maydonlarning talab darajasida bo‘lishi, shaharlar atroflaridagi shamolga ro‘para yo‘nalishlarda baland bo‘yli, ko‘p yillik daraxtlarning 3-5 qatorli himoya polasalarini bo‘lishi maqsadga muvofiqdir.

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RAQAMLI TASVIRLARDA OBYEKT VA BELGILARNI ANIQLASHDA CHUQUR O'RGANISHGA ASOSLANGAN NEYRON TARMOQ MODELLARINING QO'LLANILISHI

Annotatsiya: *Ushbu maqolada raqamli tasvirlarda obyekt va belgilarni aniqlash masalalarini hal etishda chuqur o'rganishga asoslangan sun'iy neyron tarmoq modellarining imkoniyatlari tahlil qilinadi. Xususan, Hopfild neyron tarmog'i arxitekturasi asosida tasvirlarni tanib olish vazifalari ko'rib chiqilgan. Model proyeksiya usuli orqali o'qitilib, buzilgan va o'zgartirilgan tasvirlarni eslab qolish va tiklash xususiyatlariga ega ekani tajribalarda tasdiqlandi. Tahlillar shuni ko'rsatadiki, Hopfild tarmog'i asl tasvirdan 25–30% farqli holatdagi tasvirlarda ham to'g'ri identifikatsiyani amalga oshira oladi. Bu esa sun'iy neyron tarmoqlarning inson miyasi singari assotsiativ xotira va tiklash qobiliyatiga egaligini ko'rsatadi. Mazkur yondashuv obro'li chuqur o'rganish modellarining tasvirni tahlil qilish, xatoliklarni bartaraf etish va noaniq ma'lumotlar bilan ishlashdagi ustunliklarini ochib beradi.*

Kalit so'zlar*: Sun'iy neyron to'rlari, timsollar, timsollarni tanib olish, proyeksiya usuli, Xebb qoidasi.*

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APPLICATION OF DEEP LEARNING BASED NEURAL NETWORK MODELS TO DETECT OBJECTS AND FEATURES IN DIGITAL IMAGES

Abstract: *The article analyzes the capabilities of artificial neural network models based on deep learning in solving problems of recognizing objects and features in digital images. In particular, image recognition problems based on the Hopfield neural network architecture were considered. The model was trained using the projection method and its ability to remember and restore damaged and modified images was confirmed during the experiments. The analysis shows that the Hopfield network can perform correct identification even on images that differ from the original image by 25-30%. This shows that artificial neural networks have the ability to associative memory and extract information, like the human brain. This* *approach reveals the advantages of authoritative deep learning models in image analysis, error correction and working with ambiguous data.*

Keywords: *Artificial neural networks, patterns, pattern recognition, projection method, Hebb's rule.*

Raqamli tasvirlarni tahlil qilish va ulardan obyekt hamda belgilarni aniqlash jarayonida turli usullar qo‘llaniladi. Ushbu usullar orasida eng samaralilardan biri bu — chuqur o‘rganishga asoslangan sun’iy neyron tarmoqlari hisoblanadi. Sun’iy neyron tarmoqlari turli shakldagi va murakkablikdagi tasvirlarni qayta ishlash hamda ulardan muhim axborotni ajratib olish imkoniyatiga ega. Ular o‘rganish (trening) jarayonida tajribalardan olingan bilimlarni umumlashtirish va ilgari uchramagan holatlarda ham to‘g‘ri qaror qabul qilish xususiyatiga ega.

Neyron tarmoqlar tanlangan arxitektura asosida kiruvchi ma’lumotlarga moslashadi va bu ma’lumotlar o‘zgarib borganda, neyronlar orasidagi aloqalarni qayta qurish orqali o‘zaro bog‘liqliklarni shakllantiradi. Bu ularning adaptivlik xususiyatini ko‘rsatadi. Chuqur o‘rganishga asoslangan yondashuvda sun’iy neyron tarmog‘i algoritmlari muayyan ob’ektlar ustida o‘qitilib, umumlashtirish qobiliyatiga ega bo‘ladi hamda kirish ma’lumotlaridagi shovqin yoki tafovutlarga bardosh berish orqali ishonchli natijalar hosil qiladi.

Modelni o‘rgatish jarayonida eng muhim va asosiy axborotlar ajratib olinadi. Bu axborotlar tasvirni tanib olish uchun optimal xotirani shakllantiradi. Shuning uchun chuqur o‘rganishga asoslangan neyron tarmoqlarning yodlash (memorization) va tiklash (reconstruction) xususiyatlari yuqori bo‘lib, ular real vaqt rejimida tasvirlardagi obyekt va belgilarni aniqlashda keng qo‘llanilmoqda. Ayniqsa, klassifikatsiya, segmentatsiya va detektsiya kabi vazifalarda ushbu texnologiyalar sun’iy intellekt sohasining ajralmas qismiga aylangan[1, 2, 3].

J.Xopfild birinchilardan bo‘lib assotsiativ xotiraga asoslangan, timsollarni tanib olishga qodir neyronlar tarmog‘ini taklif qildi. Assotsiativ xotira - bu kirish ma’lumotlari vektorlari o‘rtasidagi munosabatlarni o‘rnatishga qodir tizim. Ikki turdagi assotsiativ xotira mavjud: avtomatik assotsiativ (kirish vektorlarining o‘zaro bog‘liqligi, bir xil vektorning tarkibiy qismlari tekshiriladi) va eteroassotsiativ (agar o‘zaro bog‘liq bo‘lsa ikki xil vektor bo‘lib chiqadi). Assotsiativ xotira masalasi mos etalon timsollarni yodlash va tiklashdan iborat.

Ushbu maqolada Hopfield neyron tarmoqlari yordamida timsollarni aniqlash xususiyatlari muhokama qilinadi. Hopfield tarmog‘i n ta kirish va n ta neyronlardan iborat bo‘lsin. Har bir chiqish, o‘zidan tashqari, barcha neyronlarga sinaptik ulanishlar orqali ulanadi. Keyingi har birida tarmoq ishining bosqichi, i-chi chiqish i-chi kirishga aylanadi. Hopfield tarmog‘ining o‘ziga xos xususiyati - bu mulohazalarning (teskari aloqa) mavjudligi.Hopfield tarmog‘ini o‘rganishning turli xil usullari ma’lum, eng mashhurlari Hebb va proeksiya usuli. Bajarilgan ish timsollarni aniqlash xususiyatlarini aks ettirishda bir nechta Harf misolida ko‘rib chiqilgan. Hebb qoidasiga binoan o‘rganayotganda, Hopfield tarmog‘ini belgilaydigan asosiy bog‘liqlik boshlang‘ich sharti bo‘lgan formula sifatida tavsiflanadi:

$$y_i(0) = x_i$$

Bu yerda, x_i, y_i *-neyronning kirish va chiqish qiymatlari.N ta neyronli tarmoqdan t-iteratsiya bo'yicha aniqlangan i-neyronning chiqish qiymati*

$$y_i(t) = sign\left\{ \sum_{j=1,\ i\neq j}^{N} W_{ij} y_i(t-1) \right\}$$

Boshlang'ich $W_{ij} = 0$ vaznli matritsa simmetrik ko'rinishida ifodalanishi bilan Klassik Hopfild tarmog'i neyron to'rlari bilan o'ziga xos farqlanadi. Tarmoqdagi har bir neyron sign tipidagi faollashtirish funktsiyasiga ega ± 1 qiymatlari bilan ifodalanadi.

N ta kirish vektorlari transpozitsiyali vektorlarga o'tkaziladi, bu erda k – son kirish namunasi. Bitta o'qitilish x vektori uchun vaznlarning qiymatlari quyidagi formula bo'yicha hisoblanadi:

$$W = \frac{1}{N} x_i x_j$$

$W - N \times N$ o'lchamli matritsada tarmoq vaznlari;

$X -$ bu $N \times p$ o'lchamdagi (p - o'qitilgan vektorlarining umumiy soni) o'qitilgan vektorlaridan tashkil topgan matritsa.

Tarmoqni ko'p sonli etalonlar bo'yicha o'rgatish vaqtida k = 1,2, ..., p vazn koeffitsientlari quyidagi formula bo'yicha hisoblanadi:

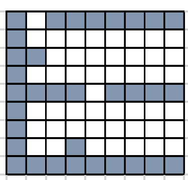
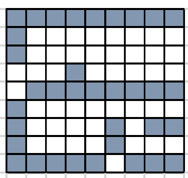
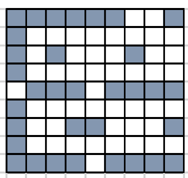
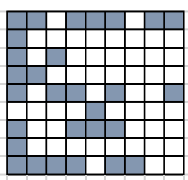
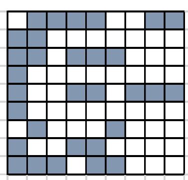
$$W_{ij} = \frac{1}{N} \sum_{k=1}^{p} x_k x_k^T$$

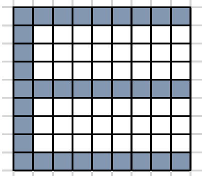
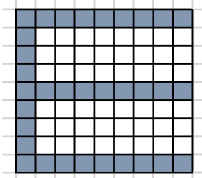
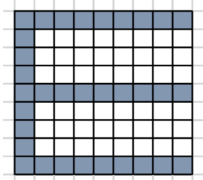
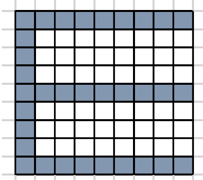
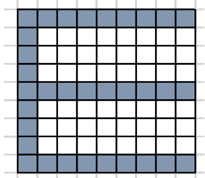
Vazn koeffitsientlarining matritsasi kvadrat bo'lib, diagonal elementlari nolga teng ($W_{ij} = 0$) va ulanishlarning simmetriyasi ta'minlanishi kerak ($W_{ij} = W_{ji}$). Hopfild tarmog'ining tuzilishida har bir neyron o'zidan tashqari boshqalari bilan bog'liq bo'lishi bilan izohlanadi.Tanib olish kerak bo'lgan timsollar o'qitilgan y vektorning vazn koeffitsiientlatiga ko'paytirish orqali aniqlanadi[3, 4].

$$y' = W_{ij} y$$

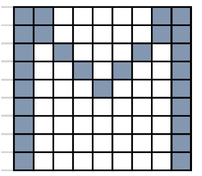
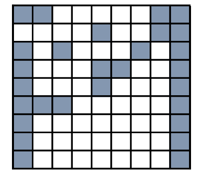
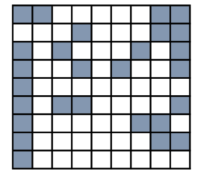
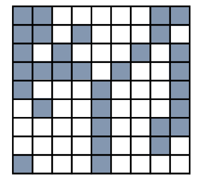
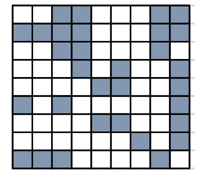
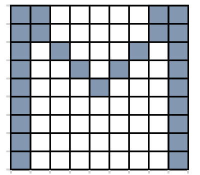
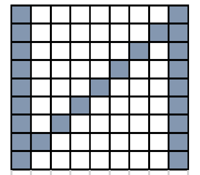
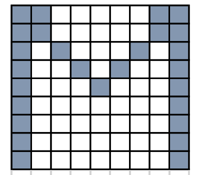
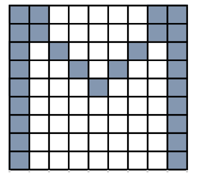
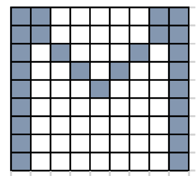
Kirish qiymatlari vektor ko'rinishida berilgan timsollarning etalon bo'yicha o'rgatilgan timsollarga o'xshashligini aniqlashda 9x9 o'lchamli matritsa 81 ta piksellar shakllantirilgan.

Etalon timsollar sifatida olingan Е, Ж, И, К, М, Н, П xarflariga o'xshashroq xarflar berilganda to'g'ri aniqlash masalasi tahlil qilingan.

	Berilgan timsollarning etalon bo'yicha o'zgartirilganlik darajasi				
	5%	10%	15%	20%	30%
O'zgartirilib berilgan timsolning ifodalanishi					

Tanib olingan timsolning ifodalanishi					

1-rasm. E xarfining tanib olish natijasi

	Berilgan timsollarning etalon bo‘yicha o‘zgartirilganlik darajasi				
	5%	10%	15%	20%	30%
O‘zgartirilib berilgan timsolning ifodalanishi					
Tanib olingan timsolning ifodalanishi					

2-rasm. M xarfining tanib olish natijasi

O‘rgatilgan etalon timsollarning ehtimolligi 5%- 30% gacha o‘zgartirilganda olingan natijalar tahliliga ko‘ra tanib olish deyarli to‘liq bajarilmoqda. M xarfining 10% darajada o‘zgartirilganda o‘xshashlik darajasi ko‘proq etalon timsollardagi И xarfiga o‘xshashligi yuqori bo‘lganligi uchun tanib olish natijasi И xarfini aks ettirgan.

O‘tkazilgan tadqiqotlar natijasida chuqur o‘rganishga asoslangan neyron tarmoq modellarining, xususan Xopfild arxitekturasidagi neyron to‘rlarining, raqamli tasvirlarda obyekt va belgilarni aniqlash vazifalarida yuqori aniqlikka ega ekani tasdiqlandi. Model o‘qitilgan etalon timsollar asosida 25–30% gacha o‘zgartirilgan tasvirlarni ham muvaffaqiyatli tanib olishga qodir bo‘lib, bu uning yodlash va tiklash xususiyatlari kuchli ekanini ko‘rsatdi. Bu esa real sharoitlarda buzilgan yoki shovqinlangan tasvirlarni aniqlashda bunday modellarni samarali qo‘llash imkonini beradi. Tadqiqot natijalari chuqur o‘rganish texnologiyalarining raqamli tasvirlar bilan ishlashda keng ko‘lamli amaliy imkoniyatlarga ega ekanini va ularni real vaqt rejimida tasvirlarni avtomatik aniqlash, tasniflash va tahlil qilish tizimlarida muvaffaqiyatli joriy etish mumkinligini ko‘rsatdi.

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EKOLOGIK KOMPETENTLIKNI TAKOMILLASHTIRISH MEXANIZMLARI

Annotatsiya: *Maqolada talabalarga ekologik ta’lim va tarbiya berish, ularni atrof muhitga hamda ona tabiatga bo‘lgan munosabatini ijobiy tomonga o‘zgartirish, ona tabiatni asrab-avaylash, bugungi kunda kuzatilayotgan global ekologik muammolar va ularning salbiy oqibatlarini yumshatish, jumladan suv resurslarining etishmasligi, global iqlim o‘zgarishlari va uning tabiatiga ta’siri to‘g‘risida fikr yuritiladi. Bundan tashqari talabalarda, bulajak o‘qituvchilarda ekologik kompitentlik haqida haqida so‘z yuritiladi.*

Kalit so‘zlar: *ekologik xavfsizlik,ekologik kompitentlik, tabiat, insoniyat, muammo, fan-texnika, salomatlik, sog‘lom turmush tarzi, madaniyat, tarbiya, atrof muhit.*

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MECHANISMS FOR IMPROVING ECOLOGICAL COMPETENCE

Annotations: *The article is aimed at educating students in the field of environmental education, positively changing their attitude towards the environment and nature, preserving nature, mitigating current global environmental problems and their negative consequences, including water shortages, global climate change and its regional impact on climate and nature. In addition, students, future teachers talk about environmental competence, environmental protection.*

Key words: *environmental safety, environmental competence, nature, humanity, problem, science and technology, health, healthy lifestyle, culture, education, environment.*

Bugungi kunda insonning atrof-muhitga bo‘lgan munosabati ekologik inqiroz holatiga kelib qoldi, bu vaziyatda inqiroz faqatgina iqtisodiy, texnik va ma’muriy choralar bilan tiklana olmaydi. Insonning tabiat ustidan hukumron va tabiatni boshqaruvchisi deb qarovchi jamiyatning ilmiy-texnikaviy taraqqiyoti uning cheksiz qudrati haqidagi tasavvurlarni hosil qildi. Tabiatda yuz berayotgan salbiy jarayonlar inson turmush tarziga sifat jihatidan ta’sir qila boshladi. Atrof-muhit muammolarini hal qilishning "texnologik" emas, balki "pedagogik" usuli ham ayon bo‘ldi, bu ekologik jihatdan barkamol, barqaror tabiatni boshqarishga qodir, ekologik bilimli yosh avlodni shakllantirishdan iboratdir.

Ushbu muammoni hal qilish usullaridan biri bo‘lajak o‘qituvchining kasbiy ekologik layoqatini shakllantirishdir.

Kasbiy ekologik layoqatni oshirishga hozirgi universitet amaliyoti va ekologik-pedagogik ta’limning samaradorligi to‘sqinlik qilmoqda, bu "bilimlar" komponentiga (ekologik ofatlar to‘g‘risidagi bilim va ma’lumotlarni o‘zlashtirish) asosiy e’tiborda ifodalangan "vakolatlilikka" asoslangan».

Kompetensiyaga asoslangan yondashuv nuqtai nazaridan bo‘lajak o‘qituvchi nafaqat ekologiya, psixologiya va pedagogikaning turli sohalari bo‘yicha keng va chuqur bilim, ko‘nikma va malakalarga ega bo‘lishi, o‘z bilimini oshirishni xohlashi va ularni o‘quv jarayonida qo‘llay olishi kerak. U talabalarda nafaqat atrofdagi dunyo, "inson-tabiat" tizimidagi munosabatlar to‘g‘risida g‘oyalar tizimini shakllantirishi, atrof-muhitni oqilona boshqarish texnologiyalarini o‘rgatishi, balki oqilona va ekologik jihatdan intilish va ko‘nikmalarni rivojlantirishi, tabiatdan foydalanish sohasida tabiiy resurslardan xavfsiz foydalanishni tushuntirishi kerak. Bo‘lajak o‘qituvchining ekologik tayyorgarligida layoqatga asoslangan yondashuvning mohiyati haqidagi bu g‘oya bir qator qarama-qarshiliklar bilan murakkablashadi:

- — Jamiyatning samarali ekologik ta’lim faoliyatiga qodir bo‘lgan ekologik barkamol o‘qituvchilarga bo‘lgan ehtiyoji va bo‘lajak o‘qituvchining ekologik jihatdan barkamol shaxsini shakllantirishning etarli darajada samaradorligi o‘rtasida.;
- — Ekologik-gumanitar ta’lim paradigmasining asl konseptual sxemasi va uni kelajakdagi o‘qituvchining ekologik jihatdan barkamol shaxsini shakllantirish texnologiyalarini loyihalash sohasida to‘liq amalga oshirish o‘rtasida;
- — o‘qituvchining yangi ijtimoiy-ekologik funksiyasini taqsimlash va oliy ta’limda bo‘lajak mutaxassislarni kasbga yo‘naltirish va tayyorlash tizimiga kompetensiyaga asoslangan yondashuv nuqtai nazaridan ekologik pedagogik faoliyatni tuzatish mexanizmining yo‘qligi o‘rtasida.

Bo‘lajak o‘qituvchilarning ekologik layoqatlarini shakllantirish zarurati va ularning professional ekologik layoqatlarini shakllantirishning etishmasligi o‘rtasidagi aniqlangan qarama-qarshilik bo‘lajak o‘qituvchilarning ekologik tayyorgarligi samaradorligini oshirish yo‘llarini izlash muammosiga qaratilgan.

So‘nggi yillarda mutaxassis shaxsini shakllantirish, uning kasbiy tayyorgarligi muammosining turli jihatlari bo‘yicha bir qator tadqiqotlar olib borildi.

Shu bilan birga, ilmiy adabiyotlar tahlili shuni ko‘rsatdiki, bo‘lajak o‘qituvchilarning kasbiy layoqatini shakllantirishga bag‘ishlangan qator tadqiqotlar mavjud bo‘lishiga qaramay, bo‘lajak o‘qituvchilarning ekologik layoqatini shakllantirishning o‘ziga xos modelini ishlab chiqish bilan bog‘liq muammolar mavjud.

- oliy o‘quv yurti bitiruvchisi egallashi kerak bo‘lgan bilim va ko‘nikmalar tavsifi;

- qobiliyat va ko‘nikmalar (konstruktiv, tashkiliy, kommunikativ, axborot, ta’lim, tashkiliy, safarbarlik, tadqiqot, o‘z-o‘zini takomillashtirish);
- jamiyat va shaxsning zamonaviy talablarini hisobga olgan holda, uning axloqiy, mafkuraviy va fuqarolik pozitsiyalarini ifodalovchi shaxsning o‘ziga xosliklari va xususiyatlarini tavsiflash;
- talaba shaxsini shakllantirishning yaxlit jarayonini tashkil etish uchun zarur va etarli tizimni tashkil etishi lozim bo‘lgan mutaxassisning malaka va ko‘nikmalariga qo‘yiladigan talablar.

O‘qituvchilarni tayyorlash modelini ishlab chiqishda o‘rnatilgan ilmiy yondashuvlar, ushbu modelni ko‘rib chiqishning yaxlitligi va izchilligiga intilish, zamonaviy ta’limning gumanistik konsepsiyasining eng muhim maqsadi sifatida bo‘lajak o‘qituvchining individualligini rivojlantirish jihatiga asosiy e’tibor bermaydi.

Shaxsiyatning rivojlanishi kompleks sohalarning rivojlanishi sifatida tushuniladi: intellektual, motivatsion, hissiy, ixtiyoriy, mavzu-amaliy, ekzistensial va o‘z-o‘zini tartibga solish; shu bilan birga, ta’lim-bu shaxsning rivojlanishiga, uning munosabatlariga, xususiyatlariga, fazilatlariga, qarashlariga, e’tiqodlariga, turli tadbirlarda o‘qituvchi va talabalarning o‘zaro munosabatlariga asoslangan xulq-atvoriga maqsadli ta’sir ko‘rsatish jarayoni sifatida qaraladi.

Kompetentlik yondashuvi o‘qituvchining kasbiy muhim xususiyatlarini va fazilatlarini aniqlash imkonini beradi: aqliy neoplazmalar kelajakdagi o‘qituvchining ekologik mahoratini shakllantirishga yordam beradigan shaxsiy fazilatlar tizimi bilan birgalikda. Bularga quyidagilar kiradi:

- kasbiy bilim, ko‘nikma, malakalar kasbiy faoliyat texnikasi va texnologiyalari bilan birlashtirilgan; kasbiy muhim fazilatlar; ekologik va pedagogik fikrlash (intelektual soha);
- kasbiy ishlarga bo‘lgan ehtiyojlar; kasbiy faoliyatda qiymat yo‘nalishlari, ekologik ta’lim va amaliy faoliyat uchun motivatsiya (motivatsion soha);
- ongli ekologik ta’lim butun pedagogik jarayonning qulay kayfiyat yaratish his-tuyg‘ularini qator nazorat (hissiy soha);
- kasbiy pedagogik pozitsiyasi; kasbiy faoliyat mazmuni bilan chambarchas bog‘liq bo‘lgan munosabatlar tizimi, kasbiy o‘ziga xoslik, "o‘qituvchi — yekologiya " (ekzistensial soha) ijobiy tushunchasining mavjudligi.
- Biz o‘qituvchining ekologik kompetentligini kasbiy kompetentlikning muayyan turi sifatida, o‘qituvchining umumiy kompetensiyasining bir qismini tashkil etuvchi tarkibiy qismlardan biri sifatida ko‘rib chiqamiz. O‘qituvchining ekologik kompetensiyasi o‘qituvchining ekologik, kommunikativ, psixologik, pedagogik, ijtimoiy va uslubiy kompetensiyalari bilan o‘zaro bog‘liq holda rivojlanadi va ularning sintezi va ajralmas birligini ifodalaydi .

Bo‘lajak o‘qituvchilarning ekologik kompetensiyalarini shakllantirish shaxsining ekologik yadrosi - asosini tashkil etuvchi o‘quvchilarning shaxsiy va shaxsiy sifatlarining ekologik komponentining havola mazmun ko‘rsatkichlarini bir butunlikda taqdim qilamiz.

Ma’lumki, intellektual soha aqlning fazilatlari, kognitiv jarayonlar, aqliy operatsiyalar, bilim qobiliyatlari, ta’lim qobiliyatlari, bilimlar va harakat usullaridan iborat. Intellektual sohada ekologik kompetentlikning ko‘rsatkichlari quyidagilardir: atrof-muhitning asosiy qadriyatlari, qonunlari, tabiiy dunyodagi inson o‘rni haqidagi tushunchalar va g‘oyalar, tabiatni muhofaza qilish va saqlab qolish burchi, nafaqat o‘zi uchun, balki barcha tirik mavjudotlar uchun ekologik mas’uliyat, rivojlangan bilim qobiliyatlari, aqlning moslashuvchanligi (insoniyat, moderasiya, tushuncha). Qadriyat-semantik hosilalar ijtimoiy tabiat hodisalarining ekologik ahamiyatini, "jamiyat — tabiat" tizimidagi xulq-atvor va munosabatlar ko‘rsatmalarini o‘z ichiga olib, ekologik va axloqiy baholashga asos bo‘lib xizmat qiladi. Ular tufayli shaxsning xulqi va faoliyati tartibga solinadi va tashkil yetiladi. Aql va aqlning moslashuvchanligi kabi fazilatlar "jamiyat — tabiat" tizimida barqaror rivojlanish muammolarini hal qilish uchun juda muhimdir, chunki ular o‘z-o‘zini ifoda etish va o‘z-o‘zini oshkor qilish, ekologik mas’uliyatni o‘z zimmasiga olish qobiliyati va xohishiga hissa qo‘shadi.

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ACCELERATING BIOECONOMY AND CIRCULAR ECONOMY IN CENTRAL ASIA: INVESTMENTS AND SUSTAINABLE RESOURCE MANAGEMENT

Abstract :*This paper examines the development of the bioeconomy and circular economy in Central Asia (Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan) over 2005–2025. Drawing on literature and recent data, it analyzes how sustainable resource management and investments can drive the green transformation in the region. We find that Central Asian countries are at an early stage of circular transition: key indicators such as resource productivity are low and waste recycling rates barely reach ~10–12% of municipal solid waste (cf. ~45% in the EU). Renewable energy deployment has increased – installed renewable capacity in Uzbekistan grew by 174% between 2015 and 2024 (from ~1.9 to 5.2 GW) – but fossil fuels still dominate (OECD, 2024). Strategic public policies (like PPPs and regulations) and targeted investments are shown to significantly boost transition. For instance, World Bank studies recommend action plans in agriculture and construction (Uzbekistan, Kazakhstan) that yield high returns: improving resource efficiency in Uzbek agri-food could cut GHG by 34% and create ~46,000 jobs. Case studies illustrate best practices: large-scale solar PV[36] auctions in Uzbekistan (aiming for 4 GW by 2026); hydropower projects in Tajikistan; and pilot recycling programs in Almaty. Overall, we conclude that leveraging green investments – including public–private partnerships and de-risked finance – alongside stricter waste management and renewable energy policies will accelerate the circular bioeconomic transition in Central Asia. A strong regional focus on investment in clean tech and efficient resource use is key to achieving sustainable economic growth.*

Introduction

The concepts of bioeconomy and circular economy represent a shift away from traditional "take-make- waste" economics toward sustainable resource use. In a circular economy, materials flow in closed loops: wastes and by-products are recycled, reused or biologically treated to extract value. In the bioeconomy, renewable biological resources (crops, forests, waste biomass) are harnessed for food, materials, bioenergy and biochemicals, ideally with low-carbon processing and minimal ecological impact. As Tan and Lamers (2021) note, the goal is to "slow, narrow, and close" material loops using renewables, and to couple this with non-

[36] Photovoltaics (PV) is the conversion of light into electricity using semiconducting materials that exhibit the photovoltaic effect, a phenomenon studied in physics, photochemistry, and electrochemistry.

toxic, low-carbon technologies. This integrated "circular bioeconomy" can create new value chains while capturing carbon and preserving ecosystem health.

Central Asian economies have traditionally relied on extraction industries and intensive agriculture, with resource productivity far below global averages. For example, Kazakhstan's material productivity is only ~ €0.2 GDP per kg of domestic material (vs ~ €2.1 in the EU). Rapid growth has led to increased energy use, waste generation and resource depletion. Meanwhile climate change and water scarcity pose rising risks. In this context, circular and bioeconomic strategies are increasingly seen as pathways to sustainable development. The 2030 Agenda for Sustainable Development (SDGs) and the Paris Agreement imply transitions to low-carbon, resource-efficient models. Central Asian governments have begun adopting green economy targets and climate commitments (Uzbekistan's Green Economy Strategy 2019–2030 and carbon-neutrality pledges by 2060).

This paper investigates how accelerated investment and improved resource management can catalyze bio- and circular economy transitions in Central Asia. We integrate global best practices and regional case studies from 2005–2025 to identify opportunities and challenges. Key questions include: What are the recent trends in renewable energy, waste recycling, and bio-based industries in Central Asia? How effective have policies and investments been? And critically, how can financing and sustainable management of resources fast-track the shift to a green economy in the region?

Literature Review

Previous studies highlight both the untapped potential and current gaps in Central Asia's green transition. The World Bank (2024) finds that all five Central Asian countries score low on circular economy metrics. Recycling rates of municipal solid waste (MSW) are around 11.5% in Kazakhstan and below 10% in Uzbekistan (versus ~45% in the EU). Resource efficiency is similarly poor: Central Asian resource productivity is roughly an order of magnitude lower than in Europe. Waste management infrastructure and policies remain underdeveloped, and public awareness of circular practices is low.

World Bank reports (CEAPs – Circular Economy Action Plans) have proposed sector-specific plans for the region. For Kazakhstan's construction sector and Uzbekistan's agri-food sector, action plans emphasize improving material efficiency, designing eco-products, and closing production-consumption loops. These studies estimate that the long-term benefits (GHG cuts, water savings, jobs) substantially exceed implementation costs. For example, the Uzbek agri-CE[37] plan could reduce agricultural emissions by 34% and save 500 million m^3 of water. Such analysis suggests high returns on green investments, but also highlights barriers: financing gaps, technology limits, and regulatory inertia.

At the national level, bioeconomy policies have recently emerged. Raimjanova and Popluga (2023) examine Uzbekistan's agro-bioeconomy and find that agricultural investment soared ~176-fold from 2002 to the 2020s, greatly

[37] Agri-CE – Agri-circular-economy

boosting output. However, they argue that new state programs are needed to channel further investment into biotechnologies, renewable biofuels and circular agro-processing to sustain momentum. In Kazakhstan and other CA states, research on circular entrepreneurship and industrial symbiosis is limited but growing. Empirical work by Wu and others (2023) on the "green recovery" in five CA economies (2010–2021) indicates that trade openness in green goods correlates with better environmental performance, whereas aggregate FDI has not automatically delivered green outcomes. They recommend targeted green FDI and innovation support.

Global literature provides context: the circular bioeconomy is projected to be a multi-trillion-dollar market by 2030, driven by repurposing bio-waste into energy and materials. Leading-edge companies and cities demonstrate how urban waste, organic residues and forestry by-products can be valorized through advanced biorefineries, composting, and recycling systems. For instance, the Ellen MacArthur Foundation and WBCSD document numerous case studies of closed-loop systems (agro-waste-to-bioenergy in China or Finland's forest bioeconomy) and principles for circular design. Key enablers include public– private partnerships, innovative financing, and supportive regulation. Conversely, major obstacles globally are financial (high upfront costs), technological, and institutional (policy gaps). These themes resonate in the CA context.

Methodology

This study synthesizes qualitative and quantitative sources to assess the bio/circular economy in Central Asia. We conducted a comprehensive literature review of policy papers, academic articles, and reports (UN, World Bank, OECD, IRENA, etc.) published from 2005 through 2025. Key indicators – such as renewable energy capacity, investment flows, waste recycling rates, and related economic data – were drawn from these sources. Where possible, data were cross-checked against national statistics and international databases. Several region-wide and country-specific case studies were identified (Central Asia CEAPs, national strategies, project reports) to illustrate real-world initiatives.

To address the focal question on investments and sustainable resource management, we categorized findings into thematic areas: finance and policy (public/private investment, green funding instruments), resource efficiency practices (water, energy, waste), and value-chain examples (agriculture, industry). The comparative analysis highlights differences among countries and draws lessons from global best practice. Although this is a review rather than an empirical field study, we apply a structured framework by mapping case studies against theoretical circular-bioeconomy models (inputs-processing-outputs loops) to interpret how investments translate into outcomes.

Discussion

Investment Trends and Policy Incentives

Investments in green infrastructure are critical but currently low. The OECD (2024) notes that Central Asian energy investment remains heavily fossil-fuel-based (93% of recent energy investment in Turkmenistan, 79% in Kazakhstan was fossil-related). In contrast, Uzbekistan and Tajikistan have started mobilizing substantial funding into renewables and efficiency. For example, Uzbekistan conducted competitive tenders (2019 onward) that attracted foreign capital to build ~2 GW of solar PV. International financial institutions (World Bank, ADB, EBRD) have co-financed many projects. Government policy has also shifted: Uzbekistan's 2019 Laws on Renewable Energy and PPP provide tax incentives for solar and wind projects. Similarly, Kazakhstan's national targets (carbon neutrality by 2060) have indirectly spurred green fund schemes. Nevertheless, private investment often remains below potential. High perceived risk and lack of local expertise limit scale-up. Studies (WBCSD[38], 2023) stress the need for blended finance instruments and de-risking to draw capital (barriers include "additional costs" and "policy and regulatory" hurdles).

Resource Management and Circular Practices

Resource management in CA has traditionally prioritized extraction and supply over efficiency. However, rising resource prices and climate impacts are changing this calculus. Agriculture is a focal point: countries like Uzbekistan and Tajikistan are implementing precision irrigation and introducing drought-resilient crops to combat water scarcity. Circular solutions (using crop residues for compost or energy) are gaining attention. For instance, a World Bank CEAP found that closing nutrient loops in Uzbekistan's agri-chain (reusing plant waste as biofertilizer) could cut GHG by ~ 34% and save major inputs. Implementation would require investments in storage, processing facilities and training. Similarly, in livestock farms, digesters could recycle manure into biogas; however, pilot projects show little existing biogas capacity in the region due to technical challenges (REPIC, 2019).

In the industrial and construction sectors, material efficiency is increasingly recognized. The World Bank's analysis of Kazakhstan's construction chain highlights that nearly 30% of building materials were imported in 2019 and that waste handling is largely traditional landfilling. Introducing secondary materials and waste sorting can both cut costs and emissions. Some positive steps exist: Kazakhstan's environmental code (2021) encourages recovery of construction waste, and infrastructure for recycling is slowly expanding. Waste management overall remains underdeveloped. Current recycling of household and industrial waste is low, and landfill usage is high. For example, plastic pollution is rising in urban areas. Uzbekistan's Ministry of Ecology reports that in 2022 the country generated 10.2 million tons of municipal solid waste, of which ~1.05 million tons (10.3%) was plastic−up 147% from 2013. Yet only a small fraction of that is recycled. Similar trends hold for other streams: food waste is often sent to landfills, and e-waste recycling is nearly non-existent. These gaps point to major opportunities: basic measures like expanding sorting facilities, mandating extended producer responsibility (EPR) for plastics, and incentivizing composting could substantially improve material loops. In fact, Uzbekistan has begun an EPR scheme for plastic products (2024) to ensure producers finance collection and recycling.

[38] World Business Council for Sustainable Development

How Investments Accelerate Transition

There is growing evidence that targeted investments produce multiplier effects toward circularity. Infrastructure spending in renewables or waste treatment often creates green jobs and new industries. For instance, solar farm projects in Uzbekistan since 2019 have not only added capacity but also transferred know-how to local utilities, and required networking of remote areas, indirectly improving grid efficiency. The Asia-Plus report (2025) notes that in 25 years of independence Tajikistan's energy sector projects (worth ~$8.5 billion) have led to a 45% increase in capacity and a 22.4 TWh output (up from 17.0 TWh in 1991) – largely through hydropower. Such infrastructure investments clearly payoff: more stable power supply and displaced diesel generation, contributing to carbon reduction.

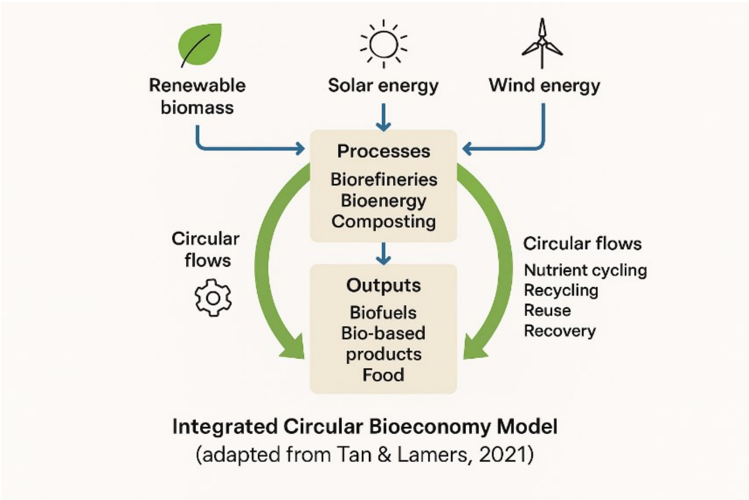
Beyond hardware, financial and fiscal reforms matter. Wu and others (2023) show that intra-regional green trade and investment openness positively affects CA's "green recovery," whereas blanket FDI tends to favor traditional industries. The implication is that policy must guide investment into the right channels. Uzbekistan's rapid expansion of renewable targets (4 GW solar and 4 GW wind by 2026, and an even higher aim of 8 GW by 2026 announced in COP26 pledges) reflects this strategy. Similarly, Armenia and the EU's Green Deal are cited as models where carbon pricing and subsidies redirect finance; CA countries are only beginning similar schemes (e.g., Kazakhstan's nascent ETS).

Global Best Practices and Regional Relevance

Global experiences underline the potential of circular bioeconomy strategies. In the EU, cross-sector policies enable agriculture residues to feed bio-refineries (making bioplastics, bioenergy) and industry waste to be reused (industrial symbiosis). Advanced metrics (e.g., carbon accounting) are used to justify investments. The WBCSD (2023) report emphasizes that the total economic opportunity in the circular bioeconomy could reach ~$7.7 trillion by 2030 if businesses fully valorize food and feed waste. Applying such a lens to Central Asia, one can imagine using abundant bioresources – cotton stalks, sugar beet pulp, fruit pomace, animal manure – as inputs for new value chains (biogas, bio-composites, organic fertilizers).

Figure 1

However, CA-specific constraints (fragmented land ownership, limited technical capacity) mean solutions must be tailored. For example, rather than capital-intensive biorefineries, decentralized approaches (community composting hubs, cluster biogas units for groups of farms) could be more feasible. Policy roadmaps (like the World Bank CEAPs for Almaty's city waste or Uzbekistan's agriculture) suggest practical steps: regulatory standards for recycled content, subsidies or loans for waste recycling plants, and public– private demonstration projects.



Case Examples

1. Uzbekistan – Agri-Bioeconomy: Uzbekistan has embarked on large-scale solar and wind deployment. According to IRENA, installed renewable capacity jumped from 1.88 GW in 2015 to 5.17 GW in 2024, largely through public auctions attracting foreign investors. Concurrently, the government aims to incorporate circular principles in agriculture: the 2020–2030 Strategy for Bioeconomy encourages R&D in biotechnology and biofertilizers. The CEAP for the Uzbek agri-food chain (2022) identifies projects like sorting facilities for post-harvest loss reduction and pilot biogas plants on large farms. An estimated 0.5 bn m^3 of water could be saved annually by such measures, alongside huge GHG cuts (34% in agriculture) and up to 46,000 new jobs. Financing is envisaged through PPPs and green bonds. Challenges remain in mobilizing finance at needed scale: even with these plans, Uzbekistan's recycling rate stays near 10% and major industrial recycling is rare. Still, pilot programs (Uzbek-British projects on recycling textile waste) show promise.

Table 1: Renewable Energy Share (% of Electricity Generation) in Central Asia (2005–2025)[39]

Country	2005	2010	2015	2020	2025
Kazakhstan	11.58%	9.71%	8.87%	10.4%	15%(target)
Uzbekistan	17.54%	20.98%	20.65%	18%	40%(target)
Kyrgyzstan	85.88%	91.80%	85.19%	90%	Stable
Tajikistan	99.28%	99.79%	98.47%	95%	Stable

2. Kazakhstan – Construction and Industry: The World Bank CEAP identified construction as a priority. Recent laws (Environmental Code 2021) ban dumping of construction and demolition (C&D) waste in open sites and require recycling where possible. In practice, one pilot recycling yard for concrete debris was opened in Almaty in 2021, selling recycled aggregate to local builders. Meanwhile, Kazakhstan continues large hydropower and wind projects (a 1.3 GW wind farm launched in 2023). On the bio side, Kazakhstan's vast steppe offers biomass opportunities: some projects convert wheat straw and sawmill waste into biochar and bioenergy, though mostly at experimental stage. The government also supports algae farms for carbon capture. Investors have shown interest: IFC and others have financed renewable projects and circular startups (cardboard packaging recycling businesses). Still, systematic data on waste recycling investments is sparse; one indicator is that municipal solid waste recycling (~11.5%) is slowly inching up as new sorting centers open in Astana and Almaty.

3. Kyrgyzstan and Tajikistan – Hydropower and Small-Scale Bioenergy: Kyrgyzstan and Tajikistan depend heavily on hydropower (75–90% of their electricity). Recent plans e.g., Rogun Dam in Tajikistan) focus on expanding renewable generation. In Tajikistan, the president announced 36 large energy projects worth $8.5 billion since 1991, including modernizing old dams. These raise total capacity but less so per-capita output. Given seasonal water variability, both countries have begun diversifying: small solar PV farms (e.g., 100 MW plant in Tajikistan in 2022) and pilot wind turbines. They also have nascent biogas initiatives: a 2020 World Bank project funded small biogas digesters on Kyrgyz farms to reduce coal use for heating. While by themselves minor, these illustrate how targeted investment (even from donors) can introduce new green technologies.

4. Almaty, Kazakhstan – City Waste Management: As a case of circular urban management, Almaty's waste CEAP (2022) examined three material-intensive sectors. It recommended investments in landfill-gas-to-energy plants, central sorting facilities, and modular housing built from recycled materials. Since then, Almaty has tendered for a 100 MW waste-to-energy plant (PPP basis) and launched public awareness campaigns on recycling. Though still preliminary, this exemplifies

[39] https://www.macrotrends.net/global-metrics/countries/

a holistic city-level approach supported by international finance (Green Climate Fund, etc.) to accelerate circular practices.

5. Global Best Practice – European Bioeconomy: For context, consider the EU Bioeconomy Strategy (revised 2018) which bundles agriculture, waste and energy policies to support biorefineries, bio- based products and rural bio enterprises. EU member states often mix subsidies (feed-in tariffs for biogas, rural development grants) with strict landfill taxes, creating economic incentives for reuse. An illustration: Finland's forest sector systematically recycles wood residues into wood-based textiles and bioproducts (cellulose insulation, bio-methanol) through partnerships between industry, research institutes and government. In Asia, Thailand's BCG (Bio-Circular-Green) model promotes similar integration. Central Asia can learn from these by creating multi-stakeholder platforms (linking farmers, processors, NGOs) and by adjusting subsidies (e.g., lower tariffs for biofuels, tax breaks for recycled inputs).

Conclusion

The evidence indicates that investments and resource management can indeed accelerate Central Asia's green transition. Region-specific analyses and case studies show that where funding and policies align – in renewables, bio-based industries or waste recycling – significant gains are realized. Yet many opportunities remain unrealized. Recycling rates are low and underinvestment is chronic (OECD, 2024). To bridge this gap, Central Asian governments should continue to develop clear roadmaps (as in World Bank CEAPs) and establish innovative financing (green bonds, blended funds) that leverage private capital. Emphasizing sustainable resource management – for instance, enforcing waste collection, modernizing irrigation and forestry practices – will reduce input costs and mitigate environmental damage.

Answering the central question, our review suggests: accelerating bio and circular economy transitions requires coupling strategic investments with systemic changes in resource use. On one hand, investments (public and private) in renewable energy, modern bio-industries and waste infrastructure directly build the needed capacity. On the other, integrated policies and incentives shape how these resources are managed – for example, by valuing recycled material, rewarding efficiency, or penalizing waste. When combined, these measures can create a virtuous cycle: new green projects spur economic growth and job creation, which in turn justify further investment. Central Asia's abundant natural and human capital means that with proper funding and governance, a more circular, bio-based economy is attainable.

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THE TECHNOLOGICAL-VARIABILITY MODEL FOR PREPARING FUTURE CHEMISTRY TEACHERS FOR PROFESSIONAL ACTIVITY BASED ON CLUSTER APPROACH

Annotation: *This article explores the development of chemistry teaching content through a cluster approach aimed at enhancing professional preparation for future chemistry teachers. The study outlines the theoretical, diagnostic, and experimental methods used to establish a pedagogical cluster model that integrates educational institutions, both state and non-state, into a unified system. It defines the "pedagogical cluster approach" as a mechanism that coordinates technological and human resources within a specific region to meet the demands for competitive teaching personnel. The article emphasizes the integration of chemical knowledge with variant programs and identifies core competencies necessary for professional activity, including subject-specific skills, scientific thinking, and cultural orientation. It discusses the didactic units of chemistry education—laws, theories, models, methods, and contributions of key scientists—while highlighting the structural principles of the educational cluster, such as innovation transfer, collaboration, and resource sharing. The cluster model also supports educational sustainability in Uzbekistan and fosters a comprehensive understanding of chemical concepts in real-life applications.*

Keywords*: cluster approach, chemistry education, pedagogical integration, educational innovation, teacher training, scientific thinking, variant programs, chemical competencies, educational cluster.*

This research focuses on the development of the content of teaching chemistry through a cluster approach, providing the necessary means for adequate studying. The research methods include theoretical (analytical-statistical, comparative-comparative, modeling), diagnostic (surveys, interviews, questionnaires, observations, developed methodologies), prognostic (expert evaluation, generalization of independent evaluations), mathematical and pedagogical experiments (statistical data processing, graphical representation of results, etc.).

Based on the views expressed in scientific literature regarding the "Pedagogical Education Cluster," the following definition is proposed for the concept of "Pedagogical Cluster Approach": A pedagogical cluster approach is a mechanism that strengthens the integration of technology and human resources of equal and independent subjects within a given geographical area, aiming to meet the needs of competitive pedagogical staff [70].

The process of developing the methodology to improve the content of chemistry teaching based on a cluster approach includes integrating the chemical knowledge process through variant programs and the system of educational institutions in the pedagogical education cluster. These include both state and non-state organizations that serve to enhance the educational, scientific, and methodological activities of institutions.

The precise goals and tasks of the pedagogical education cluster and the integration of chemistry teaching modules in an innovative way for a better understanding of the relationship between the subject's curriculum and its application in a professional context are identified.

As is known, chemistry studies the changes in substances and their structural composition, as well as their transformation. Chemical laws and theories significantly affect the development of other related natural and technical sciences. At the same time, chemistry is closely linked to solving social problems and fulfilling the needs of both individuals and society as a whole.

In the cluster approach, preparing future chemistry teachers for professional activities involves the implementation of technological variability at educational institutions such as "School-College-Lyceum-Technikum-University" and the development of variant programs in chemistry. These programs include the development of competencies in various aspects such as:

1. Forming and developing socially important orientations in the educational process, including cultural and personal development, the importance of chemistry education, a sense of responsibility, patriotism, social mobility, and adaptability to various life situations.

2. Forming and developing subject-specific (or related to a certain profession) competencies: chemical knowledge, skills, creativity, and experience in scientific activities, as well as the ability to independently obtain chemical knowledge.

3. Formation of systemic chemical knowledge in future professional activities, enabling continuous education and self-learning.

The cluster approach in educational institutions emphasizes the integrated study of basic chemical concepts, laws, and theories, which helps students develop a comprehensive understanding of the world and their general cultural maturity. Chemical knowledge, including substance properties and chemical transformations, enhances students' life skills and develops their ability to work in various sectors, including chemistry and chemical technologies.

Chemical knowledge is based on the study of the composition, properties, and structures of substances, as well as the transmission of real materials, and the systematic study of basic chemical concepts, laws, and theories. This process includes development through teaching, chemical experiments, problem-solving, modeling, and acquiring chemical-technical thinking skills.

The practical and general cultural components of chemical education are defined by the value of substances and the changes they undergo in human life. Understanding chemical changes forms the basis for creating and managing various fields. Chemical technologies are developing in areas such as chemistry and petrochemicals, black and non-ferrous metallurgy, building materials, light industry, food, pharmaceuticals, and agriculture.

In the context of a cluster approach, the preparation of future chemistry teachers for professional activities focuses on technological variability. The content of chemical education is directed towards helping students understand the properties of the most important substances in daily life, nature, and industry, as well as the essence of chemical transformations, emphasizing the development of a rational activity culture.

A characteristic feature of the chemistry course in the cluster approach is that, based on the materials of the subject, students gain experience in how to correctly use substances and materials from a chemical perspective in daily life. These factors help prepare students to implement the national strategy for sustainable development in the Republic of Uzbekistan.

Within the cluster approach, general methods for implementing chemical knowledge in the "School-college-lyceum-technical school-university" educational system have been defined. The concept for improving the chemistry education system in educational institutions has been developed, taking into account possible methodological solutions for teaching chemistry [Appendix 3].

At the secondary education level, chemical education should include the following: a system of knowledge in the field of chemistry; a system of skills formed during the study of chemistry (intellectual, general scientific, and specialized skills).

The accumulated practical experience in this field, based on well-formed value orientations, leads to a positive attitude towards humans and the world around them.

The aforementioned components of chemical education have been implemented throughout the entire duration of the chemistry course using the cluster approach, and the educational environment has been shaped [52].

In the context of the cluster approach, the professional preparation of future chemistry teachers is based on the scientific and theoretical foundations of chemical education content, which includes the following key theoretical concepts and laws:

Principles of the functioning of the educational cluster – is an integrated educational, scientific, and innovative process related to the economy and social sectors; it involves the coordination of the continuous education process and various levels of educational modules; it ensures educational-methodological, organizational, informational, and scientific cooperation between all subjects of the educational cluster.

Thus, in the cluster approach, to prepare future chemistry teachers for professional activities, it is necessary to integrate the basic principles of the content of chemical education with the principles of the educational cluster. E.R. Skornyakova outlines the following advantages of the educational cluster:

1. **For educational institutions**, joining a more organized system (cluster) becomes a growth point, and other organizations begin to join it.

2. The primary focus of cluster formation is on organizations, with the close cooperation between cluster members being considered the "useful" market mechanism.

3. The process of forming the cluster is based on the exchange of information among partners about needs, resources, and technologies. The cluster allows for free information exchange and the quick dissemination of innovations through various channels.

4. **Scientific-research organizations** and their relations with the cluster contribute to diversity and innovations, which are important factors for the development of the cluster.

5. The **efficient use of internal resources** by partners in different sectors (within the cluster) is of great significance.

6. The cluster plays a positive role in attracting investment to the educational system [103].

According to Ye.I. Sokolova's view, an innovative educational cluster is not simply the mechanical unification of a certain group of scientific and educational institutions, but rather it demonstrates their close cooperation and interdependence. This results in a change in the quality of the individual parts of the cluster and the cluster as a whole, which is necessary to create a new quality product [103].

In the cluster approach, when preparing future chemistry teachers for professional activity, the technological-variability model is developed, initially based on the social order of society and the ideal or conceptual results presented in the State Educational Standards (DTS). In developing this component, we rely on the following initial principles:

1. The main goal of education is to develop the personality of the future specialist in the teaching process.

2. A high level of development of professional thinking skills is considered a key professional quality of the teacher’s personality.

In our research, the content of teaching the subject of chemistry is divided into two parts: invariant and variant parts (see Figure 2.1.1).

Conclusion. The term **"Vocational Education Technology"** refers to the educational, developmental, and organizational approaches, principles, methods, techniques, and forms used to shape a person in the context of vocational education. It includes a set of social and pedagogical technologies characterized by consistency, repetition, and productivity.

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O'TA YUQORI CHASTOTALI ELEKTROMAGNIT NURLANISHDA AYRIM ENZIMATIK TIZIMLAR FAOLLIGINING O'ZGARISHI

Annotatsiya. *Ushbu tadqiqotda o'ta yuqori chastotali elektromagnit nurlanishning turli darajalari (10, 100, 1000 mkVt/sm²) oq kalamushlarning jigar va bosh miyasi subhujayraviy fraksiyalarining ferment faolligiga ta'sirini o'rganildi. Aniqlanishicha, 100 va 1000 mkVt/sm² QOZ ta'sirida sitoxromoksidaza faolligi jigar va bosh miya mitoxondriyalarida pasaygan, bu esa oksidlovchi qobiliyatning buzilishidan dalolat beradi. Shu bilan birga, jigar va bosh miya gialoplazmasida G-6-FDG faolligi, shuningdek, jigar mikrosomal fraksiyasida anilinning gidroksillanish faolligi oshgan. 10 mkVt/sm² QOZ sezilarli o'zgarishlarga olib kelmadi. Bu o'zgarishlar nurlanish to'xtatilgandan so'ng 2 oy ichida tiklandi. Tadqiqot O'YuCh nurlanishning yuqori darajalari metabolizm buzilishlariga olib kelishini ko'rsatadi.*

Kalit so'zlar: *o'ta yuqori chastota, nurlanish, elektromagnit energiya, mitoxondriyalar, sitoxromoksidaza, bosh miya, metabolik buzilishlar.*

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CHANGES IN THE ACTIVITY OF CERTAIN ENZYMATIC SYSTEMS IN ULTRA-HIGH FREQUENCY ELECTROMAGNETIC RADIATION

Annotation. *This study examined the effect of different levels of ultra-high frequency electromagnetic radiation (10, 100, 1000 mcvt/cm2) on enzyme activity of sub-cellular fractions of the liver and cranium of white rats. It has been found that CYTOCHROMOXIDASE activity under the action of 100 and 1000 mcvt/cm2 gas decreased in the liver and cranial mitochondria, as evidenced by impaired oxidative capacity. At the same time, G-6-FDG activity was increased in the liver and cranial hyaloplasm, as well as hydroxylation activity of aniline in the hepatic microsomal fraction. The 10 mkVt/sm2 gas did not cause significant changes. These changes were restored within 2 months of the radiation cessation. The study shows that high levels of indirect radiation lead to metabolic disorders.*

Keywords: *extremely high frequency, radiation, electromagnetic energy, mitochondria, cytochromoxidase, cranial, metabolic disorders.*

Dolzarbligi. Hozirgi vaqtda yer shari aholisining deyarli barchasi katta yoki kichik darajadagi o‘ta yuqori chastotalarni (O‘YuCh) ta’siriga duchor bo‘lmoqda [1]. Jahon sog‘liqni saqlash tashkiloti atrof muhitning O‘YuCh ifloslanishi muammosini insoniyatning ustuvor muammolari ro‘yxatiga kiritdi [4].

So‘nggi o‘n yilliklarda O‘YuCh larning ishchi chastotalari va quvvat darajalari sezilarli darajada kengaydi, turli xil tabiatdagi shovqin manbalari soni oshdi [7]. Elektromagnit maydonlar spektri 3 Gs gacha bo‘lgan past chastotalarni, sanoat chastotalarini (3-300 Gs), radiochastotalarni (30 kGs - 300 MGs), shuningdek, ultrayuqori chastotalarni (UYuCh) (300 MGs - 3 GGs) va o‘ta yuqori chastotalarni (O‘YuCh) (3-30 GGs) o‘z ichiga oladi [9].

Fermentativ siljishlarning reaktivligi ko‘p jihatdan organizmning O‘YuCh energiya ta’siriga bo‘lgan reaksiyasini belgilaydi, chunki fermentativ jarayonlar biologik membranalarning ultrastrukturasi va o‘tkazuvchanligining buzilishiga juda sezgirdir. Shu bilan birga, fermentativ jarayonlarning buzilishi bilan bir qatorda O‘YuCh energiya oqsil-ferment molekulasiga ta’sir qiladi [4]. Elektromagnit maydon oqsil molekulasining nospesifik qismining gidroksillangan uchastkalarining konformatsion o‘zgarishlarini keltirib chiqaradi, bu elektr zaryadlarining siljishiga va gidrofil-gidrofob xususiyatlarining o‘zgarishiga olib keladi [5]. Endoplazmatik retikulumning gidroksillash tizimlarining kuchayishi O‘YuCh energiyaning hujayraning suyuq fazasining yo‘naltirilganligi va mustahkamligiga, demak, hujayra ichki membranalarning metabolik funksiyasiga ta’sirini taxmin qilinadi.

Tadqiqot maqsadi. Ushbu ishning maqsadi O‘YuCh energiyaning turli darajalarining bosh miyaning subhujayraviy fraksiyalarining ba’zi fermentlariga ta’sirini o‘rganish.

Material va uslub. Eksperimental tadqiqotlar oq kalamush-urg‘ochilarda shakllangan maydon zonasida masofaviy ta’sir usuli yordamida o‘tkazildi. Elektromagnit energiyaning ekranizatsiyalangan tegishli xonalardan akslanishini kamaytirish uchun maxsus yutuvchi materiallar qo‘llanildi, ularning akslanish koeffitsienti tushayotgan energiya miqdorining 3% dan oshmadi, to‘lqin uzunligi 3-20 sm diapazonida.

Mikroto‘lqinli O‘YuCh nurlanish generatori 80 Vt gacha bo‘lgan ohista sozlanuvchi quvvat bilan 2375±50 MGs chastotada uzluksiz rejimda ishladi. Quvvat oqimi zichligi (QOZ) 10, 100 va 1000 mkVt/sm² ni tashkil etdi. Hayvonlar QOZning tegishli darajalari bo‘yicha guruhlarga taqsimlandi, har bir tajriba seriyasi uchun 10 tadan (jami 160 ta kalamush). Nurlanish har kuni 4 soatdan 2 marta o‘tkazildi, bu o‘rtacha ish vaqtiga mos keldi, xronometrlangan real sharoitlarda. Tadqiqotlar nurlanishning 1, 2 va 4 oylik davrlarida va 2 oylik tiklanish davridan keyin o‘tkazildi.

Tadqiqot natijalari. Tadqiqot natijalari shuni ko‘rsatadiki, O‘YuCh nurlanish ta’siridan bir oy o‘tgach, 1000 va 100 mkVt/sm² quvvat oqimi zichligida kalamushlar jigari mitoxondriyalaridagi sitoxromoksidaza faolligi nazoratga nisbatan pasaygan. Ferment faolligining pasayishi keyingi muddatlarda ham (nurlanish boshlanganidan 2 va 4 oy oʻtgach) nazoratga nisbatan 30% ni tashkil etdi. 2 oylik tiklanish davridan soʻng, 1000 va 100 mkVt/sm² OʻYuCh nurlanishga duchor boʻlgan kalamushlar jigari mitoxondriyalaridagi sitoxromoksidaza faolligi normaga qaytdi. 10 mkVt/sm² OʻYuCh nurlanishga duchor boʻlgan kalamushlarda bu koʻrsatkich nazorat hayvonlaridagi kabi chegaralarda oʻzgardi.

Bosh miya mitoxondriyalarida nurlanish ta'siri ostida sitoxromoksidaza faolligi ham pasaydi. 1000 mkVt/sm² QOZ ta'siri ostida nurlanish boshlanganidan bir oy oʻtgach, uning faolligi keskin pasaydi (40,5% ga), 2 oydan keyin pasayish 30% ni, 4 oydan keyin esa nazoratga nisbatan 25% ni tashkil etdi. 100 mkVt/sm² QOZ bilan OʻYuCh nurlanish ta'siri ostida bu muddatlarda sitoxromoksidaza faolligi ham statistik jihatdan ishonchli ($P<0,05$) 20-26% ga pasaydi. Nurlanish tugaganidan 2 oy oʻtgach, bosh miya mitoxondriyalaridagi bu koʻrsatkichning oʻzgarishlari aniqlanmadi. 10 mkVt/sm² QOZ qoʻllanilganda nazoratdan sezilarli farqlar qayd etilmadi ($P>0,05$).

Taqdim etilgan ma'lumotlar shuni koʻrsatdiki, 100 va 1000 mkVt/sm² QOZ ta'siri ostida tajriba hayvonlari jigari va bosh miyasi mitoxondriyalaridagi sitoxromoksidaza faolligining ingibirlanishi sodir boʻladi, bu mitoxondriyalarning oksidlovchi qobiliyatining buzilishidan dalolat berishi mumkin. Bundan tashqari, sitoxromoksidazaning susayishi nafas olish zanjiri boʻylab elektronlar transportidagi ehtimoliy oʻzgarishlarni koʻrsatadi, bu yerda energetik bogʻlanish mavjud.

Aniqlandiki, OʻYuCh nurlanishning 10 mkVt/sm² quvvat oqimi zichligida jigardagi G-6-FDG faolligi nazoratga nisbatan oʻzgarmadi. Nurlanishning 1-oydan boshlab, 1000 va 100 mkVt/sm² OʻYuCh nurlanish quvvat oqimi zichligi jigardagi G-6-FDG faolligining tegishli energiya darajalarida 35-25% ga oshishiga olib keldi. Keyingi muddatlarda, ya'ni nurlanish boshlanganidan 2 va 4 oy oʻtgach, G-6-FDG faolligi oʻsha darajada saqlanib qoldi va 1-oyga nisbatan statistik jihatdan ishonchli ($P<0,05$) oshish kuzatildi. 2 oylik tiklanish davridan soʻng bu koʻrsatkich nazoratdagiga yaqinlashdi va undan statistik jihatdan farq qilmadi. Bosh miya gialoplazmasida, jigardagi kabi, nurlanishning barcha davrlarida G-6-FDG faolligining oshishi kuzatildi. Bunda 1000 mkVt/sm² nurlanish ta'siri ostida 1-oy davomida G-6-FDG faolligining keskin oshishi (nazoratga nisbatan 40% gacha) kuzatildi. 100 mkVt/sm² nurlanish ta'siri ostida nurlanishning 1, 2 va 4 oylarida G-6-FDG faolligi nazoratga nisbatan mos ravishda 26, 28 va 27% ga oshdi. 10 mkVt/sm² va 100 mkVt/sm² nurlanish ta'siri ostida aniqlangan G-6-FDGning siljishlari 2 oylik tiklanish davridan soʻng yoʻqoldi. 10 mkVt/sm² OʻYuCh nurlanish quvvat oqimi zichligi bosh miya kalamushlari gialoplazmasidagi G-6-FDG faolligiga sezilarli ta'sir koʻrsatmadi. Bu guruhdagi hayvonlarning koʻrsatkichi nazoratdagi chegaralarda oʻzgardi.

Kalamushlar jigarida anilinning gidroksillanish faolligining dinamikasida 1000 va 100 mkVt/sm² QOZ ta'siri ostida gidroksillanish faolligining oshishi kuzatildi, bunda eng kam oʻsish 1000 mkVt/sm² QOZ ta'siri ostida 2-oy davomida qayd etildi, bu davrda oʻsish nazoratga nisbatan 30% ni tashkil etdi. Tiklanish davri bu koʻrsatkichning normallashuvi bilan tavsiflanadi. 10 mkVt/sm² QOZ ta’siri ostida nazoratdan ishonchli farqlar aniqlanmadi.

Xulosa. Tadqiqot natijalarini umumlashtirib, shuni xulosa qilish mumkinki, 100 va 1000 mkVt/sm² OʻYuCh energiyaning uzoq muddatli ta’siri organizmdagi metabolizm buzilishlarini aks ettiruvchi muayyan biokimyoviy siljishlar kompleksi bilan birga keladi: mitoxondriyalarda sitoxromoksidaza faolligining pasayishi, jigar va bosh miya gialoplazmasida G-6-FDG faolligining oshishi, jigar kalamushlari mikrosomal fraksiyasida "aralash funksiyali" oksidaz faolligining oshishi. Aniqlangan oʻzgarishlar turli QOZlarda noaniq yoʻnaltirilgan xarakterga ega edi. Maksimal chetlanishlar asosan nurlanishning 1-oyidan keyin kuzatildi, nurlanish davom etgan sari ifodalangan siljishlar bir necha oslasha bordi. OʻYuCh energiya ta’siriga javob reaksiyasining bunday ketma-ketligini adaptiv reaksiya sifatida qarash mumkin. Bunda birlamchi javob reaksiyasi ifodalangan boʻlib, ikkilamchi reaksiya esa elektromagnit maydonning ta’siriga moslashish bilan tavsiflanadi.

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TO‘QIMALAR KAPILLYARLIGINING GIGIENIK XUSUSIYATLARI

Annotatsiya. *Ushbu tadqiqotda sun’iy ter tarkibi (99% suv, 0,58% natriy xlorid, 0,2% sut kislotasi, 0,02% moy kislotasi va 0,2% mochevina) ko‘rsatilgan va kapillyar kinetikani tavsiflovchi ikki kattalik – vaqt birligida ko‘tarilgan suyuqlik miqdori va turli darajadagi ko‘tarilishlardagi kapillyar bosimi aniqlangan. Perfilev usuli yordamida g‘ovaklikning fraksion tarkibini aniqlash va to‘qima kapillyarlarining kesimi maydonini hisoblash uchun formula taklif etilgan. Tadqiqot natijasida, taklif etilgan asbob yordamida paxta, bayka, gazlama kabi to‘qimalarning kapillyarligini aniqlash ularning texnologik xususiyatlariga qarab sezilarli farq qilishini ko‘rsatdi. To‘qimalarning shimilishi (appretirlash) kapillyarlikka ta’sir etuvchi muhim omil ekanligi ta’kidlangan. Shuningdek, havo o‘tkazuvchanligi va kapillyar o‘tkazuvchanligi o‘rtasida har doim to‘liq muvofiqlik bo‘lmasligi, ayniqsa kapron tolasida, ko‘rsatilgan. Xulosa qilib aytganda, taklif etilgan kapillyarlikni aniqlash usuli materiallarning gigienik xususiyatlarini to‘liqroq tavsiflash imkonini beradi.*

Kalit so‘zlar: *Kapillyarlik, sun’iy ter, Perfilev usuli, g‘ovaklik, sirt tarangligi, appretirlash, to‘qimalar, havo o‘tkazuvchanlik, gigienik xususiyatlar.*

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HYGIENIC PROPERTIES OF TISSUE CAPILLARITY

Annotation. *This study showed artificial sweat content (99% water, 0.58% sodium chloride, 0.2% lactic acid, 0.02% lactic acid and 0.2% mochevina) and found the amount of fluid raised in two orders of magnitude – of-time units describing capillary kinetics and capillary pressure at different levels of uplift. A formula has been proposed using the Perfilev method to determine the fractional composition of porosity and calculate the cross-sectional area of tissue capillaries. As a result of the study, it was shown that the determination of the capillarity of tissues such as cotton, baika, gauze using the proposed tool differs significantly depending on their technological characteristics. It has been argued that tissue absorption (appretization) is an important factor affecting capillarity. It has also* *been shown that there is not always a complete correspondence between air permeability and capillary permeability, especially in Capron fiber. In summary, the proposed capillary detection method is materia*

Keywords: *capillarity, artificial sweat, Perfilev method, porosity, surface tension, appraisal, textures, air permeability, hygienic properties.*

Dolzarbligi. To‘qimalarning gigienik xususiyatlari, teri bilan kontaktda bo‘ladigan va boshqa g‘ovak materiallarning gigienik ahamiyati masalalariga ko‘plab ishlar bag‘ishlangan. Biroq, qo‘llaniladigan usullar ko‘pincha to‘qimalarning barcha asosiy gigienik xususiyatlarini to‘liq aks ettirmaydi. Birinchi navbatda, biz ushbu ishda ko‘rsatilgan materiallarning kapillyar xususiyatlarini aniqlashga e’tibor qaratdik.

To‘qimalarning kapillyar xususiyatlarini kengroq va to‘liqroq o‘rganish, teri bilan kontaktda bo‘ladigan to‘qimalarning gigienik ahamiyatini baholash, ularda namlikning tarqalishi (terlash jarayonida, kir yuvish va boshqalar) mexanizmlarini aniqlash juda muhimdir. Ayniqsa, kiyim va poyabzal uchun ishlatiladigan to‘qimalarning kapillyar xususiyatlari (paxta, flanel, va boshqalar). Sport kiyimlari (charm, trikotaj) uchun ham bu xususiyat katta ahamiyatga ega. Issiq sexlarda yoki issiq iqlim sharoitida ishlatiladigan maxsus kiyimlar uchun ularning kapillyar xususiyatlari alohida ahamiyatga ega. Agar bunday holatlarda maksimal kapillyarlik yuqori bo‘lsa, bu holatlarda terning bug‘lanishini osonlashtiradi.

Bir qator holatlarda (katta jismoniy zo‘riqishda) terlashning yuqori darajasi kuzatilganda, namlikning kapillyar tarqalishi cheklanishi talab qilinadi, bu esa kiyimlarning namlanishini kamaytiradi.

To‘qimalarning kapillyar tuzilishi va ularning kapillyarlik ko‘tarilishiga nisbatan hozirgacha bir xil qarash mavjud emas. Ko‘pchilik mualliflar g‘ovaklikni bir-biri bilan bog‘langan kapillyarlar tizimi sifatida ko‘rib chiqadilar (A. M. Xomutov va boshq., F. Arshinov, 2021; A. V. Dumanskiy va M. S. Ostrikov, 2016).

Boshqa holatda esa, g‘ovaklikning kapillyar ko‘tarilishi, asosan, silindrik kapillyarlarning mavjudligi bilan izohlanadi. Bizning fikrimizcha, g‘ovaklikning kapillyar xususiyatlarini tavsiflash uchun, avvalo, kapillyarning har qanday shaklidagi ko‘tarilish tezligini aniqlash zarur.

Silindrik va shaklli kesimdagi kapillyarlardagi suyuqlikning ko‘tarilish tezligini solishtirish ularning juda yaqin o‘xshashligini ko‘rsatdi.

Kapillyarning o‘rtacha radiusi tushunchasi hozirgi vaqtda bahsli tushuncha bo‘lganligi sababli, biz kapillyarlikning ko‘tarilishini asosan fraksion tarkib bilan emas, balki asosiy g‘ovaklarning o‘rtacha radiusi bilan bog‘laymiz.

To‘qimalar, qog‘oz, charm o‘rnini bosuvchilar va boshqa g‘ovak materiallarning kapillyarligini aniqlashning mavjud usullari qoniqarli emas, chunki ular so‘rilish jarayonining faqat bir tomonini aniqlash imkonini beradi.

Shunday qilib, ba’zi mualliflar faqat so‘rilish kinetikasi va kapillyarlarning o‘rtacha gipotetik radiusini aniqlaydilar (E. Valko, 2020; M. N. Kazarnovskiy, 2017; Z. A. Volkova, 2018), boshqalari esa faqat kapillyarlarning fraksion tarkibini aniqlaydilar (A. V. Dumanskiy va M. S. Ostrikov, 2016; K. G. Orkin, 2019).

P. P. Kondraskiy va M. M. Chilikinaning ishlari mavjud bo‘lib, ularda mualliflar kapillyarlikni shartli birlikda nisbiy usul bilan aniqlaydilar

Bizning fikrimizcha, kapillyarlarning fraksion tarkibi (statik kapillyarlik) va kapillyar ko‘tarilish (so‘rilish kinetikasi) bir hodisaning turli tomonlari bo‘lganligi sababli, ular bir vaqtda aniqlanishi kerak.

Tadqiqot maqsadi. Shu sababli, biz kapillyarning ko‘tarilish tezligini vaqt birligida kapillyarning dumaloq va shaklli kesimida eksperimental ravishda o‘rganishni zarur deb hisobladik.

Material va uslub. Bu maqsad uchun taklif etilayotgan asbob pastki qismiga shkala bilan jihozlangan shaffof V shaklidagi trubka o‘rnatilgan shisha idishdan iborat. Idishdan to‘qimaga suyuqlik so‘rilishi sodir bo‘lganda, trubkadagi meniskning harakati shaffof shkala bo‘yicha qayd etiladi. Aniqroq bo‘lishi uchun shkalali trubka ekranga proeksiyalanadi.

Tor polosa ko‘rinishidagi to‘qima universal shtativga mahkamlanadi va idishga shunday tushiriladiki, u suyuqlik bilan kontaktda bo‘ladi. Idishda turli xil suyuqliklar bo‘lishi mumkin - vodoprovod suvi yoki distillangan suv, sun’iy ter, spirt va boshqalar.

Shkala bo‘linmasining (kattaligining) narxini aniqlash uchun idishdan pipetka bilan ma’lum miqdorda suyuqlik so‘rib olinadi. Bunda shaffof shkaladagi meniskning siljish darajasi qayd etiladi. So‘rib olingan suyuqlik miqdorining shkala bo‘linmalari soniga bo‘lingan qiymati shkala bo‘linmasining narxi hisoblanadi.

To‘qima ehtiyotkorlik bilan tushirilgach, suyuqlikka tegadi, so‘ngra ma’lum vaqt oralig‘ida (avval qisqa, keyin uzoqroq) qiya trubkadagi meniskning siljishi qayd etiladi va bir vaqtda idish devoriga vertikal holatda mustahkamlangan millimetrli shkaladagi to‘qimadagi suyuqlik frontining siljishi kuzatiladi.

So‘rilish jarayoni tugagandan so‘ng, tekshirilayotgan to‘qima ehtiyotkorlik bilan (namlikni yo‘qotmasdan) olinadi va undagi suyuqlik miqdorini aniqlash uchun qisqa kesmalarga bo‘linadi, bu umumiy qabul qilingan usul bilan amalga oshiriladi.

Shunday qilib, taklif etilayotgan asbob suyuqlik frontining eksperimental harakatini h=f(t) va so‘rilishni Q=f(t) aniqlash imkonini beradi.

Tadqiqot natijalari. Sun’iy ter 99% suv, 0,58% natriy xlorid, 0,2% sut kislotasi, 0,02% moy kislotasi va 0,2% mochevinani o‘z ichiga olgan.

Bu ikkita kattalik so‘rilish jarayonining kapillyar kinetikasini tavsiflaydi. Birinchisi, vaqt birligida ko‘tarilgan suyuqlik miqdori W0=f(h), ikkinchisi esa turli darajadagi ko‘tarilishlardagi kapillyar bosimini aniqlaydi W0=f(h), Perfilev usulidan foydalanib, olingan ma’lumotlar asosida g‘ovaklikning fraksion tarkibi aniqlanadi.

Agar to‘qimaning kapillyarlarining kesimi dumaloq deb faraz qilinsa, u holda har bir fraksiya uchun kapillyar bosimi radius r ning o‘rtacha qiymatini beradi, lekin A. V. Dumanskiy bundan yuqorida ko‘rsatilgan fraksiyalarning maydoni uchun quyidagi ifodani taklif qiladi:

$$\boldsymbol{Sn} = \frac{P_{n-1} - P_n}{\sigma * \Delta h}$$

bu yerda Sn - fraksiya kapillyarlarining kesimi maydoni; Pn−1 va Pn - mos ravishda n−1 va n-darajadagi kapillyarlarning to‘liq to‘lishi; Δh - umumiy ko‘tarilishning tegishli qismi; σ - suyuqlikning sirt tarangligi.

Bu kattaliklar yordamida har bir fraksiyaning foizdagi miqdorini osongina hisoblash mumkin va, demak, kapillyarlarning taqsimlanish egri chizig‘ini S0=f(r) qurish mumkin.

Shunday qilib, oxirgi ikkita bog‘liqlik to‘qimaning kapillyar tuzilishi haqida ma’lumot beradi, ya’ni uning asosiy kinetik xususiyatlarini ikkita asosiy bog‘liqlik orqali tavsiflaydi.

Taklif etilgan asbobni ba’zi to‘qimalarning (paxta, bayka, gazlama va boshqalar) kapillyarligini aniqlash uchun qo‘llash shuni ko‘rsatdiki, ba’zi turdagi artikullar (bayka) kapillyar xususiyatlari bo‘yicha sezilarli farq qiladi. Bu holatda ishlab chiqarishning texnologik xususiyatlari, ya’ni turli xil fabrikalarning to‘qimalari bir xil bo‘lsa ham, farqli bo‘lishi mumkin. Ko‘pgina hollarda, to‘qimalarning kapillyarligiga ta’sir etuvchi muhim omil ularning shimilishi (namlanishi) hisoblanadi. Shimilish kraxmal yoki appretirlash orqali amalga oshirilishi mumkin. Appretirlash ishlab chiqarishda nafaqat kraxmalli eritmalar bilan, balki turli xil kimyoviy vositalar bilan ham amalga oshirilishi mumkin. Buning natijasida to‘qimalarning gidrofilligi yoki teskarisi, kapillyarlik o‘tkazuvchanligi sezilarli darajada kamayadi.

Agar to‘qima kraxmalli eritma bilan appretirlangan bo‘lsa, u holda suv yoki terning kapillyar o‘tkazuvchanligi bo‘yicha sezilarli farq yuzaga keladi, bu namlanish tezligi va hajmini kamaytiradi va qisman kapillyar o‘tkazuvchanlikni pasaytiradi.

Shu munosabat bilan, gigienik nuqtai nazardan, kiyim uchun juda kuchli shimilish qobiliyatiga ega bo‘lmagan to‘qimalarni hisobga olish kerak (20-30% kraxmalli eritmalar). Kuchli shimilish to‘qimalarni qattiq va kamroq o‘tkazuvchan qiladi.

Turli xil to‘qimalarning terlash, distillangan va vodoprovod suvi bo‘yicha kapillyarlik ko‘tarilishi tezligida katta farqlar aniqlanmadi.

Xulosa. Shunday qilib to‘qimalarning havo o‘tkazuvchanligini eksperimental aniqlangan kapillyar o‘tkazuvchanligi bilan solishtirish shuni ko‘rsatdiki, bu ko‘rsatkichlar o‘rtasida har doim to‘liq muvofiqlik bo‘lishi mumkin emas. Masalan, paxta, viskoza va kapron tolasidan tayyorlangan bir xil turdagi to‘qimalarni solishtirganda, bu to‘qimalarning havo o‘tkazuvchanligi bir xil, kapronning kapillyar o‘tkazuvchanligi esa minimal bo‘lib chiqdi, bu kapron tolasining past namlanishi bilan bog‘liq, ya’ni havo o‘tkazuvchanlik to‘qimalarning kapillyar-g‘ovak tuzilishidagi o‘zgarishlarning juda sezgir ko‘rsatkichi bo‘lib xizmat qila olmaydi.

Taklif etilayotgan to‘qimalar, charm o‘rnini bosuvchilar va boshqa g‘ovak materiallarning kapillyarligini aniqlash usuli ularning gigienik xususiyatlariga yanada to‘liq tavsif berish imkonini beradi.

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OPPORTUNITIES FOR DIGITIZING AND CUSTOMIZING THE EDUCATIONAL PROCESS BASED ON OPEN-SOURCE SOFTWARE

Abstract: *This article explores the possibilities of using open-source software tools in the educational process, examining their role in digitalization and their advantages in creating adaptive learning environments. For a sustainable and economically efficient digital education system, the technical and pedagogical capabilities of open-source platforms—such as Moodle, BigBlueButton, Jitsi, and OpenBoard—have been analyzed. Empirical data were collected on the practical use of these platforms in higher education institutions, including user experience, teaching efficiency, and cost savings. The necessity of enriching open-source tools with Uzbek-language interfaces and methodological resources is also emphasized. The results of the study indicate that open-source software ensures technological equity in education and positively contributes to digital transformation.*

Keywords: *open-source software, digitalization, digital education, adaptability, Moodle, BigBlueButton, Jitsi, OpenBoard, online learning, technological equity, educational platforms, cost-effectiveness.*

Introduction

In the modern education system, which is rapidly evolving under the influence of digital technologies, there is a pressing need for renewal and transformation. In this process, open-source software tools play a significant role by contributing to the development of technological infrastructure in educational institutions, facilitating digitalization, and enabling the creation of flexible learning environments. Open-source software refers to programs whose source code is publicly available and can be freely modified, improved, and distributed by users. These tools provide an effective and cost-efficient alternative, especially for educational institutions and regions with limited financial resources.

In the field of educational digitalization, open-source platforms such as Moodle, BigBlueButton, Jitsi, and OpenBoard are widely used. These platforms are not only instrumental in organizing online classes and creating interactive environments but also in managing the learning process, analyzing performance, and enhancing education through differentiated approaches. Moreover, they offer opportunities for developing learning strategies that are tailored to the individual needs of students.

This article examines the opportunities for digitalizing and personalizing the educational process based on open-source software, their practical applications, and their impact on the quality of education. Additionally, the necessity of integrating these tools with Uzbek-language interfaces and methodological resources is also discussed.

Literature review and methods

In recent years, numerous studies have been conducted on the role and effectiveness of open-source software in the digitalization of the education process. Internationally, G. Siemens (2011) emphasized that open-source platforms play a significant role in increasing activity and collaboration in education. UNESCO (2021) provided recommendations for expanding the opportunities of open-source tools to ensure inclusivity in education. Local researchers, such as X. Khudoyberganov and M. Islomova (2022), have focused on the adaptation of the Moodle platform within the Uzbek education system and analyzed user experiences.

From a technical perspective, A. Weller (2020) analyzed the architecture and security features of open-source platforms, highlighting their reliability and scalability. Furthermore, user experience studies have played an important role in research, emphasizing interface design and adaptability.

This study employs both qualitative and quantitative research methods. Qualitative methods include literature review, content analysis, and semi-structured interviews. In the practical part, surveys were conducted among students and teachers at a higher education institution, and the results were analyzed using statistical tools.

Additionally, a two-month experiment was conducted to examine the impact of Moodle and BigBlueButton platforms on the learning process, student engagement, and outcomes. The findings highlighted the need for localization of these platforms in the Uzbek language and enrichment with methodological guidelines.

As a result, it was confirmed that open-source software is highly effective in digitalizing education and serves as an important tool for enhancing the adaptability of the learning process.

Results

The study’s findings clearly demonstrate the effectiveness of open-source software platforms in enhancing the digitalization of the education process. Platforms such as Moodle and BigBlueButton were used by students and teachers in a higher education institution, resulting in a significant increase in student engagement. The average active participation rate among students using these platforms reached 85%, which is approximately 20% higher than participation rates observed in traditional classroom settings. This higher engagement was positively correlated with improvements in students’ knowledge acquisition, as evidenced by a 15% increase in average test scores after implementing the open-source solutions.

In addition to educational benefits, the study identified substantial economic advantages. The cost analysis revealed that educational institutions experienced an average reduction of 30% in software-related expenses. This decrease is mainly attributed to the elimination of licensing fees and the flexibility provided by open-source platforms for customization and maintenance without additional costs. These savings contribute to making digital transformation in education more sustainable and accessible, especially in resource-constrained environments.

User feedback collected through surveys highlighted several important points regarding localization and usability. While the availability of Uzbek language interfaces was appreciated, respondents noted a lack of comprehensive methodological guides and instructional materials in the local language. These gaps may limit the full potential of the platforms in supporting diverse learning needs and teaching approaches. Therefore, the study emphasizes the need for further development of localized content and user support to maximize the effectiveness of these tools.

The findings were supported by quantitative data presented in tables and visualized through charts, confirming the positive impact of open-source software on both learning outcomes and cost-efficiency. Overall, the research concludes that open-source platforms are valuable assets in the digital transformation of education, offering flexible, cost-effective, and scalable solutions to improve teaching and learning quality

Discussion

The research findings demonstrate that open-source software platforms are effective in digitalizing the educational process. Tools like Moodle and BigBlueButton helped increase student participation in classes and improved the overall quality of learning. Additionally, the economic efficiency of digitalization is one of the main advantages of open-source platforms, as they reduce licensing costs and alleviate the financial burden on educational institutions.

However, the study identified shortcomings in localization and the availability of instructional materials, which create certain barriers for Uzbek-speaking users. This issue can reduce the effectiveness of the educational process, highlighting the need for further development of localized software and pedagogical support materials.

User experience confirmed the platforms' convenience and flexibility, but also pointed out the necessity for additional resources for technical support and user training. Therefore, enhancing and enriching open-source platforms with additional features is crucial for improving the efficiency of the educational process.

Overall, open-source software serves as an important tool for the digital transformation of education, helping to improve teaching quality and reduce costs. However, achieving full effectiveness requires further work in localization, instructional materials, and technical support.

Conclusion

This article analyzed the possibilities of using open-source software for digitizing and customizing the educational process. The research findings show that open-source platforms such as Moodle, BigBlueButton, Jitsi, and OpenBoard are effective tools for improving the quality of education, increasing student engagement, and making the learning process more flexible.

Furthermore, open-source software is economically beneficial for educational institutions by reducing licensing costs and expanding technical support options.

However, for these platforms to function fully effectively, localization—specifically the availability of Uzbek language interfaces and pedagogical materials—is necessary. This plays an important role in enhancing convenience for both students and teachers.

User feedback and empirical results indicate that digitizing education through open-source software accelerates digital transformation and ensures technological equality. At the same time, the capabilities of these platforms need continuous improvement.

Overall, open-source software serves as an effective and affordable solution for modernizing and digitizing education. In the future, further development of these platforms, localization, and the creation of additional pedagogical resources will allow for even higher quality education.

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PROBLEMS IN TEACHING NATURAL NUMBERS AND OPERATIONS BETWEEN THEM

***Annotation**. Solving mathematical problems is an important component of teaching mathematics. It is impossible to imagine mastering mathematics without solving problems. The article discusses interesting mathematical problems of teaching natural numbers and performing operations on them.*
***Keywords**. Natural number, arithmetic operation, number, mathematics, method, logical task, problem, didactic games, modern methods*

In mathematics, solving problems is an important way to put the theory into practice. Problem solving plays an important role in the process of mastering one or another theoretical material studied in elementary grades and in developing students' thinking skills.

Problems are structured on the basis of a system of practical work. This means that the development of each new concept is always carried out by solving a problem that requires its application, which helps to explain the importance of this concept. The child encounters a problem on the first day of school. In order to determine what life experience and knowledge the students have, the teacher addresses the student through the simplest problem. For example: "You had four pens, and you took one more. How many pens do you have?"

Mathematical problems help students to correctly form mathematical concepts, to understand the environment around them more deeply, and at the same time to develop a child's thinking to solve problems. Another of the most important is that by solving problems, the student thoroughly learns the four arithmetic operations and their properties. The language of mathematics is developed. In short, this is an important result that connects theory with practice.

Elementary school mathematics classes form basic arithmetic knowledge and practical skills in students. In particular, natural numbers and operations on them are an important component of this stage. However, it is more effective to teach these topics not through simple examples and exercises, but through interesting, unconventional problems. Interesting problems activate the student's thinking, increase interest in mathematics, and form the ability to work independently.

Simple problems are used to reveal the content of arithmetic operations, the connections between operations and their components, and to familiarize themselves with the connections between various quantities. Simple problems serve as the basis for developing the knowledge and skills necessary to solve complex problems.

Problems are a useful tool for developing children's thinking abilities and usually include some knowledge. The search for this knowledge requires the problem solver to resort to analysis and synthesis, comparing facts, generalizing, and so on. Teaching these methods of cognition is one of the important goals of teaching mathematics.

In solving problems, interest in the subject develops, independence, freedom, demandingness, diligence, and goal-orientedness develop in general. Children become familiar with the structure of the problem in the second or third lesson. They learn that there is a condition and a question in the problem, and it is especially emphasized that the condition of the problem must contain at least two numbers.

Work on the problem begins with mastering its content. To better understand the content of the problem, students should not only listen to the text, but also read it independently. If the problem is confusing, it is appropriate to give students one to three minutes to think about the content of the problem independently.

The central concept of the entire course of mathematics in preschool and primary school is a natural number. Counting has a complex history of origin and development. F. Engels believed that the concept of number was borrowed exclusively from the external world, it did not arise from pure thinking. Studying the history of the development of the concept of number and operations with numbers allows us to identify how the process of "objectification" of number occurred, how the concept of number developed, what role does mastering a historically developed means of reflecting number (mastering the numbering system) play in the formation of the concept of number[40].

Many methodologists talk about the advisability of early propaedeutics of the material of primary school. In particular, B.P. Erdniev notes that this is "beneficial in terms of achieving the integrity of knowledge, continuity", believes that there should be no restrictions in any class in "getting ahead" of this or that program, in the free use of mathematical terms, names, formulas, if this is informationally linked to what is being studied and leaves some useful traces in the mind. There is no need to prove how much faster the assimilation is subsequently accelerated.

Number, the most important mathematical concept. Having emerged in its simplest form in primitive society, the concept of number has changed over the centuries, gradually enriching itself with content as the scope of human activity expanded and the related expansion of the range of issues requiring quantitative description and research. In the early stages of development, the concept of number was determined by the needs of counting and measuring that arose in the immediate practical activity of man. Then number became the main concept of mathematics, and the further development of the concept of number was determined by the needs of this science. The concept of natural number, caused by the need to count objects, arose in prehistoric times. The process of forming the concept of natural number proceeded in general terms as follows.

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[40] Nsportal.ru

Natural numbers are positive integers counting from 1 (1, 2, 3, ...). Four basic arithmetic operations are performed on them - addition, subtraction, multiplication, division. In primary grades, these operations are taught step-by-step through simple examples.

Interesting mathematical problems are tasks that, unlike simple arithmetic examples, encourage the student to think, research, and draw conclusions.

Interesting problems can be effectively used in the learning process through various methods. In this, didactic games, problem-solving methods, group work and pictorial tasks are important.

The use of interesting mathematical problems in teaching operations on natural numbers: activates the student's thinking; increases interest in mastering the subject; develops practical and logical skills; forms the ability to work independently and cooperate in a group. Thus, in primary education, there is an opportunity to provide students with deep and solid knowledge using interesting problems. It is advisable for teachers to use various methods, demonstrating their creativity in this regard.

In primary school mathematics lessons, while studying the properties and methods of arithmetic operations, the specific laws of multiplication require that they be studied in accordance with the inverse operation, on the other hand, when analyzing special cases, comparison with the specific properties of operations is important.

This has a positive effect on developing students' thinking. We believe that the preparation of problem sets, multimedia and graphic tools in order to use pedagogical technologies used in solving text problems by developing students' computational skills in solving problems in elementary mathematics classes will yield positive results in increasing the effectiveness of elementary mathematics education.

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EKOPEDAGOGIKA TO'G'RISIDA TUSHUNCHALARNING KELIB CHIQISHI

Annotatsiya:*Ushbu maqolada ekopedagogikaning nazariy asoslari, maqsad va vazifalari chuqur tahlil qilinadi. Muallif ekopedagogikaning tanqidiy pedagogika asosidagi rivojlanishini, uning asoschilaridan biri Paulo Freire g'oyalari bilan bevosita bog'liqligini yoritadi. Ekopedagogika tarixiga, uning xalqaro meqiyosdagi rivojlanishiga, asosiy prinsiplariga, tanqidiy nuqtai nazarga va zamonaviy ta'limdagi ahamiyatiga alohida e'tibor qaratiladi. Ekopedagogikaning ijtimoiy, siyosiy va ekologik vaziyati, uning global tashkilotga qo'shadigan hissasi keng yoritiladi*
Kalit so'zla*r:ta'lim,pedagogika,ekopedagogika,atrof-muhit,ekologik savodxonlik,ekologik ta'lim,ekologik harakat,loyiha ishlari*

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THE ORIGIN OF CONCEPTS ABOUT ECOPEDAGOGY

Annotation: *This article provides an in-depth analysis of the theoretical foundations, goals and objectives of ecopedagogy. The author highlights the development of ecopedagogy based on critical pedagogy and its direct connection with the ideas of one of its founders, Paulo Freire. Special attention is paid to the history of ecopedagogy, its development in the international context, its basic principles, critical perspective and significance in modern education. The social, political and ecological situation of ecopedagogy, its contribution to the global organization are widely covered.*
Keywords: *education, pedagogy, eco-pedagogy, environment, ecological literacy, ecological education, ecological movement, project work*

Ekopedagogika harakati tanqidiy pedagogika nazariyasi va amaliyotining kengaytmasi bo'lib, faylasuf va pedagog Paulo Freyre ta'siridagi ta'lim amaliyotidir. Ekologik pedagogikaning vazifasi insoniyatning jamoaviy salohiyati haqida tushunchani rivojlantirish va butun dunyoda ijtimoiy adolatni rivojlantirishdan iborat. Bu neoliberalizm va imperializm kabi mafkuralarning globallashuviga, tanqidiy ekologik savodxonlik shakllarini rivojlantirishga urinishlarga tubdan qarshi bo'lgan kelajakka yo'naltirilgan ekologik va siyosiy qarashlar doirasida amalga oshiriladi.[1] So'nggi paytlarda Greg Misiashek[2] ta'riflaganidek, tanqidiy ekopdagogikani zamonaviy stoik falsafasi bilan birlashtirishga urinishlar bo'ldi.[3]

Ekopdagogikaning maqsadlaridan biri barqaror rivojlanish, sayyoraviylik (ya'ni yerlik bo'lish) va biofiliya (ya'ni barcha tirik mavjudotlarni sevish) kabi me'yoriy tushunchalar asosida madaniy ahamiyatga ega bilim shakllarini amalga oshirishdir[1].

Ekopdagogika harakati Lotin Amerikasi ta'lim kontekstida 1992 yilda Braziliyaning Rio-de-Janeyro shahrida bo'lib o'tgan Ikkinchi Yer sammitidagi muhokamalar natijasida paydo bo'ldi.[1] O'qituvchilar jamiyat va atrof-muhit o'rtasidagi munosabatlar haqidagi nazariya va kontseptsiyani joriy qilmoqchi bo'lib, 2000 yilda Yer Xartiyasi sifatida ratifikatsiya qilingan.[4] 1999 yilda Braziliyaning Paulo Freire instituti Moasir Gadotti rahbarligida Yer Kengashi va YUNESKO bilan hamkorlikda ta'lim kontekstida Yer Xartiyasi bo'yicha birinchi xalqaro simpozium o'tkazdi. Tez orada Ekopdagogika bo'yicha Birinchi Xalqaro forum bo'lib o'tdi. Bu konferentsiyalar, shuningdek, Ekopdagogika Yer Xartiyasi ning shakllanishiga olib keldi, bu esa ekopedagogika bo'yicha seminar va dasturlarning butun dunyo bo'ylab tarqalishining boshlanishini belgiladi.[1]

Ekopdagogikaning asosiy maqsadi - inqilobiy ta'lim va ta'lim orqali "sayyoraviy ong"ni yaratishdir.[5] Ijtimoiy harakat, siyosiy, iqtisodiy va ekologik tizimlarning o'zaro bog'liqligini o'rganuvchi ta'lim dasturlarini yaratishga intiladi. Tanqidiy pedagogikaning bir tarmog'i bo'lgan ekopdagogika ekologik ta'lim va barqarorlik uchun ta'limni an'anaviy pedagogika shakllarining atrof-muhitning buzilishi bilan bog'liq dolzarb muammolar kontekstida dolzarb bo'lib ko'rinishiga befoyda urinishlari sifatida tanqid qiladi.[6] U irqchilik va sinfiy qadriyatlarga asoslangan tabiat haqidagi qabul qilingan tushunchalarni tanqid qiladi[1] va atrof-muhit terminologiyasini "yashil yuvish" tendentsiyasidan ehtiyot bo'ladi[7].

Ekopdagogika harakatida ishtirok etganlar ekologik ta'lim qandaydir ijobiy o'zgarishlarga olib kelishi mumkinligini tan olishsa-da, ular ekologik ta'lim (ayniqsa, global shimolda) ko'pincha tabiatning toza cho'l kabi qabul qilingan tushunchalariga shubha qilmasdan, tajribali pedagogika va ochiq havoda ta'lim shakllariga qisqartirilishini shubha ostiga oladilar.[1] Ekopdagogikaning ta'kidlashicha, ekologik ta'lim ko'pincha fanlar va ijtimoiy fanlardagi hukumat va korporativ standartlarga bog'liq yoki zamonaviy turmush tarzining barqaror bo'lmagan tabiatini keng tushunishning siyosiy imperativini ifoda eta olmaydi. Biroq, ekopdagogika Birlashgan Millatlar Tashkilotining barqaror rivojlanish uchun ta'lim o'n yilligidan (2005-2015) mazlumlar nomidan strategik harakatlarni amalga oshirish uchun foydalanishga urinib ko'rdi va undan barqaror rivojlanish kontseptsiyasini ochish va aniqlashtirish imkoniyati sifatida foydalandi.

Ekologik ta'lim bo'yicha olim Richard Kan ekopedagogik harakatning uchta asosiy maqsadini ta'riflaydi:

Ekologik savodxonlik dasturlarini maktablarda ham, jamiyatda ham tarqatish uchun imkoniyatlar yaratish.

Ekopdagogika sohasidagi olimlar va jamoatchilik (ayniqsa faollar)ning amaliy harakatlari o'rtasidagi tafovutni bartaraf etish.

Ta’lim tizimidagi ko‘plab guruhlar o‘rtasida dialog va o‘z-o‘zini refleksli birdamlikni rag‘batlantirish, ayniqsa hozirgi sayyora inqirozi nuqtai nazaridan.[1]

Angela Antunes va Moacir Gadotti (2005) yozadilar:

Ekopedagogika ko‘plab boshqa pedagogikalar sohalari emas. U nafaqat tabiatni asrash (tabiiy ekologiya) va insoniyat jamiyatining atrof-muhitga ta’siri (ijtimoiy ekologiya) bilan bog‘liq muqobil loyiha, balki iqtisodiy, ijtimoiy va madaniy tuzilmalardagi o‘zgarishlarni nazarda tutuvchi ekologik nuqtai nazardan barqaror sivilizatsiyaning yangi modeli (integral ekologiya) sifatida ham muhimdir.[1]

Ijtimoiy harakat nazariyotchilari Ron Eyerman va Endryu Jeymisonlarning fikricha, ekologik harakatlarning uchta asosiy o‘lchovi mavjud: kosmologik, texnologik va tashkiliy[1]. Ekopdagogikada bu o‘lchamlar Richard Kan (2010) tomonidan quyidagicha tasvirlangan:

Kosmologik jihat ekologik savodxonlik, ya’ni hayotni qo‘llab-quvvatlovchi tabiiy tizimlarni tushunish odamlarning dunyoqarashini qanday o‘zgartirishi mumkinligiga e’tibor qaratadi. Masalan, jamiyat tabiatdan foydalanish huquqiga ega degan g‘oyalar o‘rnini uzoq muddatda jamiyatni qo‘llab-quvvatlash uchun ekologik muvozanat zarurligini anglash bilan almashtirish mumkin. Tafakkurdagi bunday “kosmologik” o‘zgarishlarning muvaffaqiyatini bunday paradigma o‘zgarishlarining jamiyat tomonidan qanchalik qabul qilinganligi bilan o‘lchash mumkin.

Texnologik o‘lchov ikki xil: an’anaviy rivojlanish imkonini bergan, shuningdek, barqaror rivojlanish niqobi ostida foydalanilgan yoki noto‘g‘ri foydalanilgan ba’zi ifloslantiruvchi texnologiyalarni tanqid qilish; ekologik va ijtimoiy muvozanatni buzmaydigan ekologik toza texnologiyalarni targ‘ib qilish.

Tashkiliy jihat bilimlar odamlar uchun ochiq bo‘lishi kerakligi, shuning uchun olimlar jamoatchilik va ijtimoiy harakatlar bilan muloqotda bo‘lishi kerakligini ta’kidlaydi.[1]

Ekopedagogika ma’lum bir guruh odamlar tomonidan ishlab chiqilgan nazariyalar yoki amaliyotlar to‘plami emas. Aksincha, Butunjahon Ijtimoiy Forumi va boshqa tegishli zamonaviy xalq ta’limi strategiyalari kabi, u tanqidiy o‘qituvchilar, nazariyotchilar, nodavlat ,hukumat tashkilotlari, boshlang‘ich faollar bilan doimiy muloqot va siyosiy harakatlarda ishtirok etuvchi manfaatdor fuqarolarning butun dunyo bo‘ylab birlashmasi. Bu jarayon muayyan joylar, guruhlar va davrlar ehtiyojlariga mos ravishda ekopedagogik amaliyotlarni rivojlantirishga qaratilgan.

Ekopdagogika atamasining eng qadimgi qo‘llanishi de Xaan (1984) tomonidan hozirda kam ma’lum bo‘lgan nemis matnida qayd etilgan.[8] Ko‘p o‘tmay, bu atamani qo‘llagan birinchi inglizcha matnda Gronemeyer (1987) ekopdagogikani atrof-muhit siyosati va kattalar ta’limining uyg‘unligi sifatida ta’riflagan.[9] Ekopdagogika Ahlberg (1998) tomonidan ham muhokama qilingan; [10] Jardine (2000); [11] Petrina (2000); [12] Yang va Hung (2004); [13] va Payne (2005).[14] Lummis (2002) [15] ishi tanqidiy nazariy yondashuv kabi umumiy xususiyatlarni birlashtiradi.

Ajablanarlisi shundaki, ayni paytda bu atama Freyrening do‘sti va tanqidchisi Ivan Illich (1988) tomonidan o‘qituvchilar va talabalar mavhum pedagogik tizimlarga singib ketgan, bunda pedagogika vosita emas, balki maqsad bo‘lib qoladigan ta’lim jarayonini ifodalash uchun kiritilgan.[16] Illich uchun ekopdagogika tizimlashtirishning majburiy pedagogik tajribasi orqali hayotni to‘liq boshqarishga intiladigan ta’lim shakllarini ifodalaydi. Shunday qilib, u bunday yondashuvlarga misol sifatida byurokratik ta’lim muassasalarida umrbod ta’lim olish harakati va "global sinflar" (Illich & Verne, 1981) yaratilishini ko‘rdi. Shu bilan birga, u global isish, ocharchilik va o‘rmonlarni kesish kabi muammolarni hal qilish uchun jamoatchilik kayfiyatini safarbar qilishga uringan mashhur ekologik pedagogikani ham tanqid qildi.[17] Illich, bunday ekopedagogika muammo yechim asosida faoliyat yuritishini nazarda tutgan, bu esa dunyoda chinakam barqaror yashash tarziga zid bo‘lgan global boshqaruvni nazarda tutadi. Bu atama va kontseptsiyaning bugungi kunda tanqidiy ta’lim doiralarida qanday ta’riflanishi va qo‘llanilishidan farq qiladi, garchi u butun ekopdagogika harakatining kelajakdagi rivojlanishi uchun potentsial ta’sir ko‘rsatadi.

Paulo Freirening o‘zi 1997 yilda vafotidan keyin ekopdagogika bo‘yicha kitob ustida ishlagan, uning qismlari vafotidan keyin "g‘azab pedagogikasi" (2004) kitobiga kiritilgan.[18] Boshqa nufuzli kitoblar qatoriga Fransisko Gutierrez va Kruz Pradoning “Ekopdagogika va sayyora fuqaroligi” (1999), Moasir Gadottining [19] “Yer pedagogikasi” (2000), Richard Kanning [20] “Kritik pedagogika”, “Ekologik savodxonlik” va “The Planetary Ecology” kitoblari kiradi.

Ekopdagogika tarafdorlari ham, tanqidchilari ham tarixan G‘arbdagi tanqidiy o‘qituvchilar o‘z sinflarida atrof-muhit muammolarini hal etishda muvaffaqiyatga erisha olmaganiga qo‘shiladilar.[21] Biroq tanqidchilar va ekopdagogika tarafdorlari o‘rtasida ushbu pedagogik uslubning etikasi, nazariy yondashuvi va metodologiyasi borasida hali ham kelishmovchiliklar mavjud.[22]

Ekopdagogikaning eng qattiq tanqidi tanqidiy pedagogikaning asoschisi Paulo Freire atrof-muhit muammolaridan bexabar edi, degan taxmindan boshlanadi. “Freyreni qayta ko‘rib chiqish” nufuzli to‘plamida Illichan va atrof-muhit o‘qituvchilari tomonidan tanqidiy pedagogikaning ko‘plab jihatlari keskin tanqid qilingan. Bu tanqid muqarrar ravishda ekopdagogika harakatiga ta’sir qiladi.[23] Tanqidchilardan biri K.A.Bauersning ta’kidlashicha, agar ekopedagogika (va Freyre va Gadottining kengroq tanqidiy pedagogikasi) keng tarqaladigan bo‘lsa, u G‘arb madaniyati va tizimlarining gegemon tarzda tarqalishiga yordam beradi va shu tariqa g‘arbga oid bo‘lmagan fikrlash, idrok etish va odamlar va atrof-muhit bilan o‘zaro munosabatda bo‘lish usullarini bostiradi. Bowers, shuningdek, Freire ekopdagogikasini qabul qilish global monokulturaning shakllanishini tezlashtiradi va hozirgi ekologik inqirozning tizimli ildizlarini bartaraf eta olmaydi yoki umumiy mulkni keyingi ekspluatatsiyadan himoya qilmaydi. [24] Shu nuqtai nazardan qaraganda, ekopedagogika ta’lim beruvchi troyan otiga o‘xshaydi, bu G‘arb madaniyati va hukmronligini uzatish vositasidan boshqa narsa emas.

Ekopdagogikaning mo‘tadil tanqidchilari ekopdagogikaning tanqidiy yondashuvi foydali bo‘lishi mumkinligini ta’kidlaydilar, ammo uning tarafdorlari ekopdagogikaning o‘zini faol ravishda tanqid qilishlari kerak. Ularning ta’kidlashicha, fikrlash, madaniyat va ekotizimlardagi xilma-xillikni tushunish va rag‘batlantirishga doimiy e’tibor berilmasa, ekopdagogika ma’nosiz va o‘z maqsadlariga zid bo‘lishi mumkin. [25] Ekopedagogika (va tanqidiy pedagogika) ham o‘z ishiga asos bo‘lgan toifalarni tanqid qila olmagani uchun qattiq tanqid qilinadi. Bu erda tanqidchilar individualizmga imtiyoz berish orqali ekopdagogika an’anaviy ekotsentrik madaniyatlarning insoniy bo‘lmagan dunyo bilan chuqur aloqalarini tan olmaydi, deb ta’kidlaydilar. [26] Bundan tashqari, ekopedagogika va tanqidiy pedagogika an’analarining ba’zi olimlari “klassik liberal fikrning asosiy toifalari tanqidiy pedagogika nutqida qanday ishlashi mumkinligini” tan olmaydilar.[27]

Ekopedagogika nazariya bilan bir qatorda amaliyotga ham e’tibor qaratadi.[28][29][30] Ixtisoslashgan ekopdagogika dasturlari va Paulo Freire institutlari bilan bir qatorda, ekopdagogika orqali odamlarni nafaqat tanqidiy fikrlashga o‘rgatadigan, balki ularni harakat orqali o‘rganishga jalb qiladigan ekologik ta’limning ko‘plab misollari mavjud. Misol uchun, g‘arbiy Shotlandiyadagi 10 yoshli bolalarni o‘rganish shuni ko‘rsatdiki, interaktiv drama ta’limi talabalarni qattiq chiqindilar va o‘rmonlarni kesish kabi global muammolarning ekologik, ijtimoiy va siyosiy jihatlari haqidagi munozaralarga muvaffaqiyatli jalb qiladi.[31] Drama mashqlari talabalardan qaror qabul qilishni yoki pozitsiyani egallashni talab qildi, bu esa ularning ushbu masalalarning ahamiyati haqidagi tushunchasi va ishonchini mustahkamladi.[31] Ekopdagogika faqat rasmiy ta’lim bilan cheklanmaydi; Misol uchun, Turkiyada ishtirok etgan tadqiqot shuni ko‘rsatdiki, universitet professorlari uchun ochiq havoda ekopdagogika dasturi "jamoat ishtirokini rag‘batlantirish, talabalar, o‘qituvchilar va ota-onalarni mahalliy ekologik muammolarga jalb qilish va ekologik barqarorlikka erishish uchun ijtimoiy kapitalni rivojlantirish"da muvaffaqiyatli bo‘ldi.

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THE CHINESE TEA TRADE IN CENTRAL ASIA IN 18TH AND 19TH CENTURIES

Annotation: *As the Chinese tea has become a large consumer product among the population of region, Bukhara and Kokand tea traders also acted as translators in the trade relations between the West and the East. Introduction of Chinese tea into Central Asia led to the emergence of tea houses and samovars in many major cities.*

Key words: *China, Chinese tea, Central Asia, Andijianis, tea trade, translator, teahouses.*

Trade and cultural ties between Central Asia and China have begun in ancient times. The Great Silk Road, which crosses Central Asia and connects Europe and China serves a good example of this. This overland connection for supplying various products had strategic importance. One of these products is tea and tea products. Although the Great Silk Road in the 16thcentury was not important for Europeans, tea trade did not stop between Central Asia and China.

Tea has been a favorite drink of all Central Asian peoples from ancient times to the present. Tea is imported from China to Central Asia and has been widely spread and popular drink among the population of this region. However, there are no clear opinions on how long the tea was consumed among the people of Central Asia. According to sinologist Dr.Ablat Khojaev, "At the beginning and BCE, the so-called "cha" was known to tea-breeders, but they did not yet know how to prepare a thirst-quenching drink out of its vegetable leaves. In the 3rdcentury CE intoxicate tea was made of tea leaves in China and it was consumed secretly, while the tradition of drinking tea as a thirst-quenching drink appeared at the beginning of the 4thcentury. During the next two centuries, tea extracts are widely used among the local population. So tea did not spread in Turkestan before the 5thcentury"[41].

If tea was historically imported into the country by sea, then it was called "te" and if it was brought overland or from the north of China then it was known as "chai". The whole world is divided into two parts in calling this wonderful drink: as "te" - by southern Chinese, "tea" -

[41]Khojaev A. BuyukIpakYo'li: munosabatlarvataqdirlar. – Tashkent: "O'zbekistonMilliyEnsiklopediiasi" davlatilmiynashriioti, 2007. P.187

English, "thee" - Dutch, "té" - Italians, the "téh" - Javanese; and as "chá" - by northern Chinese, "chai" - Hindus, Turks, Persians, Russians, "shay" - Arabs, "cha" - Koreans, "ocha" - Japanese and "chai" - Uzbeks. Because the northern Chinese language is known as the Mandarin and it is called "chá" while the in the Cantonese it is called "te", e.g. in Fujian Province. Chinese tea had been a popular drink among the peoples of in Central Asia: Kokand Khanate (1709-1876), Bukhara Emirate (1756-1920) and Khiva Khanate (1535-1920). Tea in these khanates was mainly imported from India and China.

Chinese tea was brought by Kokand traders from the Inner China and Xinjiang markets. Kokand traders acted as translators at this trade. The Chinese documents point out that "the annual trade turnover between Kokand and China ranged from 100,000 to 300,000[42]*chings*"[43]. In the middle of the 19th century, the annual trade turnover of Kokand with only one Kashgar amounted to 5 million rubles and the amount of tea to be brought to Kokand amounted up to 30,000[44]*poods*[45]. The tea species cultivated in Chinese Tebey, Yunan, An-Xou and other regions were brought to Kokand Khanate.In particular, in 1865, Chinese tea was brought to Central Asia via Kabul in 4000 camel loads[46].

In 1759, Chinese ambassador Daketana, who arrived in Kokand to meet Erdana, presented him with Chinese "silk and tea" as the emperor's gift[47]. At the end of the 18th - beginning of the 19th century, Chinese briquetted tea was very popular in Central Asian towns and cities. In the middle of the 19th century Chinese tea entered Central Asia and Afghanistan via Kokand and Kashgar[48]. Kokand traders have also benefited from China's products at the same time. Tea had a special place among them. In particular, the annual turnover of tea products was 30,000 poods and 30,000 horse loads. According to Chinese literature, in the first half of the 19th century about 4 million 500 thousand *fen*[49] of tea per year was brought in East Turkestan from mainland China. About 200 thousand of *fen*of tea went to Chinese and Manchu military and officials in eastern Turkestan and to the local Muslim population[50]. The remaining 4 million

[42]Saguchi T. The Trade of the Khokand khanate. Charter VI. Memories of the Research department of the Toyo Bunko (The oriental library) – Tokyo, 1965. № 24. – P. 80.
[43]Ching is 6,144 hectares (Kuznetsov V.S. Ekonomicheskaiapolitikatsinskogopravitel’stva v Sintsziane. – Moscow.Nauka.1973.P.177)
[44]Pood is ca. 16,3 kilograms
[45]Mahkamov A. TorgovliaKokanda so sredneaziatskimivladeniamiisopredel’nymistranami v pervoipolpvine 19 v. // Pozdnefeodal’nyigorodSredneiAzii. – Tashkent: Fan, 1990. – P.146
[46]TsGARUz. I-1, op. 16, d.203, ff. 17 reverse & 51
[47]Kuznetsov V.S. Tsinskaia imperia narubezhakhTsentral’noiAzii (vtoraiapolovina 18 – pervaiapolovina 19 vv.). – Novosibirsk: Sibirskoeotdelenie, 1983. P.56
[48]Valikhanov Ch.Ch. O sostoianieAltysharailishestivostochnykhgorodovkitaiskoiprovintsii v 1858-1859 godakh / Sobraniesochinenii v 5 tomakh.- Alma-Ata, Vol.3.P.72
[49]Fen – 0,373 gr. (Kuznetsov V.S. Ekonomicheskaiapolitikatsinskogopravitel’stva v Sintsziane. – Moscow.Nauka.1973.P.177)
[50]Pan Chjipin. KokondavlativaG’arbiiiurtsiiosati. Beijing, 2006.P.218

300 thousand fen were sold to Central Asia, India, Afghanistan, Iran, Russia, Arab countries, and European and African countries. Kokand traders spread tea products from the Khanate to the Russian empire, Bukhara and Khiva khanates. ChokanValikhanov said that East Turkestan was mainly in the hands of Kokand and Bukhara traders[51]. Like other Central Asian rulers, Kokand rulers, who were active in international trade, had been profiting from selling tea from China to countries in the West.A chronicler Muhammad Omar Margilani had mentioned in the "TarikhiAziziy" the fact that a large amount of tea was kept in the treasury of the khan[52]. Demand for tea was also mentioned in agreements between the Kokand rulers and the Manchu government. In 1830, according to the terms of the cease-fire agreements with the Tsing government the troops of Kokand Khan Muhammad Ali Khan (1822-1842) had brought from China 100 camel loads of green tea, 500 camels loads of "cotton tea" and 99 camel loads of "white paper tea" to Kokand[53]. Another Kokandian chronicler, Tajir Khujandi also mentions the features of Chinese tea in his "Gharaiibi Sipah - The Wonders of the Army"[54]. The work mentions about ten peculiarities of Chinese tea when in 1832 Muhammad Ali Khan's Kokandian Ambassador to the Tsing Empire certain A'lamPochcha visited China[55].

In ancient times, tea from China to Central Asia was seasonal and seldom and it was a very simple way to transport it. So the tea was put in the bags like straw and while carried on horses and camels it would absorb the fragrance of every kind of vegetation on the long road and the salty deserts becoming spoilt en route. Kokand traders first used the tea leaves to mix with cow's milk and bull's blood and press them back between wooden boards turning them into briquetted tea. Kokand traders bought five types of tea from Eastern Turkestan markets, such as black tea, green tea, *sabet* tea, *fu-choi* and *tsyanlun* tea depending on the taste and processing of tea. The population of the Kokand Khanate in Namangan in the Ferghana Valley and Tashkent preferred black tea and Marghilan and Kokand residents liked sabet tea. Additionally, milk and salt were added to the tea. Tea was one of the cheapest goods imported from China.In Yarkend it's price was 60 dinars and in Bukhara 100 dinars. A sack of indigo brought by Kokand traders was exchanged into one *lyan* tea[56].

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[51]Fiodorov M.N. OtchiotChokanaValikhanova o puteshestvii v Kashgarkakistochnikpotsenamitorgovle v VostochnomTurkestane, KirgiziiiKazakhstane // Izvestiia AN R Kirgizistan. Frunze, 1991.No. 1. P,61

[52]Muhammad Aziz Muhammad Rizaugli. TarikhiAziziMss No. 11108, F. 124 a&b of the Manuscripts collection of the Abu RayhanBiruni Institute of Oriental Studies, Uzbekistan Academy of Sciences (IOS, UAS)

[53]Damulla Muhammad SalihKhwajawaladidamulla Rahim KhwajaTashkandii. TarikhiJadidaiiToshqand. Mss. No. 7791. F. 430 a&b, 423, 426b

[54]Tajir. GharaibiSipah. IOS, UAS. Mss.No.5408

[55]Tajir. GharaibiSipah. IOS, UAS. Mss.No.5408. FF.20b &21a

[56]Pan Chjipin. KokondavlativaG'arbiiiurtsiiosati. Beijing, 2006.P.218 (In Chinese)

Florio Beneveni had mentioned that at the beginning of the 19th century Bukharans consumed simple, but very sweet tea. F. Iefremov who lived in Bukhara for several years witnessed that they drank tea with sugar[57]. According to P.I. Demaison that at the beginning of the 19th century in Bukhara, "they had two or three times tea drinking five or six cups a day"[58].E.K.Meiendorf who visited Bukhara from 1820 to 1821 writes that the Bukharan people "drank tea after morning prayers. They add some milk and salt to the tea like soup so that they did not eat for four or five hours. Then they had tea like in Europe ... "[59].

According to the English officer A.Burns, who arrived in Central Asia through India and Afghanistan in the 1930s, "every part of the market is busy preparing tea, which is boiled in large European samovars and is heated by a metal trumpet. The passion for the tea in Bukhara can not be compared to anything. They use tea everywhere and all the time and half of them in different ways: sugar, without sugar, lemon, without lemons, butter, and salt and so on"[60]. "Day begins with ... drinking tea; hundreds of boys rush to the market from different parts of the city and sell milk and cream in small bottles in the market. Usually, every boy places his own products in twenty or thirty bottles hung over their shoulders. Despite the larger amount of the milk it vanishes among the tea lovers very soon"[61].

"After arriving in Bukhara, I went to the caravanserais followed by my companions where I wished to see traders who, disclosing their goods, bragging of them were about to sell tea. They sent men to bring apricots and ice from the market: we sat down and enjoyed eating them. One of the buyers accepted me as a tea trader and offered me to show varieties of my goods"[62]. "He offered us a cup of an herb tea and he even wanted to slaughter a sheep to please us"[63].

Shops in Bukhara seen by Vamberi had 16 different types of tea and wrote their names in his notebook. Some of them were: *qirqma*, *akhbar*, *aqquyruq*, black tea, *sabet* tea, *ishbaghlu*, *gulboy*, *pashun*, *mushukkuz*, *lonka* and many others[64].

Grushin, a Russian writer who lived in Khiva in the beginning of the 19th century, says, "In Khiva, the khans drink tea every day a Kalmyk

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[57]Iefremov F. Deviatiletneiestranstvovanie. Moscow.1950.P.228

[58]Zapiski o Bukharskomkhanstve. (OtchiotyP.I.DemezonaiI.V.Vitkevicha) Moscow.Nauka.1983.P.80

[59]Meiendorf E.K. PuteshestvieizOrenburga v Bukharu. Noscow. 1975. PP.128-130

[60]Puteshestvie v Bukharu: rasskaz o plavaniepoInduotmoria s podarkamiVelikobritanskogokorol’iaiotchet o puteshestviiizIndii v Kabul, TatariiuiPersiiu, predpriniatom … v 1831, 1832 i 1833 godakhleitenantomost-indskoikompaneiskoisluzhbyAleksandromBornsom. Moscow. Universitetskaiatipografia. 1848-1849. Part 2.P.305

[61]Ibid. P.383

[62]Puteshestvie v Bukharu: rasskaz o plavaniepoInduotmoria s podarkamiVelikobritanskogokorol’iaiotchet o puteshestviiizIndii v Kabul, TatariiuiPersiiu, predpriniatom … v 1831, 1832 i 1833 godakhleitenantomost-indskoikompaneiskoisluzhbyAleksandromBornsom. Moscow. Universitetskaiatipografia. 1848-1849. Part 2.P.385

[63]Ibid. P.385

[64]Vamberi H. PuteshestviepoSredneiAzii. Moscow.1967.P.94

tea and twice a week tea with sugar"[65]. According to A.M.Peshchereva, residents of Zarafshan and Kashkadaria Region drink more *shirchai* - tea with milk[66]. F.D. Liushkevich writes that Bukhara and Kashkadaria Oasis will not go anywhere in the autumn and winter days without *shirchai*[67].At the end of 19th V.P. Nalivkin and his wife witnessed that "the nomadic and semi-nomadic inhabitants of the Fergana Valley did not drink shirchai, tea with milk"[68]. The Russian ethnographer, Sergei Abashin, links the spread of shirchai with the migration of Dzungars, i.e. Kalmyks to Central Asia[69]. However, this is not true because drinking tea with milk is not a Kalmyk tradition but also was widespread among Uygurs and was known as "etanchai" among the Kazakhs and Uzbeks as "shirchai".

In the 1830's Chinese tea of "tuqtachai (briquetted tea)" and "aqquyruqchai (green tea)" were imported from Yarkend through Kokand to Bukhara in special bags made of horse skin estimated to 200.000 pounds and had been purchased in Bukhara markets[70]. Chinese tea in horse skins preserved its original taste and quality better than tea shipped by sea. Until1862 Chinese tea was transferred to Yarksed and Kashgar from the plantations along the Yantszi River and from there to Bukhara through Kokand[71].

Teahouses in the Central Asian khanates were mainly located in and around markets, on large and small transit routes, on canals or river banks, in the centres of rural areas. In particular, there were dozens of teahouses in Kokand, Tashkent, Namangan, Margilan, Khujand and other big cities of the Khanate of Kokand. Specifically, in the Marghilan market, there were 35 tea houses on the eve of Russian invasion. In the middle of the 19th century a tea shop built by Yunusbay trader among many teahouses in the Khujand market was well-known[72].

In the late Middle Ages, tea was an important trade item in trade relations between Central Asia and China. Although Chinese tea had become a large consumer product among the population of this region, Bukhara and Kokand tea traders also acted as translators in the trade relations between the West and the East. Entering Chinese tea into Central

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[65]See: Poslannik Petra I naVostoke: Posol’stvo Florio Beneveni v PersiiuiBukharu v 1718-1725 godakh.Moscow.1986.P.85
[66]Peshchereva E.M. GoncharnoeproizvodstvoSredneiAzii. Moscow.1959.P.285
[67]Liushkevich F.D. Nekotoryeosobennostipishi u osedlogonaseleniaBukharskoiiKashkadar’inskoioblastei // Novoe v etnograficheskikhissledovaniiakh: ItogpolevykhrabotInstitutaetnografii AN SSSR v 1972 godu. Moscow.1974.Part I.P.95
[68]Nalivkin V.P., Nalivkina M. OcherkbytazhenshinyosedlogotuzemnogonaseleniaFergany. Kazan.1886.P.126
[69]Abashin S. Chai v SredneiAzii: istorianapitka v 18-19 vekakh // Traditsionnaiapishakakvyrazhenieetnicheskogosamosoznania. Moscow.Nauka.2001.P.230
[70]Zapiski o Bukhrskomkhanstve. (OtchetyP.I.DemezonaiI.V.Vitkevicha). Moscow.Nauka.1983.PP.80-81
[71]OtTashkentskogoiarmarochnogokomiteta. Torgovoeobozrenie // Turkestanskie Vedomosti.1871.No.31
[72]Tursunov N.O. Slozhenieiputirazvitiagorodskogoisel’skogonaseleniasevernogoTajikistana v 18 – nachale 20 vv. Dushanbe.Irfon. 1991.P.61

Asia led to the emergence of tea houses and samovars in many major cities.

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2. Saguchi T. The Trade of the Khokand khanate. Charter VI. Memories of the Research department of the Toyo Bunko (The oriental library) – Tokyo, 1965. № 24. – P. 80.
3. Ching is 6,144 hectares (Kuznetsov V.S. Ekonomicheskaiapolitikatsinskogopravitel'stva v Sintsziane. – Moscow.Nauka.1973.P.177)

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THE EFFECT OF TRACE ELEMENTS ON PREGNANCY AND CHILD DEVELOPMENT

Annotation. *During pregnancy, women undergo metabolic and physiological changes, and their needs are higher to support fetal growth and development. If the nutritional status of the expectant mother is unsatisfactory, some complications may occur for the mother and the newborn. In the second and third trimester of pregnancy, the fetus has a supply of nutrients that can be used after birth; thus, children in the first years of life experience accelerated growth, which is a proven response to an affordable diet. However, if such a scheme is not enough, there will be various disorders during development, including impaired brain function. Thus, despite many recently published papers on gestational nutrition, the mechanisms of absorption, distribution, and excretion of micronutrients are still unclear. Further clarification is needed to better understand the effects caused by a deficiency or excess of certain micronutrients. Thus, to illustrate the contribution of minerals during prenatal development and in children, iodine, selenium, iron, zinc, calcium, and magnesium were selected. Our study aimed to investigate the consequences associated with gestational deficiency of these minerals and their impact on the growth and development of children born to mothers with such deficiency.*

Key words: *trace element, iron, fetus, pregnancy.*

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MIKROELEMENTLARNING HOMILADORLIKKKA VA BOLANING O'SISHI RIVOJLANISHIGA TA'SIRI

Annotatsiya. *Homiladorlik paytida ayollarda metabolik va fiziologik o'zgarishlar yuz beradi va homila o'sishi va rivojlanishini qo'llab-quvvatlash uchun ularning ehtiyojlari yuqori bo'ladi. Agar kelajakdagi onaning ovqatlanish holati qoniqarsiz bo'lsa, ona va yangi tug'ilgan chaqaloqlarda ba'zi asoratlar paydo bo'lishi mumkin. Homiladorlikning ikkinchi va uchinchi trimestrlarida homila tug'ilgandan keyin ishlatilishi mumkin bo'lgan ozuqa moddalarini etkazib beradi; shunday qilib, chaqaloqlar hayotning birinchi yillarida tez o'sishni boshdan kechirishadi, bu ovqatlanish bilan bog'liq.Homiladorlik vaqtida mikroelementlarning so'rilishi, tarqalishi va chiqarilishi mexanizmlari hali ham noaniq. Ba'zi mikroelementlarning yetishmasligi yoki ortiqcha ta'siridan kelib chiqadigan oqibatlarni yaxshiroq tushunish uchun qo'shimcha tushuntirishlar zarur. Shunday qilib, prenatal rivojlanish davrida va bolalarda minerallarning hissasini tasvirlash uchun mis, ruh, temir, ferritin va vitB12 tanlangan. Bizning tadqiqotimiz ushbu minerallarning homiladorlik yetishmovchiligi bilan bog'liq oqibatlarini va ularning bunday yetishmovchiligi bo'lgan onalardan tug'ilgan chaqaloqlarning o'sishi va rivojlanishiga ta'sirini o'rganishga qaratilgan.*

Kalit so'zlar: *mikroelement, temir, homila, homiladorlik.*

Purpose of the study. Many infections can negatively affect the development of the fetus. It is difficult to predict how serious the consequences will be, because each organism is individual. Some diseases can negatively affect the mother's body, while others can cause various anomalies in the child. Additional explanations are needed to better understand the consequences of a deficiency or excess of certain microelements. Thus, iron, copper, zinc, ferritin and cyanocobalamin were chosen to illustrate the contribution of minerals during prenatal development and in children. Our study aimed to study the consequences of these minerals associated with pregnancy deficiency and their impact on the growth and development of babies born to mothers with such deficiency. It is known that the nutrition of a pregnant woman affects not only the condition of her body, but also the full development and health of the unborn child, which is determined by the balance of nutrients, vitamins, microelements and depends on many factors. The results of observations conducted in recent years indicate the prevalence of hidden forms of vitamin deficiency. According to many researchers, the physiological need of the human body for vitamins and microelements is associated with its adaptation to simple natural food and high energy expenditure. Vitamins are essential (essential) food substances. Vitamin molecules play almost the same role in all forms of life, have very high biological activity and are required by the body in very small quantities (from a few micrograms to tens of milligrams). Unlike other essential nutrients (essential amino acids, polyunsaturated fatty acids), vitamins are not building blocks or energy sources and are involved in metabolism mainly as biocatalysts and regulators of metabolic processes in the body. The biological role of trace elements should also be taken into account, since they, along with vitamins, participate in metabolic processes by activating enzymes, hormones, vitamins and a number of proteins. It has been established that many enzymes require the presence of trace elements to manifest their activity, otherwise they are completely inactive.

Materials and methods. Pregnancy and childbirth are periods of significant metabolic and physiological changes in women, such as weight gain, 60% of which are maternal and 40% placental and fetal. During pregnancy, nutritional needs are high; therefore, adequate nutrition is essential to ensure fetal growth and development. However, pregnancy in conditions of malnutrition can cause complications in both the mother and the newborn. Nutrition during pregnancy is monitored to check for deficiencies or excesses of macro and micronutrients, as they may be associated with complications during pregnancy and the health of the newborn. Evidence suggests that micronutrient deficiencies in the fetus have a variety of consequences. Indeed, the development of disease in adult life is a consequence of inadequate distribution of nutrients during intranatal life, pregnancy, and early childhood. Among the micronutrients, iron, copper, zinc, and vitamin B12 are the most common, since they generally stimulate growth and, in their absence, the risk of perinatal complications, infectious diseases, intellectual disabilities, and death increases. Despite the number of recently published studies on the prenatal diet, there are still many uncertainties about the mechanisms of absorption, distribution, and excretion of micronutrients. Further clarification is needed to better understand the consequences of deficiency or excess of certain micronutrients. Because we still see many newborns with low birth weight, problems with neuropsychomotor development, and hyperactivity disorder. It is necessary to continue studying these processes and to demonstrate the importance of adequate intake of micronutrients for the proper development of the child. Iron, copper, zinc, ferritin, and vitamin B12 were chosen to illustrate the contribution of minerals to prenatal and infant development. Our study aimed to investigate the effects of pregnancy deficiency of these minerals and their effects on the growth and development of the child.

Results and discussion. The second trimester of pregnancy — from about 13 to 27 weeks — brings relief for many women. The nausea and severe fatigue characteristic of the first trimester subside, appetite returns, and energy increases. For this reason, this period is often called the “golden period of pregnancy.” But it is at this time that it is necessary to pay more serious attention to nutrition: at this stage, the fetus begins to grow actively, organs and systems are formed, and not only the child, but also the mother’s body needs more nutrients. In the second trimester, the fetus grows rapidly and gains weight. Its bones, nervous system, and internal organs are formed. This requires more energy, protein, vitamins, and minerals from the mother’s body. Blood volume increases, which increases the need for iron. In the second trimester, even with a good diet, some vitamins and minerals may need to be taken additionally. Especially if hemoglobin decreases - iron, for bones - calcium and vitamin D, as well as folic acid. But any supplements should be taken only after consulting a doctor - if vitamins exceed the norm, this can also harm the body. The development of immunity, which is the basis for the growth of the whole organism, occurs very intensively in early childhood and can continue until about 12 years of age. The intestines, which are directly connected to the digestive system, are also an important component of the immune system. It contains up to 70-80% of all immune cells in the body, and the intestinal microbiota, that is, the set of microorganisms that make up the complex ecosystem of the gastrointestinal tract, is of great importance in the process of developing immunity. The intestinal microbiota has many functions, and its beneficial bacteria stimulate the development of the immune system. The correct formation of the composition of the intestinal microbiota from birth is crucial for the proper functioning of the body, and this process, in turn, is influenced by many factors. Zinc deficiency is considered a public health problem, since nutritional deficiencies in the first years of life are associated with different etiologies: zinc deficiency is associated with a decrease in the concentration of zinc in breast milk after the first 6 months of breastfeeding or with a low intake of this mineral in complementary foods during breastfeeding. Zinc deficiency is associated with a decrease in food intake due to limited mobility, which leads to reduced energy requirements, dental problems and difficulty swallowing in the elderly, and other nutrient deficiencies.

Conclusion: Based on the results, we observed that mainly in the second and third trimesters of pregnancy, the fetus has nutrients that can be used after birth. At this stage, until the child is 3 years old, the growth and development of the brain and central nervous system occurs, so nutritional deficiencies are associated with many problems related to brain function, such as hyperactivity, attention deficit, autism, speech delay and memory problems. For the child to grow and develop properly, pregnancy planning should begin from conception. There are still many doubts about how some of these processes occur, because in addition to different concentrations depending on the separation, there are differences not only in nutritional deficiencies, but also in the interaction between nutrients and environmental, socio-cultural and socio-demographic factors (for example, blood, placenta, umbilical cord and urine).

Thus, taking into account all the factors presented, further research is needed, mainly on the transfer of nutrients between mother and child.

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YENGIL SANOAT KORXONALARIDA ICHKI AUDIT JARAYONLARI VA UNING SAMARODORLIGINI OSHIRISH ISTIQBOLLARI

Annotatsiya. *Maqolada auditorlik faoliyatini tashkil etishda axborot dasturiy ta’minotning ahamiyati ochib berilgan, xususan, ichki audit maqsadlari uchun tahliliy amallardan foydalanish, bunda ilg‘or xorijiy tajribalar asosida mamlakatimiz to‘qimachilik va tikuv-trikotaj korxonalarida ichki auditni tashkil etish bo‘yicha takliflar berilgan.*

Kalit so‘zlar: *auditorlik faoliyati, ichki audit, tahliliy amallar, dasturiy ta’minot, xorijiy kompyuter dasturlar, auditni avtomatlashtirish bo‘yicha milliy dasturlar.*

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INTERNAL AUDIT PROCESSES AT LIGHT INDUSTRY ENTERPRISES AND PROSPECTS FOR INCREASING ITS EFFICIENCY

Annotation. *The article reveals the importance of information and software for the organization of audit activities, in particular, proposals are made taking into account the best foreign experience on the use of analytical procedures for the purposes of internal audit, as well as on the organization of economic analysis at the country's textile and sewing and knitting enterprises.*

Key words: *audit activity, internal audit, analytical procedures, software, foreign computer programs, national audit automation programs.*

Kirish

2022-2026 yillarga mo‘ljallangan yangi o‘zbekistonning taraqqiyot strategiyasiga muvofiq iqtisodiyotimiz rivojlanishining muhim tarmoqlaridan biri hisoblangan yengil sanoat korxonalariga yo‘naltirilayotgan xorijiy investitsiyalarning samaradorligini oshirish hamda zamonaviy texnika va texnologiyalardan foydalanish asosida to‘qimachilik sanoati mahsulotlari ishlab chiqarish hajmini 2 baravar va charm-poyabzal mahsulotlari ishlab chiqarishni 3 baravarga ko‘paytirish vazifasi belgilangan.[1].

Iqtisodiyotimizni barqaror rivojlantirishda auditorlik faoliyatini xalqaro standartlarga transformatsiya qilish jarayonida amalga oshirilayotgan islohotlarni ilmiy-nazariy jihatdan asoslash muhim ahamiyat kasb etadi.

O‘zbekiston respublikasi prezidentining 2018 yil 19 sentabrdagi «o‘zbekiston respublikasida auditorlik faoliyatini yanada rivojlantirish choratadbirlari to‘g‘risida»gi qarori bu sohadagi muhim qadam bo‘ldi. Mazkur qarorga binoan o‘zbekiston respublikasi axborot texnologiyalari va kommunikatsiyalarini rivojlantirish vazirligi bilan birgalikda 2019 yilning 1 apreliga qadar muddatda auditorlik tashkilotlari hamda buxgalterlar va auditorlarning respublika jamoat birlashmalari bilan o‘zaro elektron hamkorlikka mo‘ljallangan o‘zbekiston respublikasi moliya vazirligining «audit» dasturiy majmuasini ishlab chiqishni ta’minlash vazifasi belgilab qo‘yildi. [2].

O‘z navbatida iqtisodiyotda raqamli texnologiyalardan keng foydalanish auditorlik faoliyati, auditorlik tekshiruvlarining tashkiliy va metodologiyasiga ham zarur o‘zgarishlarni kiritishni talab etmoqda. Audit amaliyotida ro‘y berayotgan o‘zgarishlarning tahlili uni tashkil etish an’anaviy usuldan intellektual usulga o‘tayotganligini ko‘rsatmoqda. Fikrimizcha, audit metodologiyasi ham texnologiyalarga asoslanmog‘i lozim. Auditni raqamlashtirish jarayoni bosqichma-bosqich amalga oshirilishi maqsadga muvofiq.

Adabiyotlar sharhi

Iqtisodchi olim sh.a.xusainov va j.m.qo’shmatovning fikricha: “...raqamli biznes muhiti ichki audit funksiyasiga uch jihatdan ta’sir qiladi. Birinchidan, bu uning miqyosiga ta’sir qiladi. Ichki auditni rejalashtirishning moslashuvchanligi va talab qilinadigan raqamli ma’lumotlarning o‘sishi kutilmoqda va axborot texnologiyalari (it) xavflari tobora muhim ahamiyat kasb etadi, ayniqsa kiberxavfsizlik tahdidlari. Ikkinchidan, ichki auditorlar tomonidan amalga oshiriladigan konsalting xizmatlariga talab yuqori, uchinchidan, raqamlashtirish ichki auditorlarning kundalik vazifalarida ishlash amaliyotini o‘zgartirmoqda”.[10].

Professor b.a.xasanov va boshqalarning “ichki audit korxonaning o‘zi tomonidan amalga oshiriladi, uning vazifasi xarajatlar shakllanishi ustidan ichki xo‘jalik nazorati, rejadagi smeta va me’yorlardan chetga chiqishlarni aniqlash, ularning sabablarini tahlil qilish va javobgar shaxslarni aniqlash, moliya-xo‘jalik faoliyati zaxiralarini qidirish va korxonani samarali boshqaruv qarorlari qabul qilish uchun zaruriy axborot bilan ta’minlashdan iborat” degan fikrini to‘liq qo‘llab-quvvatlaymiz. [11].

Bu borada r.d.dusmuratovning quyidagi fikrini e’tirof etamiz: “ichki auditorlar o‘zlari ishlaydigan korxonalar faoliyatini tekshiradi. Ammo, ular qoidaga ko‘ra, korxona ma’muriyati (direktorlar kengashi) tarkibiga kiradilar”. [4].

Aqshlik iqtisodchi s.rozensveigning fikricha: “ichki auditning (robotic process automation- rpa) jarayonlarni robotik avtomatlashtirish tashabbusida erta ishtirok etishi umumiy boshqaruv asoslari va jarayonlar dizayni bo‘yicha muvozanatli muhokama, xavflarni baholash va kelishuvni ta’minlaydi”.[9].

Mazkur tushunchaga n.f.karimov quyidagicha yondashgan: “ichki audit korporativ boshqaruv, nazorat hamda risklarni boshqarishni baholash va ularning samaradorligini oshirishga nisbatan tizimga solingan va puxta tashkil etilgan yondashuv orqali qo‘yilgan maqsadlarga erishishga yordam beradi”. [5].

Ichki audit sohasida chuqur ilmiy izlanishlar olib borgan iqtisodchi olim sh.i.ilxomov o‘z asarlarida: “ichki audit boshqaruv nazoratining ajralmas va muhim elementi bo‘lib hisoblanadi” degan ta’rifni bergan. [8].

Rossiyalik olima n.a.prodanova ichki auditning maqsadiga quyidagicha ta’rifni keltirgan: ichki auditning maqsadi – bu tashkilot boshqaruv organlariga ichki nazorat tizimining turli bo‘g‘inlari ustidan samarali nazoratni amalga oshirishda ko‘maklashish degan fikrni bildirgan.[6].

Tadqiqot metodologiyasi

Maqolada ichki auditni tashkil etish jarayonida axborot-dasturiy va tahliliy vositalaridan foydalanish samaradorligini oshirish bo‘yicha ilmiy izlanishlar olib borilgan. Unda analiz, sintez, guruhlash, taqqoslash va koeffitsientlar kabi usullardan samarali foydalanilgan.

Tahlil va natijalar

Iqtisodiyotni raqamlashtirish o‘z navbatida raqamli audit modelini ishlab chiqishni ijtimoiy-iqtisodiy zaruratga aylantirdi. Audit metodologiyasining istiqboldagi rivojlanishi auditorlik risklarini boshqarishga yo‘naltirilgan konsepsiyaga asoslanishi zarur. Demak, raqamli iqtisodiyot sharoitida nafaqat auditning nazariy masalalari, balki, uning uslubiyoti va amaliyotida ham strategik islohotlarni amalga oshirish talab etiladi.

Bu borada xalqaro amaliyotda tan olingan “soft expert audit” kompyuter dasturiga e’tibor qaratadigan bo‘lsak, u audit jarayonini kompleks ravishda amalga oshirishga mo‘ljallangan. Mazkur dastur yagona integratsiyalashgan platformada auditni rejalashtirish, tayyorlash, audit rejalari, dasturlari va nazorat varaqalarini ishlab chiqish, auditni o‘tkazish, hisobot tuzish va monitoring qilishgacha bo‘lgan barcha bosqichlarni kompleks boshqaradi.

Auditning mazkur kompyuter dasturi ichki audit, operatsion audit, it-auditi, mol yetkazib beruvchilar bilan muomalalar auditi, risk va xavf-xatarlarni baholash, audit sifatini nazorat qilish kabi barcha turdagi funksiyalarni bajaradi. To‘liq va moslashuvchan xususiyatga ega bo‘lgan “soft expert audit” dasturining “soft expert suite” ilovasidan aktivlar, kapital, majburiyatlar va biznes jarayonlarini boshqarish, investitsion loyihalar tahlili, moliyaviy hisobot auditi kabi sohalarda foydalanish samarali hisoblanadi.

“soft expert suite” maxsus ilovasi ijtimoiy mas’uliyat, boshqaruv, sifat, ekologiya, tibbiyot va moliyaviy xavfsizlik bilan bog‘liq xalqaro standartlar talablari asosida ichki va tashqi auditni amalga oshirishga xizmat qiladi. Bunda auditorlar aniq, real vaqtda ishonchli axborotga ega bo‘lgan funksiyalar, qulay, intuitiv tushunarli portallar orqali audit sifatini monitoring qilish imkoniyatiga ega bo‘ladilar.

Buning natijasida quyidagilarga erishiladi:

- Auditni rejalashtirish, amalga oshirish, hisobot berish va kuzatishgacha bo‘lgan barcha audit jarayonlarini avtomatlashtirishga;

- Auditorlarga alohida auditorlik topshirig‘idan to to‘liq yillik audit dasturigacha rejalashtirish imkoni yaratiladi;

- Audit natijalarini rasmiylashtirishni maqbullashtiradi, qidiruv jarayonini avtomatlashtiradi va zarur bo‘lganda tuzatuvchi harakatlar rejalarini amalga oshiradi;

- Vazifalarni avtomatik belgilash va amalga oshirish, bildirishnomalar va elektron pochta ogohlantirishlari bilan audit davri va vaqtini optimallashtiradi;

- Qidiruv tizimidan foydalanish orqali audit bilan bog‘liq hisob hujjatlariga tegishli barcha axborotlarni yagona makonda boshqarish auditning izchilligi va yaxlitligini ta’minlaydi;

- Auditning ish hajmi, ko‘lami va vaqtini to‘g‘ri belgilanishini ta’minlash maqsadida auditorning profillarini muvofiqlashtiradi;

- Tarmoqlar, loyihalar, bo‘limlar, aktivlar, jarayonlar, mahsulotlar va boshqalar bilan integratsiyalashuv orqali audit jarayoni ko‘lamini belgilaydi;

- Ilova vositasida ko‘rib chiqish va tasdiqlash jarayonini avtomatlashtirish uchun axborot oqimlarini osonlik bilan sozlash imkoniyati yaratiladi;

- Auditorga oflayn rejimda foydalanish uchun audit tekshiruviga taalluqli axborotlarni yuklab olish imkonini beradi;

- Web sahifalar yoki pdf formatlar orqali hisobot berish va axborot almashishni avtomatlashtiradi.

Iqtisodiyotimizda qo‘llanilayotgan «audit planning» dasturining maxsus ilovasi «audit sampling» dasturi auditorlik tekshiruvining ma’lum bir ob’ektiga ixtisoslashgan bo‘lib, u auditning barcha jarayonlarini to‘liq qamrab ololmaydi. Bu ilova bank tizimida kredit portfelini auditdan o‘tkazishda moliyaviy holat va barqarorlikni aniqlashda ijobiy samara bermoqda. Shuni inobatga olib, yengil sanoat korxonalari faoliyatining auditi jarayonida moliyaviy barqarorlikni aniqlash maqsadida ushbu dastur va uning ilovasidan foydalanishni tavsiya qilamiz.

Auditni rejalashtirish va amalga oshirishdagi muhimlilik tamoyilidan samarali foydalanish auditga ajratilgan qisqa muddatda katta hajmdagi tekshiruvlarni amalga oshirish, umumlashtirish, auditorlik hisoboti va xulosasini tayyorlashga sharoit yaratadi.

Audit va sifat nazoratining xalqaro standartlari (asnxs) muhimlikni tamoyilini ikki standart orqali yoritib beradi:

- 320-sonli axs «auditni rejalashtirish va bajarishda muhimlik»;

- 450-sonli axs “audit o‘tkazish jarayonida aniqlangan buzib ko‘rsatishlarni baholash”.

320-sonli auditning xalqaro standartida moliyaviy hisobot auditni rejalashtirish va auditni o‘tkazishda muhimlik konsepsiyasini qo‘llashda auditorning javobgarligi keltirilgan. 450-sonli auditning xalqaro standartida moliyaviy hisobotda aniqlangan xatoliklarni baholashda muhimlik konsepsiyasi qanday qo‘llanilishi kerakligi uqtiriladi. Yuqorida keltirilgan ikkala standart ham auditordan xatoliklarni auditni rejalashtirish jarayonida aniqlaganda, muhimlik darajasini o‘zgartirish mumkinligi to‘g‘risidagi munosabatni talab qiladi. Biroq, biror standart u yoki bu tekshirilayotgan moliyaviy hisobotning aniq ko‘rsatkichlariga doir muhimlik darajasiga nisbatan aniq talablarni o‘zida mujassam qilmagan. [3].

Iqtisodchi olim m.tulaevning yozishicha: «muhimlik tushunchasi deganda moliyaviy hisobotni buzishning eng yuqori qiymati tushuniladi, undan boshlab ana shu hisobotning malakali foydalanuvchisi uning asosida to‘g‘ri xulosalar chiqarish va to‘g‘ri qarorlar qabul qilishga qodir bo‘lmay qoladi».[7].

1-jadval

Auditorlik tekshiruvlarida muhimlilik darajasini baholashning taklif etilayotgan variantlari[73]

T.r.	Ko‘rsatkichlar	O‘sish, mln. so‘m	%	Kamayish, mln. so‘m	%
	1-variant:				
	Aktivlar:				
1.	Pul mablag‘lari	1 000,0	2	1 000,0	2
2.	Debitorlik qarzlari	15 000,0	30	5 000,0	10
3.	Tovar-moddiy zaxiralar	34 000,0	68	44 000,0	88
	Jami muhimlilik	50 000,0	100	50 000,0	100
	2-variant:				
1.	Pul mablag‘lari	10 00,0	2	1 000,0	2
2.	Debitorlik qarzlari	5 000,0	10	1 000,0	2
3.	Tovar-moddiy zaxiralar	24 000,0	48	24 000,0	48
	Jami aktivlar bo‘yicha	30 000,0		26 000,0	
	Passivlar:				
4.	Kapital	2 000,0	4	3 000,0	6
5.	Qisqa muddatli majburiyatlar	13 000,0	26	17 000,0	34
6.	Uzoq muddatli majburiyatlar	5 000,0	10	4 000,0	8
	Jami passivlar	20 000,0		24 000,0	
	Jami muhimlilik darajasi	50 000,0	100	50 000,0	100

Jadvalning ko‘rsatishicha, auditorlik tekshiruvlari jarayonida muhimlilikni baholash birinchi variantda balansning joriy aktivlari qismiga qaratilgan bo‘lsa, ikkinchi variantda balans passividagi kapital va majburiyatlar salmog‘i bilan ham aniqlash taklif etilganligi diqqatga sazovordir.

Muhimlilik chegarasi aniqlanmagan va tuzatilmagan buzib ko‘rsatishlarning umumiy yig‘indisi moliyaviy hisobot uchun o‘rnatilgan muhimlilik darajasidan oshib ketishi ehtimolini maqbul bo‘lgan past darajagacha kamaytirish maqsadida auditor tomonidan optimal qilib belgilangan summa yoki foizlarni anglatadi. Talabga qarab, operatsiyalar, schotlar qoldiqlari yoki ochib beriladigan ma’lumotning ayrim turlari bo‘yicha o‘rnatilgan muhimlilik darajasi yoki darajalaridan auditor tomonidan kamroq qilib o‘rnatilgan summa yoki summalar ham «muhimlilik chegarasi» deb ataladi.

Auditorlik tashkilotlari uchun muhimlilik darajasini belgilashda quyidagi omillar hisobga olinadi:

- xatolikning mutloq miqdori;

[73] Muallif ishlanmasi.

- xatolikning nisbiy miqdori (xatoni moliyaviy hisobotning shakllari boʻyicha umumiy summasiga nisbatan tahlil qilinishi);

- xatolikning yigʻma qiymati;

- hisobot moddalarining mazmuni (xatolikka moyil moddalar);

- aniq shartlar – hisobot kimga moʻljallangan: aksiyadorlar (foyda), banklar (pul oqimi), investorlar (foyda va pul oqimi);

- noaniqlik (faoliyatning davomiyligi va uzluksizligi, bankrotlik belgilarining mavjudligi).

Muhimlilik darajasini belgilashda foyda va zararlar toʻgʻrisidagi hisobot boʻyicha quyidagi koʻrsatkichlar hisobga olinadi:

- tovar aylanishidan – 0,5-1,0 %;

- yalpi foydadan – 1,0 - 2,0 %;

- soliqqa tortilgunga kadar foydadan – 5,0%;

Balans xisoboti moddalari boʻyicha:

- xususiy kapital summasidan – 5,0 %;

- aktivlar qiymatidan – 1,0 - 2,0 %.

Aniqlangan xato summasi keltirilgan koʻrsatkichlardan yuqori boʻlsa, bunday xato muhim xato, deb hisoblanadi.

Rivojlangan davlatlar tajribasidan kelib chiqib, muhimlilik darajasini baholashda taqsimlanmagan foyda summasiga asosan quyidagi taxminiy koʻrsatkichlardan foydalanishni tavsiya etamiz:

- xato summasi 5% gacha boʻlsa – muhim emas,

- xato summasi 5% dan 10% gacha boʻlsa – muhim boʻlishi mumkin,

- xato summasi 10% dan yuqori boʻlsa – doimo muhim hisoblanadi.

Muhimlilik darajasini belgilash bosqichlarini quyidagi boʻlimlarga ajratamiz.

Testdan oʻtkazish va rejalashtirish bosqichi:

1-bosqich. Muhimlilik toʻgʻrisida dastlabki mulohaza.

2-bosqich. Segmentlarga muhimlilik toʻgʻrisidagi dastlabki mulohazani qoʻllash.

Natijalarni baholash:

3-bosqich. Segmentlardagi haqiqiy xato summasini aniqlash.

4-bosqich. Xaqiqiy xato summalarining umumiy miqdorini aniqlash.

5-bosqich. Umumiy haqiqiy xato summasini dastlabki mulohaza summasi bilan solishtirish.

Auditni rejalashtirish va amalga oshirishdagi muhimlilik tamoyilidan samarali foydalanish auditga ajratilgan katta hajmdagi tekshiruvlarni amalga oshirish, umumlashtirish, ichki auditorning hisoboti, dalolatnomasi va xulosasini tayyorlashga sharoit yaratadi.

Muhimlilik chegarasi aniqlanmagan va tuzatilmagan buzib koʻrsatishlarning umumiy yigʻindisi moliyaviy hisobot uchun oʻrnatilgan muhimlilik darajasidan oshib ketishi ehtimolini maqbul boʻlgan past darajagacha kamaytirish maqsadida auditor tomonidan optimal qilib belgilangan summa yoki foizlarni anglatadi.

2-jadval

«INDORAMA KOKAND TEXTILE» aksiyadorlik jamiyati xorijiy korxonasining sotishdan olingan daromadlari va xarajatlari tahlili[74],

mln.so'm

Ko'rsatkichlar	2020	2021	2022	2023	2024
1.Moliyaviy natijalar ko'rsatkichlari					
Sotishdan olingan tushum	740 430	871 094	1 024 816	1 205 666	1 418 431
Sotilgan maxsulotning tannarxi	464 378	530 647	599 082	781 296	920 568
Davr xarajatlari, jami	170 911	201 072	251 515	212 173	238 034
Shu jumladan:					
Ish haqi	61 053	71 827	72 984	79 963	99 089
Ijara haqi	65 151	76 648	103 925	77 872	60 157
Asosiy vositalarning eskirishi	24 395	28 700	45 498	34 376	18 917
Kredit foizlari	20 312	23 897	29 109	19 962	59 870
Sof foyda	105 141	139 375	174 219	212 197	259 829
Sof foyda marjasi%	14,2%	16%	17%	17,6%	18,3%

Jadvalning ko'rsatishicha, tadqiqot ob'ektida sotishdan olingan tushumning yillar kesimida oshishi kuzatilgan. Uning ta'sirida mos ravishda maxsulot tannarxi ham o'sib borgan. Davr xarajatlari esa 2024 yilda 2020 yilga nisbatan 139 foizga o'sgan, biroq 2022 yilga nisbatan olganimizda, bu xarajatlar 94,6 foizga kamayganligini guvohi bo'lamiz. Sof foyda marjasi yillar davomida mos ravishda 2020 yilda 14,2%; 2021 yilda 16%; 2022 yilda 17%; 2023 yilda 17,6%; va 2024 yilda 18,3 %ni tashkil etganligini ijobiy holat sifatida baholash lozim.

Muhimlilik to'g'risida dastlabki mulohaza, 50 000,0 mln.so'm.

Tegishli auditorlik tadbirlarini belgilash (muhokama, qo'shimcha testlar belgilash, qaror qabul qilish va boshqalar) natijasida dastlabki mulohazaga tuzatish kiritiladi.

Auditorlik tahliliy amallari natijasida jami aktivlar va taqsimlanmagan foyda bo'yicha quyidagi haqiqiy holat aniqlandi:

Balans, mln.so'mda.

1. Pul mablag'lari – 100 000,0
2. Debitorlik qarzlari – 450 000
3. Tovar-moddiy zahiralar – 550 000 Jami aktivlar - 1 000 000
4. Taqsimlanmagan foyda - 1 000 000

[74]«INDORAMA KOKAND TEXTILE» AJ xorijiy korxonasi moliyaviy hisobot ma'lumotlari asosida muallif hisob-kitobi.

Maqolada hozirgi paytda amaliyotda keng qo‘llanilayotgan «E-views», «Stata» va «Excel» dasturlari imkoniyatlaridan foydalanib, ekonometrik modellashtirish yordamida moliyaviy natijalarga ta’sir etuvchi omillarning uzoq muddatli prognozi ishlab chiqilgan va amaliyotga joriy etilgan. Bugungi kunda auditorlik tekshiruvlarini amalga oshirishda raqamli texnologiyalardan foydalanish jarayonida auditirlik tekshiruvi muddati qisqaradi va auditor tomonidan sarflanadigan mehnat hajmi salmoqli darajada kamayadi. Bu esa auditorlik tekshiruvi natijalari sifatining oshishiga sabab bo‘ladi.

3-jadval

«BETLIS TEKSTIL» MChJning 2019-2024 yillardagi moliyaviy natijalari ko‘rsatkichlari dinamikasi[75], *ming so‘m*

Ko‘rsatkichlar	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Sof tushum, ming so‘m	44 073 679	82 466 323	76 045 393	74 245 844	98 945 423	135 322 545
Asosiy faoliyat foydasi %	54	40	42	37	18	11
Soliq to‘languncha foyda %	12	5	9	13	13	6
Sof foyda %	7	3	8	11	9	5

Jadval ma’lumotlarining ko‘rsatishicha, tadqiqot ob’ektining sof tushumi 2024 yilda 2019 yilga nisbatan 3 martadan ortiq bo‘lgan, ammo asosiy faoliyatning foydasi 43 foizga, soliq to‘languncha foyda 6 foizga va sof foyda 2 foizga kamayganligini guvohi bo‘lamiz.

4-jadval

«BETLIS TEKSTIL» MChJning 2022-2026 yillardagi moliyaviy natijalarining prognoz ko‘rsatkichlari [13], *ming so‘m*

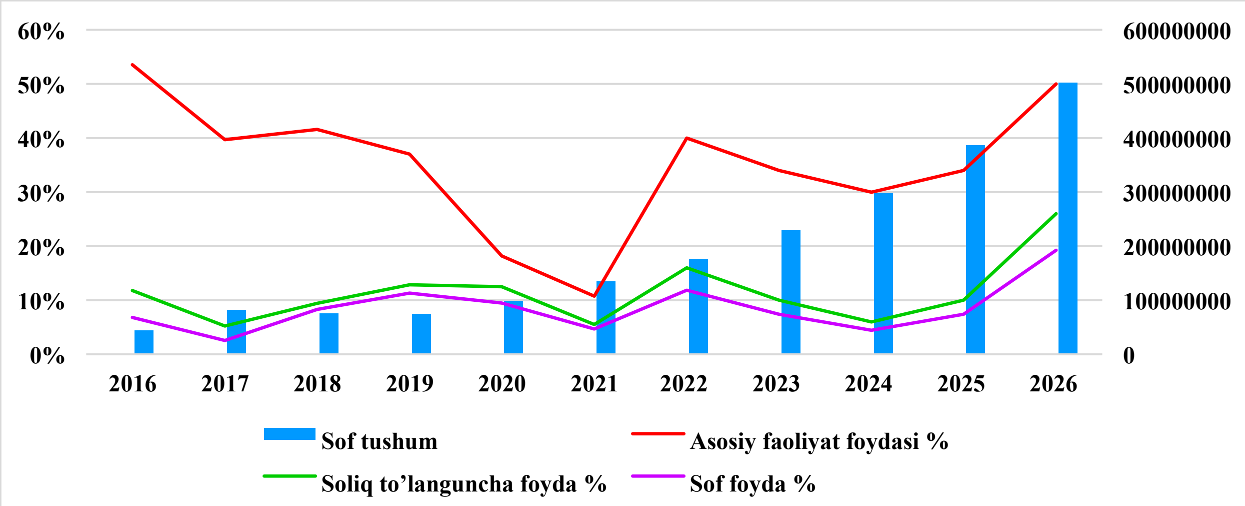
Ko‘rsatkichlar	**2022**	**2023**	**2024**	**2025**	**2026**
Sof tushum, ming so‘m	175 919 309	228 695 101	297 303 631	386 494 721	502 443 137
Asosiy faoliyat foydasi %	40	34	30	34	50
Soliq to‘languncha foyda %	16	10	6	10	26
Sof foyda %	12	7	4	7	19

Jadval tahlili natijasida 2022–2026 yillarda korxonaning moliyaviy natijalari ko‘rsatkichlari bo‘yicha ijobiy tendensiyalar kutilmoqda. Xususan, 2026 yilda 2022 yilga nisbatan o‘sish 3 marta, asosiy faoliyat foydasi 10 foizga, soliq to‘languncha

[75] «BETLIS TEKSTIL» MChJning 2019-2024 yillardagi moliyaviy va statistik ma’lumotlari

foyda 10 foizga va sof foyda 7 foizga o‘sishi prognoz ma’lumotlari asosida tasdiqlandi.

Maqolada amalga oshirilgan tadqiqotlar natijasida «BETLIS TEKSTIL» MChJning 2016-2021 yillardagi moliyaviy natijalari dinamikasi va 2022-2026 yillarda kutilayotgan prognoz ko‘rsatkichlari diagramma ko‘rinishida ishlab chiqilgan.



1-RASM. «BETLIS TEKSTIL» MCHJNING 2019-2024 YILLARDAGI MOLIYAVIY NATIJALARI DINAMIKASI VA 2022-2026 YILLARDA KUTILAYOTGAN PROGNOZ KO‘RSATKICHLARI[76]

Yuqoridagi panel ma’lumotlari va prognoz ko‘rsatkichlarini kompyuter dasturlari yordamida qayta ishlash natijasida auditorlik tekshiruvlarini amalga oshirishga, shuningdek, auditorlik hisoboti hamda xulosasini xalqaro standartlar asosida tayyorlashga imkoniyat yaratiladi.

Xulosa va takliflar

Audit jarayonida muhimlilikni aniqlash va riskni baholashda tahliliy amallardan foydalanish yuzasidan ishlab chiqilgan tavsiyalar natijasida auditni xalqaro standartlar asosida tashkil qilish imkoniyati yuzaga keladi.

Yengil sanoat tizimida AKTda qayta ishlashga mo‘ljallangan raqamlashtirilgan hisob registrlarining takomillashtirilgan shakllari hamda «Tarmoq korxonalarida xarajatlar – mahsulot hajmi – foyda» Zanjiri asosida iste’mol qiymatini shakllantirishning ishlab chiqilgan mexanizmini tarmoq korxonalari faoliyatiga tatbiq qilish ijobiy samara beradi.

Yengil sanoat korxonalarida «Audit-sampling», «SoftExpert Audit» dasturlari asosida mahsulot tannarxi va moliyaviy natijalar auditini o‘tkazish bo‘yicha uslubiy tavsiyalar hamda to‘qimachilik va tikuv-trikotaj korxonasining mahsulot tannarxi va moliyaviy natijalariga ta’sir etuvchi ko‘rsatkichlarning 2025 yilgacha ishlab chiqilgan prognozini amaliyotga joriy etish maqsadga muvofiq.

[76] «BETLIS TEKSTIL» MChJning 2019-2024 yillardagi moliyaviy va statistik ma’lumotlari

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SPECIFIC FEATURES OF MEDICAL SERVICES IN THE REPUBLIC OF UZBEKISTAN

Annotation. *This article examines the specific features of medical services in the Republic of Uzbekistan. The factors influencing the development of the sector are studied. Regional differences in its development are shown and statistical materials are analyzed. Suggestions are made on development opportunities.*
Keywords: *service, medical services, medical tourism, medical cluster, doctors, medical institutions*

Introduction. As we all know, from the first years of gaining political independence, the Republic of Uzbekistan began to carry out comprehensive reforms in all spheres. Much attention is paid to providing the population with primary services that meet world standards, and in particular, to the education and medical sectors. In order to ensure the health of the future generation, protect motherhood and childhood, and create favorable conditions for the physical, mental and spiritual development of children, the establishment of the “For a Healthy Generation” non-governmental international charitable fund in accordance with the Decree of the President of the Republic of Uzbekistan dated April 23, 1993 can be considered a prelude to the reforms being carried out in this regard.

The Decree of the President of the Republic of Uzbekistan No. PF-60 dated January 28, 2022 indicated the directions of the Development Strategy of New Uzbekistan for 2022-2026, and its IV. The priority direction called “Implementing a fair social policy, developing human capital” shows the expected changes in the development of medical services in recent years. The words of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev “...whether it is providing people with housing, radically reforming the healthcare system, providing the population with affordable and high-quality medicines, improving trade and transport services, electricity, natural gas, drinking water supply, building kindergartens, new schools, art and sports facilities, and smooth roads - we have developed clear programs and plans for all of these and will definitely implement them” serve as a guarantee that the work that has a positive impact on the development of the above-mentioned sector will be completed within the established deadlines. The organization of medical clusters and primary medical services in the regions, the introduction of a system of medical insurance for the population, etc. will serve to further modernize medical services. [1]

In recent years, many state and non-state medical institutions have been established in our country based on world standards, providing high-quality services to the population. The observations made reveal that such processes are not the same in all administrative units. These differences in the regions of the republic are caused by a number of internal and external factors.

Analysis of the literature on the topic. Service sectors, including the geographical features of the development of the medical sector, have been studied by a number of foreign and domestic geographers. It is worth highlighting the studies of scientists from abroad such as John R. Bryson, Peter W. Daniels, Juan R. Cuadrado-Roura, A. Kellerman, and scientists from the former Soviet Union and the CIS such as N. N. Baransky, S. A. Kovalev, V. V. Pokshishevsky, E. R. Agaev, S. M. Zhuravlev.

The analysis of this issue among geographers of the republic was considered in the scientific works of M. Nazarov (1996). In addition, this problem was also studied by A. Soliev, N. Komilova, I. R. Turdimambetov, M. Atajonov.

Economists also paid attention to issues of territorial development of medical services in their scientific research, and B. Begalov, R. Botirova, I. Ikromov, I. Ochilovs also highlighted the problems of this field in the course of revealing the characteristics of service networks. It should be noted that this problem has not been studied geographically in detail within the regions of our republic.

The methodological study of the scientific article is based on traditional research methods of economic and social geography, such as geographical comparison, cartographic, system-content, statistical.

Analysis and results. Among the sectors of the economy of the Republic of Uzbekistan, the service sector has taken its place, and in recent years, along with its share in the republic's GDP, there have been positive changes in annual growth rates. Among them, the share of trade, transport, and financial services is significantly higher, together accounting for 68.3% of the total (2023). Along with these sectors, positive changes are also observed in such sectors as education, catering, information technologies, and medical services.

As is known, medical service is a set of necessary professional actions of a medical worker (performer, service provider) to restore the health of a patient (client, consumer of services). As in most service sectors, this sector, in its formation and development, goes through periods of growth in demand, maturity and saturation, and decline in demand, starting from the stage of bringing the service to the market. It is distinguished by the following features:

• it has an individual character and cannot be reduced to a single form;

• it does not have a material form. That is, it can only be felt during the process of receiving the service;

• the inability to predict the final result;

• a significant impact on the life and health of the consumer;

• as a result, there is equal responsibility of the service provider and the consumer;

• the inability to determine the time of emergence of demand for it;

• the inability to replace it, etc. [4,8]

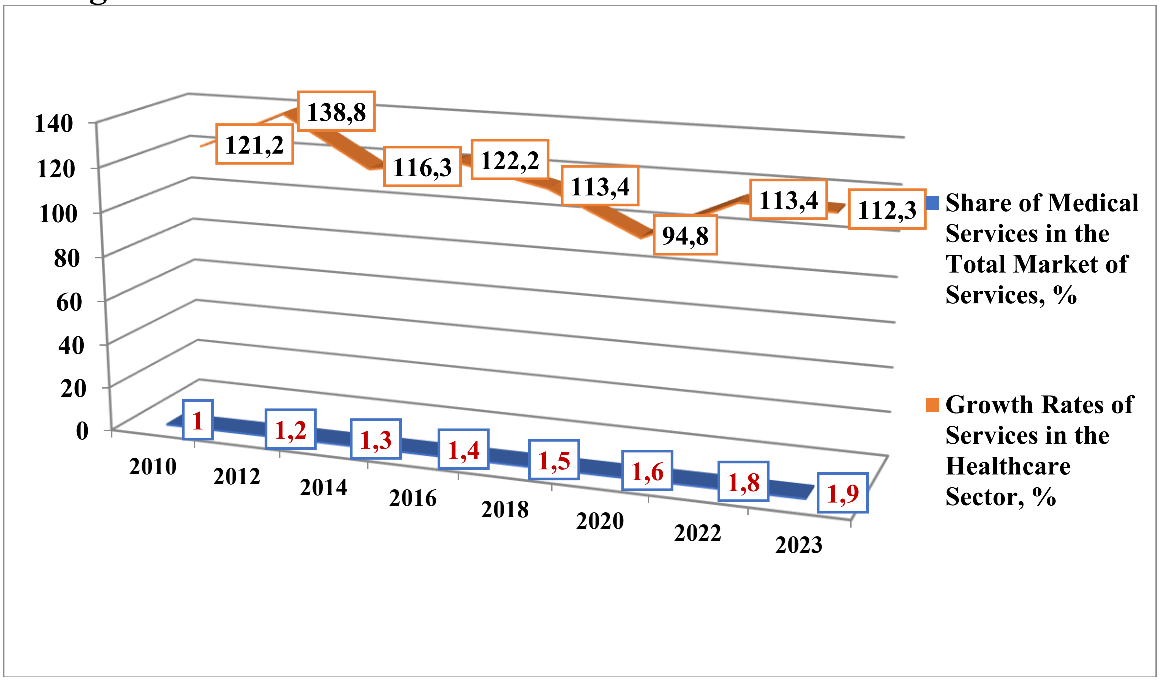
The development and territorial location of the industry in our republic is directly related to natural conditions, socio-economic development, demographic, transport factors. Depending on the state of natural conditions, there is a periodic occurrence of certain types of diseases and, as a result, an increase in the demand for a narrow range of medical professionals. In addition, the location of sectoral institutions providing preventive and curative medical services (for example, sanatoriums, recreation centers) is influenced by this factor. [5,6]

If the socio-economic development of countries leads to a qualitative improvement in the type of service under study, then the transport factor is of great importance for the development of almost all sectors of the intangible sector in different regions. In the development of medical services, the demographic factor is distinguished by its great influence. In it, the number of the population, its age and gender composition, and the characteristics of its demand for services are the cause of the formation of demand from service recipients (clients). With the increase in the material well-being of the population, new forms are emerging in the types of services provided by the network, and an increase in demand for them is observed. Among them, in particular

- providing assistance to patients in a hospital or at home;
- receiving laboratory and diagnostic examinations, medical and health procedures at home;
- renting certain types of medical equipment to the population;
- organizing home treatment;
- providing patients with separate rooms, televisions, telephones, etc. at their request;
- the demand for preparing special meals at the request of patients and others is growing.

According to 2023 data, this type of service accounted for 1.9% of all services provided in the Republic of Uzbekistan. The analyzed statistical indicators show that this industry is experiencing periodic growth [9]

1-Table. Changes in the provision of medical services during 2010–2023, in percentage terms



The data in the graph confirm the above statements. It shows that 2020 was not a relatively successful period in the sector. Statistical indicators show that this situation occurred not only in medical services during this period, but also in many other intangible sectors. For example, in the transport sector, which creates almost a quarter of services in our republic, between 2019 and 2020, the share of total services decreased by almost 4% (28.2% in 2019 and 24.3% in 2020), while growth indicators decreased from 106.7% to 91.4%.

The data from the graph confirm the above statements. It shows that 2020 was not a relatively successful period in the sector. Statistical indicators show that this situation occurred not only in medical services, but also in many other intangible sectors during this period. For example, in the transport sector, which creates almost a quarter of services in our republic, between 2019 and 2020, the share of total services decreased by almost 4% (28.2% in 2019 and 24.3% in 2020), while growth indicators decreased from 106.7% to 91.4%.

When examining the volume of healthcare services in the regions of the republic between 2010 and 2023, the republican indicators increased by 33.4 times during the studied years. Among the regions, the highest growth was observed in Jizzakh (42.2 times), and the lowest in Bukhara (22.1 times). In addition, the Tashkent city (39.9 times), Syrdarya (37.9 times) and Khorezm (37.8 times) regions also had high periodic growth indicators of medical services. This is primarily due to the reforms being carried out in the healthcare sector in these regions.

Conclusions and recommendations. Medical services are one of the areas of our republic's economy that have been developing rapidly in recent years. This is due not only to the growth indicators in the sector, but also to the ongoing modernization process in it. The increase in the share of employees who are improving their qualifications in leading countries of the world, the provision of modern medical equipment and facilities in the sector today create the opportunity to use new methods of treatment. This has led to the recognition of Uzbekistan as a major medical service center in Central Asia and contributes to the development of medical tourism.

In addition, the strategic objectives set for 2022-2026 to create medical clusters in Namangan, Fergana, Syrdarya, Kashkadarya, Navoi, Tashkent regions and Tashkent city and the creation of a separate enterprise for technical service of medical equipment and its 13 regional branches on a republican scale will serve the development of the sector.

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MOBILE LEARNING: HOW SMARTPHONES AFFECT VOCABULARY ACQUISITION

***Abstract**:This article explores the impact of mobile devices, particularly smartphones, on the effectiveness of English vocabulary acquisition. The author analyzes the advantages of mobile learning, such as accessibility, interactivity, and motivational factors. The article also addresses limitations and offers recommendations for the rational use of smartphones in foreign language lessons.*
***Keywords**: mobile applications; vocabulary; lexical competence; English language.*

Introduction

With the development of digital technologies and the widespread use of smartphones, English language learning has entered a new era. Mobile devices play a crucial role in vocabulary acquisition, as vocabulary forms the foundation for fluent communication. The aim of this article is to examine how smartphones can contribute to more effective memorization of new words and expressions.

It is well known that mobile phones provide easy access to materials and the opportunity to practice at any time and in any place. Another advantage is the limited screen size, which allows for more controlled content presentation compared to other learning materials [2, p. 20]. Mobile technologies offer students opportunities to engage all four language skills—reading, listening, speaking, and writing. Furthermore, learners become more motivated and engaged in the learning process. Teachers, in turn, should encourage students to integrate technology into their learning and offer opportunities to use smartphones in the classroom. Students can employ mobile technologies in various types of learning [5, p. 4]. New vocabulary can be studied both in context and in isolation. Introducing new vocabulary should be done through the teacher's speech in the target language and through various forms of visual support. Vocabulary skills can be developed using warm-up and speaking exercises, which should then be applied in communication tasks aimed at improving listening and reading comprehension. Vocabulary development exercises activate students' cognitive processes and are designed to reduce lexical errors in communicative activities.

New words can be worked out in context and separately. Familiarization with new vocabulary should be carried out through speech delivered by the teacher in a foreign language, as well as using various types of visual accompaniment. To form lexical skills, warm-up exercises and speech exercises are used, which must then be used in communication to develop students' perceptual skills such as listening and reading. Exercises for the development of lexical skills activate the mental activity of students and are aimed at reducing the number of lexical errors when performing communicative tasks. To develop lexical skills in English lessons, students need to know situational, social, and contextual rules that are widely used by native speakers. There are many techniques that allow students to memorize new words and use them correctly in their speech.:

− highlighting words in a collocation;
− search for new words and phrases in the text;
− grouping words on different topics;
− search for synonyms, antonyms, etc.

At the same time, it is advisable to conduct text-based learning activities in the classroom. Modern educational approaches offer a variety of methods and techniques for presenting and activating vocabulary in students' speech. When selecting a particular teaching approach, the instructor should consider several factors, such as the students' age, their language proficiency, the objectives of the lesson, and the type of vocabulary being studied. In high school, students are expected to develop the ability to independently choose the most effective methods for organizing vocabulary learning. Additionally, students should be able to confidently apply the vocabulary they have learned in real-life situations. After becoming familiar with the new vocabulary, it is essential to conduct a series of practice exercises to initially reinforce the newly acquired vocabulary. These exercises are typically of a traditional nature, including:

— matching tasks
— filling in gaps
— multiple-choice questions
— completing sentences;

The process of reinforcing the acquired vocabulary is typically continued in the subsequent lesson. At this point, the instructor should direct the students' efforts towards developing their abilities to employ the newly acquired vocabulary in both receptive forms of communication (reading and listening) and productive forms (writing and speaking). It is crucial to adhere to a systematic approach when selecting tasks for the introduction, initial reinforcement, and subsequent consolidation of vocabulary.

This approach is beneficial for vocabulary expansion, as it reduces the number of individual elements and establishes a link between a new word and a concept from the native language.

Images can be divided into visual and auditory. Visual images are based on the association between a picture and a word that needs to be remembered. Students associate concepts in memory through meaningful visual images, making the learning process more effective. People often find it easy to establish a connection between verbal and visual symbols. Students can associate words not only with images, but also with sounds, creating auditory images. This approach is advantageous for expanding one's vocabulary, as it reduces the number of individual elements and establishes a link between a new word and a concept from the native language. They enhance the effectiveness of verbal learning by associating new sounds with those already familiar to students. For instance, students can establish a connection between the German word «katze» and the English word «cat».

Methodology

To conduct the research, the following methods were used: surveys of students from the Faculty of Foreign Languages, observation of their activity in mobile applications, and analysis of their progress in vocabulary acquisition over a specific period. Educational platforms and apps such as Quizlet, Duolingo, and Memrise were employed. Sixty students participated in the study. Over the course of one month, they used these apps in addition to traditional language lessons.

Results and Discussion

The results showed that students who actively used mobile apps demonstrated a significantly higher level of vocabulary retention—on average, 25–30% more than those who studied vocabulary only through textbooks. Particularly effective were features such as spaced repetition algorithms and the multimedia presentation of words through audio and visual support. An additional advantage was the flexible and informal nature of mobile learning, which positively influenced student motivation.

However, some challenges were identified: certain students were distracted by non-academic functions on their smartphones, which reduced their concentration. Additionally, overreliance on mobile learning without a structured approach could lead to fragmented knowledge.

Conclusion

Mobile learning is an effective tool for vocabulary acquisition when used reasonably and in a controlled manner. Smartphones can significantly increase students' interest in language learning, create comfortable conditions for revising and reinforcing vocabulary, and enhance learner autonomy. However, they should be regarded as a supplement rather than a replacement for traditional teaching methods.

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DEVELOPING EFFECTIVE TEACHING METHODS FOR INTRODUCING THE WORLD MAP TO PRIMARY SCHOOL PUPILS

Annotation: *Teaching geography to primary school pupils requires engaging and age-appropriate methods to ensure comprehension and retention. This article explores effective strategies for introducing the world map to young learners, focusing on interactive, visual, and experiential learning techniques. The study highlights the importance of incorporating games, technology, and hands-on activities to enhance spatial awareness and global understanding. Findings suggest that a combination of storytelling, digital tools, and collaborative learning significantly improves pupils' ability to interpret and remember geographical information.*

Keywords: *world map, primary education, teaching methods, interactive learning, geography, visual aids, experiential learning*

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BOSHLANG'ICH SINF O'QUVCHILARINI DUNYO XARITASI BILAN TANISHTIRISH UCHUN SAMARALI O'QITISH USULLARINI ISHLAB CHIQISH

Annotatsiya: *Boshlang'ich maktab o'quvchilariga geografiya o'rgatish tushunish va eslab qolishni ta'minlash uchun qiziqarli va yoshga mos usullarni talab qiladi. Ushbu maqola interfaol, vizual va tajribaviy o'rganish usullariga e'tibor qaratgan holda yosh o'quvchilarni dunyo xaritasi bilan tanishtirishning samarali strategiyalarini o'rganadi. Tadqiqot fazoviy xabardorlikni va global tushunishni oshirish uchun o'yinlar, texnologiya va amaliy faoliyatni birlashtirish muhimligini ta'kidlaydi. Natijalar shuni ko'rsatadiki, hikoya qilish, raqamli vositalar va hamkorlikda o'rganish kombinatsiyasi o'quvchilarning geografik ma'lumotlarni sharhlash va eslab qolish qobiliyatini sezilarli darajada yaxshilaydi.*

Kalit so'zlar: *dunyo xaritasi, boshlang'ich ta'lim, o'qitish usullari, interfaol ta'lim, geografiya, ko'rgazmali qurollar, tajribaviy o'rganish.*

Introduction

Geography is a fundamental subject that helps children understand the world around them. Introducing the world map at an early age fosters spatial thinking, cultural awareness, and curiosity about different countries. However, traditional memorization-based approaches often fail to engage young learners. Effective teaching methods should instead incorporate interactive and student-centered techniques. This article examines various pedagogical strategies for teaching the world map to primary school pupils, ensuring both comprehension and long-term retention.

Methodology

This study employs a qualitative research approach, analyzing existing literature on primary geography education and evaluating different teaching methodologies. Data was collected from academic journals, educational books, and case studies focusing on early geography instruction. Additionally, observations from classroom practices were considered to assess the effectiveness of interactive learning tools such as puzzles, digital maps, and group activities.

Analysis and Results

The Role of Visual and Interactive Learning in Teaching the World Map

Primary school pupils learn best when lessons are visually stimulating and interactive. Research confirms that colorful maps, 3D globes, and illustrated flashcards significantly improve children's ability to recognize continents, oceans, and countries (Smith, 2020). For example, using large floor maps where students can physically walk across different regions helps solidify their understanding of geographical locations. Digital tools like Google Earth and interactive whiteboard applications further enhance engagement by allowing pupils to zoom in on countries, explore terrains, and even take virtual tours of famous landmarks.

A study conducted in UK primary schools found that students who used digital map applications scored 25% higher in geography assessments compared to those who relied solely on textbook maps (Davis, 2020). The dynamic nature of digital tools keeps young learners interested, as they can manipulate maps, click on pop-up facts, and participate in animated quizzes. However, schools with limited technology can still adopt low-cost alternatives, such as laminated wall maps, sticker-based activities, and printed atlas exercises.

Storytelling and Mnemonics as Memory Enhancers

Children's natural affinity for stories makes storytelling an excellent method for teaching geography. When teachers associate countries or continents with imaginative narratives, pupils retain information more effectively. For instance, describing Africa as the "land of roaring lions and vast deserts" or Antarctica as the "home of playful penguins on ice" creates vivid mental images. Research by

Johnson (2019) suggests that storytelling improves long-term memory retention by 40% in primary geography lessons.

Hands-on Activities and Project-Based Learning

Active participation is key to reinforcing geographical knowledge. Hands-on activities, such as constructing papier-mâché globes, tracing maps, or creating salt-dough landforms, allow pupils to engage kinesthetically with the subject. A 2021 study by Brown demonstrated that students who participated in map-drawing exercises could correctly label 30% more countries than those who only studied pre-made maps.

Another effective strategy is **"classroom travel projects,"** where pupils "visit" different countries through themed activities. For example, a lesson on Japan might include origami folding, tasting sushi (with parental consent), and learning basic Japanese greetings. This immersive approach not only teaches geography but also integrates cultural studies, making learning more holistic.

Discussion

The findings suggest that a multimodal approach—combining visual, auditory, and kinesthetic techniques—is most effective in teaching the world map. Traditional lecture-based methods are less engaging for young children, whereas interactive strategies promote active participation. Challenges include limited access to technology in some schools, requiring teachers to adapt with low-cost alternatives like printed maps and group discussions.

Conclusion

Teaching the world map to primary pupils requires creativity and interactivity. By integrating visual aids, storytelling, hands-on projects, and gamification, educators can make geography lessons more engaging and effective. Future research should explore the long-term impact of these methods on pupils' global awareness and critical thinking skills.

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УДК 33

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THE ROLE OF ECONOMIC CONTEXT IN MEDIATING DIGITALIZATION'S IMPACT ON ECONOMIC DEVELOPMENT

Annotation: *The article examines the impact of financial sector digitalization on economic development in countries with different income levels, using Russia (transition economy) and the USA (developed economy) as case studies. An econometric model incorporating ICT, R&D, E-Government Development Index (EGDI), and Human Development Index (HDI) indicators was applied to data from 2013–2022. Results confirm a significant positive effect of digitalization on HDI in the USA but reveal weak explanatory power for Russia. The study justifies the need for a holistic approach to digital transformation in developing economies, emphasizing infrastructure, regulation, and human capital.*

Keywords: *Digitalization, economic development, Human Development Index, econometric model, developing countries, developed countries, USA, Russia.*

Introduction

At present, digital technologies are actively developing, a large number of innovations appear in all spheres of human life. Countries compete for the title of the most technologically secure country, annually investing in scientific activities for the development and implementation of innovative technologies. This intense global rivalry, powered by large investments, radically changes not just national security paradigms, but also entire communities and economies throughout the world. The relentless pursuit of technological supremacy promises unprecedented gains in efficiency, communication, and problem solving, while also introducing complex new vulnerabilities, profound ethical quandaries, and significant challenges to established economic structures and global power dynamics.

At the end of 2024, the World Intellectual Property Organization (WIPO)[77] conducted a study of the level of digitalization of states using this index. The top five most innovative economies in the world were headed by Switzerland, Sweden, the United States of America, Singapore and the United Kingdom. At the same time, the increase in the rate of improvement in development was highest in China, Turkey, India, Vietnam and the Philippines.

In 2025, Gartner, Inc., analyzed and forecasted the results of global IT spending, and found that in 2025, global IT spending will amount to $5.61 trillion,

[77] Soumitra Dutta, Bruno Lanvin, Lorena Rivera Lean and Sasha Wunsch-Vincent Global Innovation Index 2024 Unlocking the Promise of Social Entrepreneurship. - 17th ed. - WIPO, 2024. - 325 p.

which is 9.8% more than in 2024 (Table 1), thus making this category of companies one of the largest sectors of the economy.

Gartner notes that within financial institutions, it is possible to trace a shift in the focus of internal personnel and consulting costs to spending related to the operation of data centers and the introduction of new technological solutions, in particular, technologies such as artificial intelligence GenAI.[78]

Table 1

Worldwide IT Spending Forecast (Millions of U.S. Dollars)

	2024 Spending	2024 Growth (%)	2025 Spending	2025 Growth (%)
Data Center Systems	329,132	39,4	405,505	23,2
Devices	734,162	6,0	810,234	10,4
Software	1,091,569	12,0	1,246,842	14,2
IT Services	1,588,121	5,6	1,731,467	9,0
Communication Services	1,371,787	2,3	1,423,746	3,8
Overall IT	5,114,771	7,7	5,617,795	9,8

The global economy is fully exposed to the digital transformation that has taken place over the past decades through the introduction of various innovations, but the number of new technologies and their level and quality differ strikingly from country to country. The level of economic development of countries can directly be both an obstacle and a catalyst for such a transformation.

In countries whose economic development remains at a very low level in accordance with the classification developed by the United Nations[79], the introduction of technological innovations faces a huge number of obstacles due to the lack of infrastructure and investment. These are mainly African countries, some of which have not yet reached the old stages of the country's level of development and do not even have a stable supply of basic biological human needs. Not to mention the availability of access to mobile communications and the Internet and related financial products.

For the most part, underdeveloped countries are in such a position that any integration of technologies into the country at the expense of the state's personal funds or offset of third-party investments unconditionally gives a positive result and makes citizens within the country one step closer to an acceptable and adequate level and quality of life within the framework of modernity, where technology occupies one of the fundamental places in human life.

[78] Gartner Forecasts Worldwide IT Spending to Grow 9.8% in 2025 // Gartner URL: https://www.gartner.com/en/newsroom/press-releases/2025-01-21-gartner-forecasts-worldwide-it-spending-to-grow-9-point-8-percent-in-2025 (accessed: 01.02.2025).

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Of particular interest is the Russian experience as a country belonging to the class with a transition economy, which at the same time is forced to develop its level of digitalization of the financial sector in the face of unprecedented economic sanctions. According to the Central Bank of the Russian Federation (2024)[80], the fast payment system, which is one of the most extensive and significant projects in the field of financial services in recent years in the country, has reached 40 million users, and the digital ruble project has entered the stage of pilot testing. This example demonstrates that it is possible to ensure the faster realization and production of financial innovation in the nation with a coordinated approach that includes technology improvement, financial literacy civic education, and a significant marketing push. However, the factors that have imposed significant barriers to the complete creation of digital banking in Russia during the past couple of years include alienation from global financial institutions and a lack of technological ability.

A very different dynamic is observed in developed countries, where financial innovation is centered around complex technologies such as distributed ledgers and central bank digital currencies.

The European Central Bank, in its review of the implementation of the PSD2 directive (2023), notes that open banking has led to 40 percent growth in the fintech sector over the past five years. At the same time, as follows from the materials of the US Congress (2023), the lack of clear regulation of the cryptocurrency market creates significant uncertainty for participants, slowing down the introduction of promising technologies.

All in all, in developed and developing countries the situation is different, it is difficult to assess the effect of digitalization without in-depth analysis, so in this paper these classes of countries will be considered in more detail using computational and analytical research.

Methodology

To quantify the impact of digitalization on economic development, we will build an econometric model. One of the most common econometric models in economic science is the linear regression model. It is based on the assumption that the dependent variable and one or more independent variables have a certain relationship with each other.

Our research above showed that the level of economic development and the level of digitalization of the financial markets of the economy are heterogeneously distributed within the global economy, moreover, it is possible to notice a certain interconnection of these factors. It is this relationship that we will consider within the framework of our econometric model.

Since we have previously established that in a number of undeveloped countries the relationship between the digitalization of the economy and the level of quality of life of people at this stage of development is very weak and ambiguous

[80] SBP: Main Indicators // Bank of Russia URL: https://www.cbr.ru/analytics/nps/sbp/1_2024/ (accessed: 03.03.2025).

due to a huge number of obstacles and other problems of these economies that aggravate the course of the positive impact of technology on the development of states, we will focus on the study of developed and developing/transition countries. For the study, data relevant to the Russian Federation and the United States of America will be used.

Let us put forward the following hypotheses for further research within the framework of the econometric model:

H1: Digitalization of the economy has a positive impact on the level of development of developing countries/countries in transition

H2: Digitalization of the economy has a positive impact on the level of development of developed countries

Using this principle, the following econometric model was developed:

The model consists of the factors which influence the GDP of Russia. There is the following econometric model:

$$\begin{cases} HDI_t = a_0 + ICT_t \cdot a_1 + R\&D_t \cdot a_2 + EGDI_t \cdot a_3 + \varepsilon_t \\ E(\varepsilon_t) = 0 \\ \sigma(\varepsilon_t) = const \end{cases}$$

Where HDI_t is the Human development index,

ICT_t is ICT service exports measured in BoP, current US$,

$R\&D_t$ is Research and development expenditure measured in % of GDP,

$EGDI_t$ is E-government development Index.

The data was collected from 2013-2022 for both Russia[81] and USA[82] with the use of UNDP and World bank[83] official Data bank. , so the investigation will observe the period of 10 years.

Results

The econometric analysis reveals a stark contrast in model performance between Russia and the United States. For Russia, characterized as a developing country, the model exhibits weaker explanatory power, with an adjusted R^2 of 0.4788 indicating that only 47.88% of the variation in the Human Development Index (HDI) is explained by the selected independent variables. This limited fit is further underscored by an insignificant F-statistic of 3.45 (p-value = 0.108), failing to reject the null hypothesis that the model coefficients are jointly zero at the 5% significance level. Consequently, the model's specifications for Russia appear unreliable for robust inference. Conversely, the model for the developed United States demonstrates strong statistical validity. It achieves a significantly higher adjusted R^2 of 0.7803, explaining 78.03% of HDI variation, and yields a significant

[81] Human Development Index: Russia // UNDP URL: https://hdr.undp.org/data-center/specific-country-data#/countries/RUS (accessed: 01.04.2025).
[82] Human Development Index: USA // UNDP URL: https://hdr.undp.org/data-center/specific-country-data#/countries/USA (accessed: 01.04.2025).
[83] World Development Indicators // World Bank Group URL: https://databank.worldbank.org/data (accessed: 01.04.2025).

F-statistic of 10.47 (p-value = 0.014). This confirms that the collective influence of the predictor variables on HDI in the US is statistically significant, supporting the model's overall fit and its ability to robustly explain underlying trends in human development.

All in all we can see that hypothesis №2 has been proven, whereas hypothesis №1 cannot be fully confirmed, meaning the development of non-developed or developing countries can only be partially explained by the process of advancement of digital technologies over time. Fur such countries different circumstances on the world arena or the situation inside the country itself might become a reason why digital technologies implementation are being blocked of providing their full potential on increasing the pace of economic development of a country.

This can be specifically seen on the example of the Russian Federation taken as a subject or survey in one of the econometric models applied. The complicated situation on the geopolitical level, especially the pressure exerted through the introduction of various kinds of action, underdevelopment of other areas of the population's life that do not pacifically rely on digital technologies, such as manufacturing for example, do not give the opportunity for digital technologies to be fully developed and implementing, stopping them from having an only positive influence in the countries' economy overall.

Conclusion

Therefore we may conclude that for developing countries, it is crucial to build adequate infrastructure, provide widespread internet access, implement a strong data strategy, and prioritize data security to effectively influence digital development outcomes, as well as trying to fix and balance out other difficulties it faces. By taking these measures, digitalizing the economy can help expand government capabilities, optimize capital use, create a healthy business environment, and enhance consumer welfare.

Digitalization is neither a universal solution nor a sure path to progress. Its revolutionary capacity is enhanced in situations with solid pre-existing foundations - infrastructure, institutions, human capital, and economic stability - as seen by developed economies. In emerging and transitional economies, the route is more difficult. Digitalization must be undertaken as part of a larger development plan that prioritizes the establishment of these critical foundations. Only by addressing critical infrastructure gaps, investing in human capital, establishing sound governance, and mitigating external vulnerabilities will these nations be able to fully realize the potential of digital technologies to expand government capabilities, optimize capital allocation, foster a dynamic business environment, and, ultimately, improve their citizens' welfare and development prospects.

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INNOVATIVE PEDAGOGICAL STRATEGIES FOR TEACHING ALGEBRA IN ACADEMIC LYCEUMS

Annotation*: This article explores innovative pedagogical strategies for teaching algebra in academic lyceums within the educational context of Uzbekistan. With the shift towards competence-based education, there is a growing need to develop and implement teaching approaches that enhance students' mathematical reasoning, critical thinking, and practical application of algebraic concepts. The study analyzes modern methods such as project-based learning, flipped classrooms, the integration of digital technologies, and differentiated instruction. It also discusses the challenges and benefits of these approaches in lyceum settings. Based on literature review and practical experiences, the paper suggests that incorporating innovation in algebra education contributes to increased student engagement and deeper conceptual understanding.*

Key words: *innovative strategies, algebra teaching, academic lyceum, digital learning, project-based learning, mathematics education.*

The teaching of algebra in academic lyceums holds a central position in shaping students' analytical thinking, logical reasoning, and problem-solving skills. In Uzbekistan, where secondary education institutions such as academic lyceums play a crucial role in preparing students for higher education, the need for modernizing algebra instruction is more pressing than ever. Traditional teacher-centered approaches, while effective for procedural fluency, often fall short in engaging learners or fostering a deep understanding of abstract mathematical concepts. As the global trend shifts toward student-centered education, there is a growing interest in exploring innovative pedagogical strategies that can transform the way algebra is taught.

One of the key reasons for integrating innovation into algebra education is the diversification of student learning needs. In any classroom, students exhibit varied levels of prior knowledge, learning styles, and cognitive abilities. Modern pedagogical theories emphasize the importance of active learning, where students are not passive recipients of information but active participants in the learning process. Consequently, strategies such as problem-based learning, flipped classrooms, collaborative group work, and technology-assisted instruction have gained attention for their potential to improve educational outcomes.

In the context of academic lyceums, where the curriculum is often rigorous and time-bound, the challenge is to balance innovation with curriculum requirements. Teachers must navigate standardized testing expectations while fostering creativity and critical thinking. This calls for carefully planned instructional strategies that integrate innovation without compromising content mastery. The following sections of the article discuss specific methods and tools that can be applied to enhance the teaching of algebra in academic lyceums, grounded in both theoretical perspectives and empirical evidence.

Innovative pedagogical strategies for teaching algebra in academic lyceums are gaining importance due to their capacity to bridge the gap between theoretical knowledge and practical application. One such strategy is the flipped classroom model, where traditional lecture content is delivered outside of class through videos or digital materials, and classroom time is reserved for solving problems, discussions, and collaborative tasks. This method encourages students to engage with algebraic concepts actively and provides more opportunities for individualized support during class.

Another effective approach is project-based learning (PBL), which allows students to explore real-life applications of algebra through structured projects. For example, students can be tasked with creating budget plans, designing statistical surveys, or modeling natural phenomena using algebraic functions. Such projects promote interdisciplinary thinking, enhance communication skills, and make learning more meaningful. In the lyceum context, where students are preparing for university-level study, PBL cultivates essential academic competencies and fosters intrinsic motivation.

Technology integration also plays a crucial role in modern algebra instruction. Interactive software such as GeoGebra, Desmos, and various computer algebra systems (CAS) allows students to visualize equations, manipulate variables, and understand abstract concepts more concretely. Additionally, learning management systems (LMS) and online platforms can facilitate personalized learning pathways, formative assessments, and instant feedback mechanisms. These tools support differentiated instruction by catering to diverse learning needs within the classroom.

Differentiated instruction is especially vital in mixed-ability lyceum classes. It involves tailoring teaching methods, materials, and assessments to accommodate individual learner profiles. Teachers might group students based on their readiness levels or use tiered assignments to ensure all learners are appropriately challenged. Algebra lessons can be adapted with scaffolded tasks for beginners and complex, open-ended problems for advanced students. This ensures that all students progress at their own pace while maintaining high expectations.

Furthermore, collaborative learning techniques such as peer tutoring, small group discussions, and math circles can enhance algebra instruction. These strategies develop students' social interaction and cooperative problem-solving skills. They also create a classroom environment where learners feel safe to express their ideas, ask questions, and construct knowledge collectively. Research indicates that peer interaction deepens conceptual understanding and reduces math anxiety.

Finally, the teacher's role in implementing innovative strategies cannot be overstated. Professional development, reflective practice, and ongoing assessment of instructional impact are essential components. Teachers must be equipped not only with content knowledge but also with pedagogical skills and digital literacy. Support from school administration and access to resources further contribute to successful innovation in the classroom.

In conclusion, integrating flipped classrooms, project-based learning, technological tools, differentiated instruction, and collaborative learning creates a dynamic and inclusive algebra learning environment. These methods align with the educational reforms in Uzbekistan and contribute to the formation of a mathematically competent and future-ready generation.

The adoption of innovative pedagogical strategies in teaching algebra at academic lyceums represents a significant advancement in mathematics education in Uzbekistan. By shifting from traditional, lecture-driven approaches to more interactive, student-centered methods, educators can better address the diverse needs of learners and foster deeper engagement with algebraic concepts. Techniques such as flipped classrooms, project-based learning, technology integration, and differentiated instruction have demonstrated their effectiveness in enhancing comprehension, retention, and the practical application of knowledge.

The implementation of these strategies requires careful planning, professional training, and institutional support. Teachers must be empowered with not only the resources but also the autonomy to experiment with and adapt new methods to their unique classroom contexts. Moreover, the success of such reforms depends on a balanced approach that maintains academic rigor while embracing creativity and collaboration.

As Uzbekistan continues to modernize its educational system, particularly in mathematics, academic lyceums can serve as testing grounds for innovative instructional models. Through ongoing research, teacher development, and curriculum flexibility, the integration of innovative strategies in algebra teaching can contribute to the preparation of students who are not only proficient in mathematical skills but also capable of critical thinking, problem-solving, and independent learning. This aligns with the broader goals of national education reforms aimed at producing globally competitive graduates.

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OLXO'RI CHECHAGI VIRUSINING REZERVATOR O'SIMLIKLARINI IKKIYOQLAMA IMMUNO DIFFUZIYA USULIDA DIAGNOSTIKA QILISH

Annotatsiya: *Ushbu maqolaning asosiy maqsadi olxo'ri ospa virusi (O'OV)ga xos bo'lgan rezervoar o'simliklarni aniqlash va viruslarning tabiiy tarqalish manbalarini belgilashdan iborat. Tadqiqotda virusli kasalliklarning "tabiiy o'choqlari" sifatida kasallangan o'simliklar joylashgan dala uchastkalari hamda ular atrofida o'sayotgan turli kasallangan yoki sog'lom o'simlik qismlari qoldiqlari xizmat qilishi mumkinligi taxmin qilinadi.*
Kalit so'zlar: *Olxo'ri, Rezervoar, Diagnostika, Ikkitomonlama immunodiffuziya (IID), Olxo'ri o'spa virusi (O'OV), Kasallangan.*

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DIAGNOSIS OF RESERVOIR PLANTS OF PLUM POX VIRUS USING THE DOUBLE IMMUNODIFFUSION METHOD

Annotation.: *This article aims to identify reservoir plants specific to plum pox virus and identify natural sources of virus spread. In this case, it is assumed that the "natural foci" of viral diseases are the remains of various diseased or healthy plant organs growing in and around the fields of infected plants.*
Key words. *Plum, Reservoir, Diagnostics, Dual Immunodiffusion (IID), Plum pox virus (PPV), infected.*

Toshkent viloyati iqlim sharoitida olxo'ri bog'dorchiligiga ixtisoslashgan olxo'ri bog'larida o'suvchi yangi rezervator o'simliklar IID usuli yordamida diagnostika qilindi [1]. Bu aniqlangan tabiiy rezervator o'simliklar virusning tabiiy aylanishini ta'minlashda asosiy manba bo'lib xizmat qiladi. Olxo'ri chechagi virusining tabiatda aylanishini o'rganishda, uning rezervator o'simliklarini aniqlash qarshi kurash choralarini ishlab chiqishda muhim ilmiy va amaliy ahamiyat kasb etadi [2].

Shuning uchun, ushbu ishda Toshkent viloyati iqlim sharoitida o'suvchi kasallik alomatlari mavjud yoki hech qanday kasallik alomatlari bo'lmagan 6 ta oilaga mansub 14 ta tur madaniy va yovvoyi o'simliklardan namunalar olindi va ikkiyoqlama immuno diffuziya usuli yordamida diagnostika qilindi [5].

Ushbu tadqiqot natijasida, olxo‘ri chechagi virusi bilan kasallangan olxo‘rining bir qancha turlari, shu oila vakillariga yaqin bo‘lgan olcha, o‘rik, gilos kabi turlarida hamda shu oila vakillariga yaqin bo‘lmagan bir qancha turlarda, sho‘radoshlar oilasi vakillaridan tabiiy holda ham *Chenopodium quinoa*, *Ch. amaranticolor* va ituzumdoshlar oilasining *Datura stramonium* kabi turlarida aniqlandi (1-jadval).

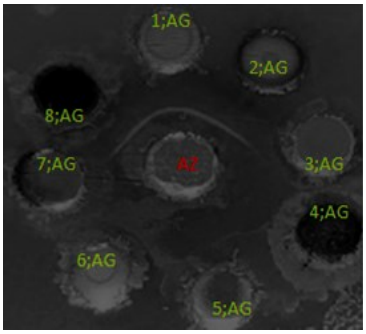
1-jadval

Olxo‘ri chechagi virusining rezervatorlarini ikkiyoqlama immuno diffuziya usulida aniqlash

T.r	O‘simliklarning nomi		Reaksiya ko‘rsatgichi
	Ilmiy	**Mahalliy**	
1	*Cynodon dactylon* (L.) Pers.	Ajiriq	-
2	*Sorghum halepense* (L.) Pers.)	G‘umay	+-
3	*Solanum nigrum* L.	Ituzum	-
4	*Chenopodium giganteum D.Don* - D.Don	Sho‘ra	+ +
5	*Rumex crispus* L.	Otquloq	+-
6	*Datura stramonium* L.	Bangidevona	+ + + +
7	*Mentha longifolia* (L.) L.	Yalpizi	+ -
8	*Chenopodium quinoa* Willd. - Willd.	Oddiy sho‘ra	++
9	*Convolvulus arvensis* L.	Qo‘y pechak	+ + + +
10	*Mutarda arvensis* (L.) D.A.German	Rang o‘t	-
11	*Trifolium pratense* L.	Sebarga	+ + + +
12	*Medicago sativa* L.	Beda	+-
13	Plantago major L.	Zubturum	-
14	Xanthium orientale L.	Qo‘y tikan	-

Izoh: “**-**” reaksiya mavjud emas; “+” reaksiya natijasi mavhum; “+-” kuchsiz reaksiya, “++” o‘rtacha reksiya; “+++-” kuchli; “++++” juda kuchli reksiya

Jadvaldan ko‘rinib turibdiki, olxo‘ri chechagi virusi bilan kasallangan sho‘radoshlar oilasi va ituzumdoshlar kabi bir qancha oila vakillaridan tadqiqot asosida tekshirilib o‘rganildi [3]. Olib borilgan tadqiqot natijasida virusning saqlanishi, qo‘y pechak (*Convolvulus arvensis)*, sebarga (*Trifolium pretense)* kabi O‘zbekiston iqlim sharoitida o‘suvchi yangi rezervator o‘simliklar ikkiyoqlama immuno diffuziya usuli yordamida aniqlandi (1-rasm).



1-rasm. OChVning tabiiy rezervator o‘simliklarini IID usulida aniqlash

Izoh. diagnostik plata (gel) ga solingan namunalarning markaziy qismida virusga tayyorlangan suyultirilmagan spetsifik zardobni (AZ); aylana teshikchalarda esa tekshirilishi zarur bo‘lgan o‘simliklardan tayyorlangan namunalar, ya’ni antigenni (AG) anglatadi. Undagi solingan namunalar: AG – nazorat, ya’ni sog‘lom olxo‘ri o‘simligidan olingan namuna, keyingilari esa 1), sebarga 2), qo‘y pechak 3), beda 4), nok 5), olma 6), g‘umay 7). olxo‘ri nazorat 8), oddiy sho‘ra kabi o‘simliklardan olingan namunalarni anglatadi.

Plantago major, Sinapsis arvensis kabi o‘simliklarda virus aniqlanmagan bolsa, Medicago sativa va Mentha asiatica Boriss kabi tekshirish natijasida reaksiya ko‘rsatkichi noaniq (±) bo‘lgan o‘simliklarni PZR kabi sezgirligi yuqori bo‘lgan zamonaviy usullar yordamida qayta tekshirishni talab etadi (1-jadval). Tekshirishlar natijasida reaksiya ko‘rsatkichlari juda yuqori (4+) bo‘lgan Trifolum pretense, Chenopodiaceae oilasining bir qator vakillari, olxo‘rining bir qator navlari shubhasiz virusing tabiiy rezervatorlari sifatida uning tarqalishida muhim ahamiyat kasb etadi [4].

Ushbu olib borilgan tajribalar natijasida quyidagicha xulosa qilish mumkin, tajribalar davomida tekshirilgan 14 ta tur o‘simliklardan Convolvulus arvensis, Trifolium pretense kabi O‘zbekiston iqlim sharoitida o‘suvchi yangi rezervator o‘simliklar ikkiyoqlama immuno diffuziya usuli yordamida aniqlandi. Bu aniqlangan tabiiy rezervator o‘simliklar virusning tabiiy aylanishini ta’minlashda asosiy manba bo‘lib xizmat qiladi.

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PATOGEN ESHERIXIYALARNI OQOVA SUVLARIDA UCHRASHI

Annotatsiya. *Maqolada turli suv ob'ektlaridan ajratib olingan E. coli miqdori, saprofit bakteriyalar va faol loyqa miqdori o'rtasidagi bog'liqliklar statistik tahlil qilingan. Tadqiqot natijalariga ko'ra, umumiy E. coli va faol loyqa o'rtasida ishonchli korrelyatsiya aniqlanmagan, lekin saprofitlar va umumiy E. coli miqdori o'rtasida ijobiy korrelyatsiya aniqlangan. Xo'jalik-maishiy oqova suvlarini tozalash jarayonida E. coli serotiplarining o'zgarishi kuzatilgan. Faol loyqa bilan aerob stabilizatsiya jarayonida E. coli O124 K 72 seroguruhining yashab qolish darajasi o'rganilgan.*

Kalit so'zlar: *Escherichia coli, E. coli, seroguruhlar, suv ob'ektlari, oqova suvlar, faol loyqa, saprofitlar*

Dolzarbligi. Urbanizatsiya va industrializatsiya sharoitida biosferaga antropogen ta'sir kuchaymoqda [4]. Turli antropogen omillar orasida biologik omil, epidemiologik nuqtai nazardan inson uchun potensial xavfli sifatida jiddiy e'tibor talab etadi. Bunda ichak infeksiyalari qo'zg'atuvchilari, jumladan patogen esherixiyalar (PE) [1-3] alohida rol o'ynaydi.

Tashqi muhitni sog'lomlashtirishda erishilgan muvaffaqiyatlarga qaramay, yuqumli kasalliklarning oldini olishning ishonchli usullarini, birinchi navbatda ichimlik suvi hamda oqava suvlarini zararsizlantirish usullarini ishlab chiqish dolzarb bo'lib qolmoqda [5-8]. So'nggi yillardagi hukumat qarorlarida eng xavfli yuqumli kasalliklarga qarshi keng ko'lamli kurashning muhimligi ta'kidlanadi.

Enteropatogen *E. coli* seroguruhlari epidemiologik ahamiyatga ega [9-13]. Biroq, adabiyotda enteropatogen *E. coli* ning o'z-o'zidan tozalanish suv havzalarida va ularning biologik tozalash qurilmalarida yashab qolishi haqida kam ma'lumot uchraydi.

Shu munosabat bilan, bizning ishning maqsadi turli ob'ektlarning enteropatogen *E. coli* bakteriyalarini aniqlash edi.

Ishning maqsadi. daryo suvi, biologik tozalangan oqava suvi va boshqa suv ob'ektlarida enteropatogen *E. coli* bakteriyalarini aniqlash.

Materiallar va usullar. Mikrobiologik tekshiruvga quyidagilar ishtrok etdi: a) xo'jalik-maishiy oqava suvlar, b) biologik tozalangan oqava suvlar, v) daryo suvi va g) faol loyqa.

20 ta xo'jalik-maishiy va 20 ta biologik tozalangan suv namunasi olindi. Bunda aerob stabilizatsiya jarayonida enteropatogen esherixiyalarni tozalash samaradorligi o'rganildi.

Faol loyqa *E. coli* O124K72 bilan 1 ml da $2{,}5\cdot10^4$ mikrob dozasida zararlandi. Tajriba ikki marta takrorlandi.

Ko'rsatilgan seroguruh viloyat epidemiologik ahamiyatiga ega bo'lgan shtamm, kulturalardan bitta guruh kasalligi davomida yangi ajratib olingan va izolyatsiya qilingan. Birinchi tajribada qo'llanilgan kultura o'rtacha og'irlikdagi ichak kasalliklari bilan kasallangan katta yoshli bemordan davolashdan oldin bir marta ajratib olingan edi. Ikkinchi tajribada esa kultura shtammi uch yoshli boladan uch kun neomitsin bilan davolangandan keyin ajratib olingan.

Daryo suvi namunalari 15 ta punktdan, viloyatning janubiy-sharqidagi suv yig'uvchi joydan 10-40 km masofada olindi. Zarafshon daryosidan olingan namunalar, suvning yuqorida aytilgan ifloslanish darajasiga ega bo'lib, 1,0 dan 1,5 km gacha bo'lgan masofalarda o'rganildi. Jami 50 ta namuna tekshirildi.

Barcha namunalarda saprofit bakteriyalar va ichak tayoqchalari guruhi, ya'ni "Umumiy coli" miqdori aniqlandi. Enteropatogen *E. coli* ni aniqlash uchun Endo muhitida o'stirilgan koloniyalar qo'llanildi. Har bir namunadan 25 ta koloniya tasodifiy ravishda tanlab olindi. 800 ta kultura biokimyoviy usullar bilan tekshirildi va 33 ta enteropatogen seroguruh mansubligi o'rganildi.

Olingan natijalar.

Ajratib olingan patogen esherixiya seroguruhlari, "Umumiy *E. coli* ", saprofit bakteriyalar va faol loyqa (FL) miqdori bo'yicha ma'lumotlar statistik tahlil qilindi. Dispersion va korrelyatsion tahlil natijalari jadvalda keltirilgan.

jadval

Suv ob'ektlaridan aniqlangan *E. coli* miqdorining tahlil natijalari

		Xo'jalik-maishiy oqova suvlari tozalashdan oldin	Xo'jalik-maishiy oqova suvlari tozalashdan keyin	Daryo suvi
Saprofitlar soni (ml)	O'rtacha	$(1{,}8\pm0{,}2)\cdot10^6$	$(1{,}3\pm0{,}2)\cdot10^4$	$(7{,}0\pm5{,}0)\cdot10^4$
	Tebranish chegarasi	$(0{,}6\pm3{,}0)\cdot10^6$	$(0{,}6\pm4{,}0)\cdot10^4$	$(0{,}1\pm57{,}0)\cdot10^4$
Umumiy *E. coli* (ml)	O'rtacha	$(2{,}4\pm0{,}2)\cdot10^5$	$(8{,}0\pm1{,}0)\cdot10^2$	$(2{,}1\pm0{,}6)\cdot10^2$
	Tebranish chegarasi	$(0{,}8\pm3{,}7)\cdot10^5$	$(5{,}0\pm12{,}0)\cdot10^2$	$(0{,}1\pm7{,}3)\cdot10^2$
FL (ml)	O'rtacha	4,7±0,1	4,6±0,1	3,8±0,1
	Tebranish chegarasi	4,5±4,8	4,3±4,7	3,0±4,7

Xo'jalik-maishiy oqova suvlari tozalanishidan oldin *E. coli* ning umumiy soni $(2{,}4\pm0{,}2)\cdot10^5$ miqdorda; saprofitlar soni (ml) esa o'rtacha $(1{,}8\pm0{,}2)\cdot10^6$ miqdorda aniqlandi. Bu ko'rsatkich xo'jalik-maishiy oqova suvlari tozalanishidan keyin *E. coli* ning umumiy soni $(8{,}0\pm1{,}0)\cdot10^2$ miqdorga; saprofitlar soni (ml) esa o'rtacha $(1{,}3\pm0{,}2)\cdot10^4$ miqdorga kamayganligi kuzatildi.

Parallel ravshda tekshirilgan daryo suvlarida esa *E. coli* ning umumiy soni o'rtacha $(2{,}1\pm0{,}6)\cdot10^2$ miqdorda; saprofitlar soni (ml) esa o'rtacha $(7{,}0\pm5{,}0)\cdot10^4$ miqdorda aniqlandi.

Xo‘jalik-maishiy oqova suvlari tozalashdan oldin, xo‘jalik-maishiy oqova suvlari tozalashdan keyin va daryo suvi loyqa cho‘kmasi tarkibida mos ravishda *E. coli* ning umumiy soni o‘rtacha 4,7±0,1; 4,6±0,1 va 3,8±0,1 miqdorda aniqlandi.

Xulosa.

1. Umumiy c *E. coli* va "FL" o‘rtasida ishonchli korrelyatsiya aniqlanmadi. Saprofitlar va " Umumiy *E. coli* " miqdori o‘rtasida ijobiy korrelyatsiya aniqlandi.

2. Xo‘jalik-maishiy oqava suvlarni biologik tozalashdan oldin *E. coli* ning O22, O26, O135, O75 serotiplari ajratib olindi (titr 4,5-4,7). Tozalashdan keyin faqat *E. coli* O20 ("FL" 4,7) aniqlandi. Zarafshon daryosidan olingan namunalarda *E. coli* O136 ("FL" 3,8) va Qoradaryo irmog‘idan esa - (*E. coli* O26 "FK" 3,7) ajratib olindi.

3. *E. coli* O124 K 72 seroguruhining faol loyqa bilan aerob stabilizatsiya jarayonida yashab qolish darajasi 3 va 12 soatdan keyin ikkala tajribada ham 18-20% ni tashkil etdi. Birinchi tajribada patogen agentning 99% i 24 soatdan keyin, ikkinchisida esa 48 soatdan keyin yo‘qoldi.

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FORMATION OF READING SKILLS OF STUDENTS THROUGH CHILDREN'S LITERATURE

Abstract: *This article explores the methodological foundations of teaching children's literature in primary education and the role of literary education in shaping aesthetic and moral values among students. The authors emphasize the importance of considering the methodology of children's literature as an independent academic discipline, analyzing modern pedagogical approaches and integrating them into classroom practices. The study outlines the core objectives of literary education, such as developing expressive reading skills, instilling national pride and cultural values, fostering critical thinking, and promoting a strong reading culture among students. Additionally, it presents effective strategies aimed at enhancing literary and aesthetic thinking and suggests individualized approaches to working with students. The article serves as a valuable theoretical and practical resource for primary school educators.*

Keywords: *children's literature, literary education, reading classes, methodology, primary school, aesthetic education, reading culture, pedagogical technologies, student engagement, independent thinking.*

Since literature has its status as an independent subject in secondary general education, methodologists are trying to scientifically and methodologically substantiate the need to consider the methodology of teaching children's literature as an independent subject in primary education. It is known that in the second half of the 20th century, the idea of studying a work of art as a work of art was put forward in primary school methodology, while psychological research suggests that the potential abilities of young students require a different approach to introducing them to the world of literature. In particular, N.N. Svetlovskaya developed a theory of independent reading of the student, Ye.A. Adamovich, M.S. Vasileva, V.G. Goretsky, M.I. Omorokov, T.G. Ramzaeva and others put forward the idea of analyzing the form and content of a work of art, L.A. Gorbushina, O. V. Kubasova, L.N. Mali, L.V. Nefedova and others put forward the idea of developing the creative work of students in the methodology developed, and some put forward the idea of developing reading techniques. Thus, the methodology of primary education has passed the stages of formation as a methodological discipline.

Just as each discipline has its own object and subject of study, today the idea is being put forward that the methodology of reading children's literature in primary grades should work as a methodology of literary education. Indeed, the methodology of teaching children's literature as a preparatory subject for a systematic course of teaching literature defines its goals and objectives based on examples of children's literature. Based on this, it is appropriate to define the object of study of reading lessons in primary school as the process of reading and studying examples of children's literature by students.

The term "literary education" includes three interrelated processes: 1) education of the individual in the process of communication with literary and artistic works; 2) teaching, that is, teaching children's literature as one of the school subjects; 3) formation of the self-development of the individual.

Developed by V.V. Golubkov, the following are the main principles of the pedagogical process: "Why teach?" (the purpose of teaching a work of art), "What should be taught?" (the content of literary education), "How should be taught?" (the purpose, content, appropriate methods and techniques, tools of the students - the future teacher), “Why should we teach this way, and not otherwise?” (the scientific validity of the chosen path) is based on the methodology of literary education. In today's methodology, this issue is considered from the perspective of the student. According to it, the following are defined as the learning goals recognized by the student:

1) “What am I learning?” (the content of literary education perceived by the student);

2) “How do I learn?” (what methods of mastery the child uses);

3) “Why am I learning in this way, and not in another way?” (understanding which of the learning methods is effective)

The development of methodology as a science is based on the connection of one paradigm with another. In this case, the answers to the questions “Why does the teacher teach?”, “Why does the child study?” correspond.

Aesthetic education of the individual in connection with reading works of art, that is, imparting knowledge, education and forming beliefs; that is, studying examples of children's literature as works of art, like subjects taught at school.

A 1st grade student cannot set such goals for himself (goal: spiritual perfection, filling cultural gaps, mastering the art of speech.). The teacher sets out these goals and directs students towards the goal. What are you reading? Think, why are we reading this work? Have you been able to master this work well with our current method of reading and analyzing it?

Later, during the lessons, the student will learn what he needs to know to become a reader, how a good book causes various experiences (sadness, anxiety) in the reader, encourages him to think, and allows him to choose his own position.

Teaching literary education at school involves determining the following:

1) determining the purpose and content of literary education;
2) the reader's perception of the work of art;
3) analyzing the work at school;
4) reading techniques;
5) interest in reading;
6) methods, techniques and means of teaching;
7) oral and written speech of students;
8) development of independent reading skills;
9) individual and differentiated approach to students in literary education.

M.A. Rybnikova cites 4 didactic rules as the basis of the methodology:

1. Education should be of a comprehensive nature that affects students' understanding.

2. Students should clearly understand the problem set before them.

3. The methodologist should have the ability to easily present new complex phenomena as familiar ones.

4. Connect deduction with induction.

M.A. Rybnikova notes this methodological system as a living process and emphasizes the need to focus on the methodological system.

In teaching modern literary education, the school encourages the growing younger generation to master the culture that was created centuries ago and has been replenished until now throughout the history of mankind. At the same time, the school sets the requirement for students to prepare the child for real life, to achieve a conscious choice of profession. For this, it is necessary to determine the basic goals of school literary education at each stage of education, taking into account the capabilities and main activities of students.

It should be noted that the stages of literary education do not correspond to the current modern stages of education. The main task of primary schools is to teach students to interact with people around them in a civilized manner.

In primary grades, children's literature reading lessons occupy a special place in the education system due to their essence, goals and objectives. After all, it is based on the foundations of literacy and moral and educational education. Therefore, the education of other subjects is unthinkable without reading education.

The student first encounters reading the text correctly, quickly, with understanding, and mastering its content in reading lessons of children's literature. Reading lessons pave the way for students to acquire the learning skills and knowledge that are required to be mastered according to the requirements of the State Educational Standards (SES). It is precisely in the education of children's literature that the human desire to understand, first of all, his own identity, and also the world is stimulated.

For this purpose, the "Reading Book" textbooks include artistic, moral-educational, scientific-popular works designed to provide comprehensive understanding on various topics such as mother nature, the world around us, the history and current image of our Motherland, the life of adults and children, hard work, independence and national-spiritual values, friendship of peoples and peace.

Reading lessons are organized during the literacy period in the form of practical introduction of students to syllables, words and sentences and their reading, and storytelling based on pictures, then after mastering the reading technique, reading is carried out on selected artistic, scientific-popular texts on specific topics.

The specific topics included in the primary school “Reading Book” textbooks are determined by the fact that they introduce students to the magical world of fiction and correctly form their worldviews based on the ideology of national independence. Accordingly, the leading feature of reading lessons is to ensure the literacy of students, as well as to educate students in the spirit of high moral values based on national ideology.

The subject range of works studied in reading lessons in primary schools is quite wide, and they are united within the framework of general topics such as mother nature, seasons, folk oral literature, love of labor, major holidays, national independence and spirituality.

The topics selected for reading lessons also provide students with knowledge and education in everyday life, strengthening independence and human relations. Among these, topics about independence, homeland, spirituality and nature stand out. The intended goal of them is to awaken feelings of identity, independence, homeland and nature.

Topics such as homeland, the world around us, labor are among the most comprehensive topics in textbooks. Topics of socio-historical content give a certain idea of the past of our homeland, the life of our people, their heroic struggle, the work done by great figures, and historical dates. These include texts about Beruni, Amir Temur, Alisher Navoi, Babur and other ancestors. Such works not only acquaint students with our past, but also help them to deeply understand their filial duty and responsibility to the Motherland. In this way, a sense of love for the Motherland is formed in them. In the process of getting acquainted with and analyzing works that tell about the past of our homeland, students will have the opportunity to compare the past with the present, and will gain a brief understanding of the development of society. Works related to national independence are especially helpful in this regard.

With the help of nature-related topics, students acquire knowledge about changes in nature, the change of seasons, and the animal world. Works on such topics teach students to be observant, love nature, and have the right attitude towards it.

If, when working on texts about the description of nature, a trip to nature is organized and children are taught to be observant, and if the analysis of works about patriotism is carried out through meetings with famous people of the homeland or through the screening of films related to the topic, the effectiveness of the lesson will increase even more.

In general, all the topics in the "Reading Book" textbooks, in addition to educating students, are also aimed at enriching their vocabulary, correctly forming oral and written speech, and cultivating speech culture.

Unlike other stages of continuous education, in the lessons of reading children's literature in primary grades, the didactic goal of education is to form students' reading skills, work on the text of the work. It is carried out in close connection with spiritual-moral, literary-aesthetic education through work on texts on various topics.

Special attention is paid to the genre diversity, poetic perfection, and correspondence of the texts selected for each topic in textbooks to the level of knowledge and age characteristics of students.

One of the important tasks of teachers is to ensure that students understand that the knowledge, skills and competencies acquired with the help of textbooks will be necessary in future life.

The implementation of the requirements for reading education in the DTS and the curriculum for primary education largely depends on the proper organization of reading in the classroom, the stages of teaching, principles and methods, and, first of all, the appropriate use of advanced pedagogical technologies.

The current era of globalization requires a new approach to organizing reading lessons in children's literature in the classroom in primary grades. As is known, the program specifies the topics of reading and works on this topic. Abandoning the tendency to define a specific topic and force the student to read the work given in the textbook gives the student the opportunity for free activity and independent thinking. This requires changing the conditions and forms of education. The organization of schools for primary grades, separate from the upper grades of general education, and the basis of education on the free movement and interests of children will help to educate real readers. To do this, it is possible to fulfill the requirements of the state educational standard by organizing rooms in schools where children can sit, lie down, and read, and libraries equipped with artistically decorated books. Then a community of readers - students will emerge, who will exchange ideas with each other, and will interest each other in reading books.

In general, the didactic tasks set for children's literature reading lessons are as follows:

1. To form reading qualities in students: correct, fast, conscious, expressive reading skills.
2. To teach students to use books, to obtain the necessary knowledge from them, to instill a love for books; to raise them from an ordinary reader to a deeply reflective, creative reader.
3. Expanding and enriching students' knowledge of the environment and forming their scientific worldview.
4. Educating students in a moral, aesthetically mature and labor-loving spirit.
5. Developing students' coherent speech and literary and aesthetic thinking.
6. Enriching students' imagination.
7. Forming elementary literary imagination.

It should not be forgotten that there are clear and scientific methodological methods for performing each educational task, which are being enriched by modern teaching methods. These tasks are solved in the classroom and in the process of extracurricular reading classes in connection with others. Arousing students' interest in reading fiction in primary education classes, stimulating their interests, is the basis for ensuring the effectiveness of literature lessons in higher grades.

Conclusion

The methodology of teaching children's literature in primary education is an integral part of literary education and requires a distinct scientific and methodological approach. As demonstrated throughout this article, literary education today must not be limited to reading instruction or the technical decoding of texts. Rather, it should serve to develop students' aesthetic sensibilities, moral values, cultural awareness, independent thinking, and sense of identity.

The theoretical approaches, advanced pedagogical perspectives, and practical methods discussed herein highlight the importance of the teacher's methodological expertise in awakening and sustaining a student's interest in literature. It is through reading lessons that students begin to grasp the power of artistic expression, the potential of figurative thinking, and the fundamentals of literary and aesthetic evaluation. Therefore, literary education in the early grades lays the foundation for future stages of literary study.

Moreover, fostering students' interest in reading and cultivating a community of genuine readers can be achieved by organizing school libraries and classroom environments in line with modern standards. The literary materials presented in textbooks must be thematically and stylistically appropriate to the cognitive and emotional development of students, encouraging personal reflection and emotional engagement.

From this perspective, literary education becomes a primary tool in the moral and cultural development of students, playing a vital role in shaping knowledgeable, ethically mature, and patriotic individuals. Teachers must rely on their professional competence and apply modern educational technologies to meet these goals effectively.

In conclusion, literary reading lessons in primary education serve as a vehicle not only for teaching reading skills but also for guiding students through aesthetic, ethical, and social development. These lessons enhance critical thinking, encourage reflection, and improve students' ability to express their thoughts clearly—laying a strong foundation for raising a well-rounded and enlightened generation.

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YUQORI SINFLARDA EKOLOGIK TA'LIMNI RIVOJLANTIRISH ISTIQBOLLARI VA IMKONIYATLARI

Annotatsiya. *Maqolda ekologik ta'lim orqali tabiat –jamiyat-inson o'ratasidagi aloqalar va munosabatlardagi sezilarli pasayishlar va o'zgarishlar haqida,shuningdek Hozirgi kun muammolaridan biri bo'lib borayotgan befarqlik va iste'mol madaniyatsizlik oqibatida jamiyatda ijtimoiy munosabatlarda pasayish holatlarning oshib borishi,eskirgan metodlardan voz kechib bolalarda interfaol va noodatiy yondashuvlar zarurligi haqida so'z yuritilgan.*

Kalit so'zlar: *atrof-muhit, Ekologik ta'lim, Fanlararo Integratsiya,kreativlik, ekologik ong, Modern texnologiyalar*

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PROSPECTS AND OPPORTUNITIES FOR DEVELOPING ENVIRONMENTAL EDUCATION IN HIGHER GRADES

Annotation. *The article talks about significant declines and changes in relations and relationships in the nature –society-human sphere through environmental education,as well as about the increasing indifference and decline in social relations in society as a result of consumer unculturalism,the need for interactive and unusual approaches in children, abandoning outdated methods.*

Keywords: *Environment, Environmental Education, interdisciplinary integration, creativity, environmental awareness, Modern technologies*

Kirish

yoshlarimizning mustaqil fikrlaydigan, yuksak intelektual va ma'naviy salohiyatga ega bo'lib, dunyo miqyosida o'z tengdoshlariga hech qaysi sohada bo'sh kelmaydigan insonlar bo'lib kamol topishi, baxtli bo'lishi uchun bor kuch va imkoniyatlarini safarbar etmoqda.zero niholni parvarish etilsa u albatta kelajakda o'z mevasini beradi.

hozirgi davrda ekologik madaniyatni shakllantirish, ayniqsa, yosh avlod o'rtasida, jamiyatning barqaror rivojlanishi uchun muhim ahamiyatga ega. Yuqori sinf o'quvchilarini ekologik madaniyatga tarbiyalash, ularda tabiatga nisbatan mas'uliyatli munosabatni shakllantirish, kelajakda atrof-muhitni muhofaza qilishda muhim qadam hisoblanadi.

O‘zbekistonda ekologik ta’lim va tarbiyaga alohida e’tibor qaratilmoqda. Mamlakatda ekologik ta’lim va tarbiya samaradorligini oshirish maqsadida bir qator qonun va qarorlar qabul qilingan. Masalan, 2019 yilda qabul qilingan "ekologik ta’lim va tarbiyani takomillashtirish to‘g‘risida"gi qarorda ekologik madaniyatni shakllantirishning muhimligi ta’kidlangan. Boshlang‘ich sinf o‘quvchilarini ekologik madaniyatga tarbiyalashda pedagogik-metodik yondashuvlar muhim ahamiyatga ega. Tadqiqotlar ko‘rsatmoqdaki, ekologik madaniyatni shakllantirishda kreativ yondashuvlarni qo‘llash samarali natijalar beradi. Ekologik ta’limning mazmuni va usullarini takomillashtirishda milliy xususiyatlar va qadriyatlarni hisobga olish muhimdir. Ushbu maqolada yuqori sinf o‘quvchilarida ekologik madaniyatni shakllantirishning bosqichlari, pedagogik-metodik yondashuvlar va ularning samaradorligini oshirish yo‘llari tahlil qilinadi. Maqsadimiz ekologik madaniyatni shakllantirishda samarali usullar va strategiyalarni ishlab chiqishdir.

adabiyotlar tahlili va metodologiya. Yuqori sinf o‘quvchilarida ekologik madaniyatni shakllantirish sohasida olib borilgan tadqiqotlar ekologik ta'limning samaradorligini oshirish uchun turli pedagogik yondashuvlarni taklif etadi. Xususan, kreativ va ijodkorlik yondashuvlarni qo‘llash orqali o‘quvchilarning ekologik madaniyatini rivojlantirishning ahamiyati ta'kidlanadi. Masalan, b.omonov, j.sodiqov va s.azamova o‘zlarining tadqiqotlarida maktab o‘quvchilarida ekologik madaniyatni shakllantirishda kreativ yondashuvlarni takomillashtirish texnologiyasini muhokama qilganlar. Shuningdek, ekologik ta'limning mazmuni va metodologiyasini rivojlantirishda fanlararo integratsiya muhim o‘rin tutadi. Mavzuning ilmiy metodologiyasini yoritishda analiz, sintez, umumlashtirish, taqqoslash, ijtimoiyfalsafiy tahlil kabi mantiqiy uslublardan foydalanilgan.

Tahlillar va natijalar . O’z maqolamda ekologik madaniyatni shakllantirishda ilmiy asoslangan yondashuvlarning ahamiyatini muhokama qildim. Yuqori sinf o‘quvchilarida ekologik madaniyatni shakllantirishda quyidagi metodologik yondashuvlar qo‘llaniladi: 1. Kreativ yondashuvlar: o‘quvchilarning ijodiy fikrlashini rivojlantirish orqali ekologik madaniyatni shakllantirish. Bu yondashuv o‘quvchilarning ekologik muammolarga ijodiy yechimlar topish qobiliyatini oshiradi. 2. Fanlararo integratsiya: ekologik ta'limni turli fanlar bilan integratsiya qilish orqali o‘quvchilarga ekologik tushunchalarni kengroq kontekstda taqdim etish. Bu yondashuv o‘quvchilarning ekologik bilimlarini mustahkamlashga yordam beradi. 3.ilmiy asoslangan yondashuvlar: ekologik madaniyatni shakllantirishda ilmiy tadqiqotlar va metodologik yondashuvlarni qo‘llash orqali o‘quvchilarning ekologik bilimlarini chuqurlashtirish. Bu yondashuv o‘quvchilarning ekologik ongini rivojlantirishga xizmat qiladi. Ushbu metodologik yondashuvlar orqali yuqori sinf o‘quvchilarida ekologik madaniyatni shakllantirishning samaradorligini oshirish mumkin. O‘zbekiston respublikasi prezidenti shavkat mirziyoyevning «har bir yosh inson kelajakdagi millat taraqqiyotining asosiy peshqadami» degan fikrlari asosida, davlatimiz ta’lim sohasini modernizatsiya qilish va yangi pedagogik yondashuvlarni joriy etish ustuvor yo‘nalishga aylanmoqda. Jumladan, prezidentimiz tomonidan e’tirof etilgan.

kelajak avlodga ekologik ta'lim sohasida olib boriladigan tadqiqotlar va amaliyotlar orqali o‘quvchilarning ekologik madaniyatini yanada rivojlantirish imkoniyatlari yana qayta o’rganib chiqilishi aytib o’tgandilar.[1] . Maqolada yuqori sinf o‘quvchilarini ekologik madaniyatga tarbiyalashda kreativ yondashuvlar va fanlararo integratsiyaning muhim ahamiyatini ko‘rsatdi. Ekologik ta’limni samarali tashkil qilish uchun o‘quvchilarga ekologiya mavzusini yoqimli va qiziqarli shaklda yetkazish kerakligi ta’kidlandi. O‘quvchilarning ekologik madaniyatini shakllantirishda ularning ijodiy va noodatiy usullardan foydalangan holda fikrlash qobiliyatini rivojlantirish muhim rol o‘ynaydi. Shunday qilib, kreativ yondashuvlar, masalan, ekologiyani ilmiy-tadqiqotlar, video materiallar yoki ekologik masalalarga oid interaktiv o‘yinlar orqali o‘rganish,shuningdek dars samarali bo’lishi uchun o‘quvchilar bilan hamkorlikda ochiq osmon ostida amaliy darslarni sonini ko’paytirish orqali ekologik savodxonlik bilimlarini oshrish mumkin. Yuqori sinflarda ekologik madaniyatni shakllantirishning samaradorligi faqat pedagogik yondoshuvlarga bog‘liq emas, balki ta’limning mazmuni va usullarini milliy xususiyatlarga moslashtirishga ham bog‘liq. O‘zbekistonda ekologik ta’limni rivojlantirishda milliy qadriyatlar va an’analarga asoslanish muhim ahamiyatga ega. Shular orasida milliy tabiatni himoya qilishga alohida e’tibor qaratish, an’anaviy xo‘jalik ishlariga yo‘naltirilgan ekologik madaniyatni shakllantirish muhimdir. Maqolada yuqori sinf o‘quvchilarida ekologik madaniyatni shakllantirishda fanlararo integratsiyaning ahamiyatini ko‘rsatdi. Fanlararo integratsiya ekologik bilimlarni turli fanlar orqali kengaytirish va teranlashtirish imkonini beradi. Ma’lumki, ekologik ta’lim tabiat, geografiya, biologiya, astranomiya va fizika kabi fanlar bilan chambarchas bog‘liq. Bu fanlar orasida o‘quvchilarni ekologik masalalarga bo‘lgan qiziqishini oshirish uchun fanlararo integratsiya orqali samarali ta’lim berish mumkin. Kreativ yondashuvlarning samaradorligi ham tadqiqotda kuzatilgan. Ushbu yondashuvlar orqali o‘quvchilarda ekologiyaga nisbatan ijobiy munosabatni shakllantirishda o‘qitishning turli usullari samarali bo‘lib chiqdi. Masalan, ekologik g‘oyalarni o‘rganish va o‘qitishning interaktiv shakllari, shu jumladan, ekologiya muammolariga oid onlayn musobaqalar va guruh ishlari, o‘quvchilarda amaliy ko‘nikmalarni va ekologik xavf-xatarlarga nisbatan hamjihatlikni oshirishga xizmat qilgan. Shuningdek, ekologik madaniyatni shakllantirishda axborot texnologiyalaridan foydalanish ham samarali bo‘lishi mumkin. Zamonaviy texnologiyalar orqali o‘quvchilarga ekologik taqdimotlar, multimedia materiallari va simulyatsiyalarni taqdim etish ekologik bilimlarni yangilash va kengaytirishda muhim rol o‘ynaydi. Shunday qilib, axborot texnologiyalarini ta’limda qo‘llash orasida ekologik ma’rifatni oshirishga bo‘lgan yo‘nalishlarni kengaytirishga imkoniyat yaratishi mumkin. Maqolaning ikkinchi muhim natijasi ekologik madaniyatning shakllanish bosqichlari bo‘yicha aniq tasavvurlar bilan ta’minlanganligidir. Tashkil etilgan tadqiqotlar asosida, ekologik madaniyatning shakllanish bosqichlari bir qator fazaga bo‘linish mumkin: 1) o‘quvchilarda ekologik ongni rivojlantirish, 2) ekologik munosabatlarning shakllanishi va 3) ekologik xulq-atvorning qo‘llanilishi. Bu bosqichlar asosida pedagogik texnologiyalar ishlab chiqish talab etiladi, ular asosida ekologik madaniyatni aniq va tizimli shakllantirish mumkin.

Ma’lumki, yoshlarga ekologik bilimlarni to‘g‘ri va aniq yetkazish, ayniqsa, yuqori sinfda muhim ahamiyatga ega. Shuningdek, ekologik faoliyatga yo‘naltirilgan to‘g‘ri ta’limni tashkil qilish orqali, har bir o‘quvchi o‘zini tabiatga bo‘lgan mas’uliyatli munosabatni xis qilishi mumkin.

Muxokama .yuqori sinf o‘quvchilarida ekologik madaniyatni shakllantirishda kreativ yondashuvlarni qo‘llashning samaradorligi yuqori darajada ekanligi aniqlandi. Ushbu tadqiqotlar asosida, boshlang‘ich sinf o‘quvchilarida ekologik madaniyatni shakllantirishda kreativ yondashuvlarni qo‘llash, ekologik ta’limning mazmuni va usullarini milliy xususiyatlar va qadriyatlarga moslashtirish muhimdir. Bu yondashuvlar orqali ekologik madaniyatni shakllantirishning samaradorligini oshirish mumkin. Shu bilan birga, ekologik madaniyatni shakllantirishda axborot texnologiyalaridan foydalanish ham samarali bo‘lishi mumkin. Modern texnologiyalar orqali o‘quvchilarga ekologik taqdimotlar, multimedia materiallari va simulyatsiyalarni taqdim etish ekologik bilimlarni yangilash va kengaytirishda muhim rol o‘ynaydi. Oilada ekologik qadriyatlarni targ‘ib qilish, tabiatni himoya qilishga oid tadbirlarda ishtirok etish, o‘quvchilarda ekologik madaniyatni shakllantirishda muhim omil hisoblanadi. Shuningdek, ekologik madaniyatni shakllantirishda o‘quvchilarning ijodiy faoliyatini rag‘batlantirish, ularni ekologik muammolarni hal qilishga jalb qilish muhimdir. Bu orqali o‘quvchilarda ekologik mas’uliyat va faol fuqarolik pozitsiyasini shakllantirish mumkin. Natijada, yuqori sinf o‘quvchilarida ekologik madaniyatni shakllantirishda kreativ yondashuvlar, milliy xususiyatlar va qadriyatlarni hisobga olish, axborot texnologiyalaridan foydalanish, ekologik madaniyatning shakllanish bosqichlarini aniq belgilash, oila va jamiyatning o‘rni, ijodiy faoliyatni rag‘batlantirish kabi omillar muhim ahamiyatga ega. Bu yondashuvlar orqali ekologik madaniyatni shakllantirishning samaradorligini oshirish mumkin.

Xulosa. Ekologik ta’lim bu ma’lum bir tashkilot yoki hudud kesimida o’rgatilishi va tatbiq etilishi kerak bo’lgan jarayondan hozirgi kunda global miqyosda har bir kishilik jamiyati va davlatlar o’rtasida muhokimaga aylanib borayotgan va yechimini kutayotgan holatga kelib qoldi. Tadqiqotda ekologik madaniyatni shakllantirish jarayonining samaradorligini oshirish uchun kognitiv va ijodiy yondashuvlarni qo'llash, o'quvchilarga ekologik muammolarni tushuntirish, ekologik ta'limni turli interaktiv usullar orqali yetkazishning zarurligi haqida fikrlar ilgari surildi. Boshqa tomondan, ekologik madaniyatni shakllantirishning nazariy asoslarini ishlab chiqishning ahamiyati ta'kidlandi. Bu jarayonda ekologik bilimlarni o'qitishning samarali metodikasi va pedagogik texnologiyalarni joriy qilish hamda milliy va xalqaro tajribalarni inobatga olish o'quvchilarda ekologik savodxonlikni oshirishning eng muhim omillaridan biridir. Ekologik madaniyatni shakllantirishning turli bosqichlari va ular o'rtasidagi o'zaro bog'liqlikni aniq belgilash orqali ekologik ta'lim tizimini rivojlantirishda yangi yondashuvlarni ishlab chiqishga xizmat qiladi. O'quvchilarni tabiatni himoya qilishga chaqirish va ularda ekologik mas'uliyatni shakllantirish, ekologik ta'limni samarali tashkil etishda ustuvor vazifalardan bo'lishi kerak. Shuningdek, tadqiqotda ekologik madaniyatni shakllantirishda ahamiyatli bo'lgan metodologik yondashuvlar, fanlararo integratsiyani tashkil etish, o'quvchilarni ekologik faollik va innovatsion ishlarga jalb qilishning muhimligi ko'rsatilgan. Fikrimizcha, ekologik madaniyatni shakllantirishda shu kabi kompleks yondashuvlar amalga oshirilsa, nafaqat o'quvchilarda ekologik mas'uliyat hissi kuchayadi, balki ularning ijtimoiy faolligi va atrof-muhitga bo'lgan munosabati sezilarli darajada yaxshilanadi. Tadqiqotning kelajakdagi rivojlanishi ekologik ta'limning har tomonlama mukammallashishi va innovatsion metodlarning samarali joriy qilinishiga qaratilgan bo'ladi. Ekologik madaniyatni shakllantirishni yanada chuqurlashtirish uchun mustahkam pedagogik tizimlar va dolzarb metodlarni ishlab chiqish zarur.

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ANALYSIS OF AIR POLLUTION IN NAMANGAN CITY CAUSED BY CHEMICAL GASES AND AEROSOLS

Abstract. *This article presents an analysis of air pollution in Namangan city, focusing on the increasing presence of chemical "emissions" and aerosols. The city has been zoned based on the level of atmospheric pollution, and a corresponding pollution map has been developed. The study also proposes several recommendations aimed at reducing air pollution levels in the city.*

Keywords: *PM-2.5, dust, carbon monoxide, green areas, exhaust gases, asphalt surfaces, effective pollution, volatility.*

Introduction. Atmospheric air is considered an integral part of natural resources and is regarded as a common asset protected by the state. While a human can survive for several days without water and even a month without food, they can live only 2–3 minutes without air.

Due to its harmful effects on human health, atmospheric air pollution has always been a source of concern. Air pollution negatively impacts human well-being and is considered one of the primary causes of allergies and respiratory system disorders. Therefore, ensuring the quality of the air we breathe is of critical importance.

The main part. It is well established that air pollution contributes to a range of human health conditions, including respiratory tract infections, cardiovascular diseases, and lung cancer, and in some cases, may even result in premature mortality [36, 37]. According to data from the World Health Organization, the annual mortality rate attributable to air pollution in Uzbekistan stands at 81.1 per 100,000 population. By comparison, this figure is 58.3 in Romania and 61.8 in Bulgaria.

In order to identify the main pollutants contributing to atmospheric air pollution in Namangan region and to assess their changes over time, a study was conducted on the primary pollutants present in the atmosphere of Namangan city, which is considered the most polluted area in the region. For this purpose, data from three monitoring stations established by the Namangan Regional Hydrometeorological Center to observe and assess air pollution levels in the city were utilized. These monitoring stations primarily measure the concentrations of particulate matter, sulfur dioxide, carbon dioxide, and nitrogen dioxide. An analysis of the data on these pollutants for the period from 2012 to 2021 revealed the following trends.

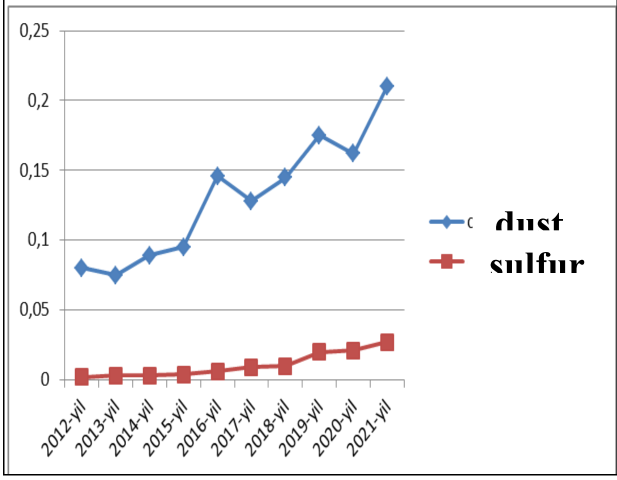
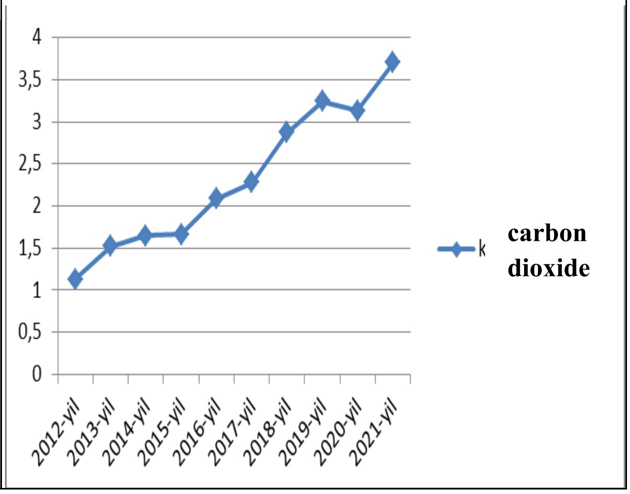
dust and sulfur	carbon dioxide
	

Figure 1. Increase in the amount of harmful substances released into the atmosphere in Namangan city.

As observed from the diagram, the concentrations of particulate matter, sulfur dioxide, nitrogen dioxide, and carbon dioxide increased steadily from 2012 to 2021.

The quantity of chemical gases and aerosols in the atmosphere increases significantly during warmer periods due to the rise in volatility. The concentration of carbon monoxide rises particularly during the hot summer months. This is primarily due to higher temperatures and increased vehicle traffic. Although the quantity of emissions released into the atmosphere during winter and summer may be nearly the same, the volatility caused by high temperatures in summer extends the persistence of these substances in the air up to 3–5 days. Consequently, pollution levels appear to reoccur and effectively intensify.

It is important to note that PM2.5 refers to fine particulate matter that is 40 times smaller than a human hair and is invisible to the naked eye. Its prolonged presence in the air at high concentrations poses significant risks to human health, including diseases caused by the particles entering the bloodstream through lung tissue, as well as respiratory illnesses, allergies, irritation of the eyes' mucous membranes, skin conditions, and even cancer.

The climatic characteristics of the Fergana Valley are shaped by several factors, including Arctic air masses from the north, moderate and dry air flows originating in Central Asia, and tropical air masses from the south. In particular, the arrival of Arctic air masses during autumn and winter causes a sharp drop in air temperature and a noticeable increase in precipitation. During summer, moderate dry and tropical air masses lead to dry and hot conditions. As a result, the amount of dust in the air increases. In Namangan city, this increase in atmospheric dust is influenced by factors such as the growing number of vehicles, expansion of housing construction, and changes in levels of sulfur, carbon, and nitrogen oxides. These changes are largely explained by increased fuel consumption during the colder seasons, growing traffic congestion, and other contributing elements.

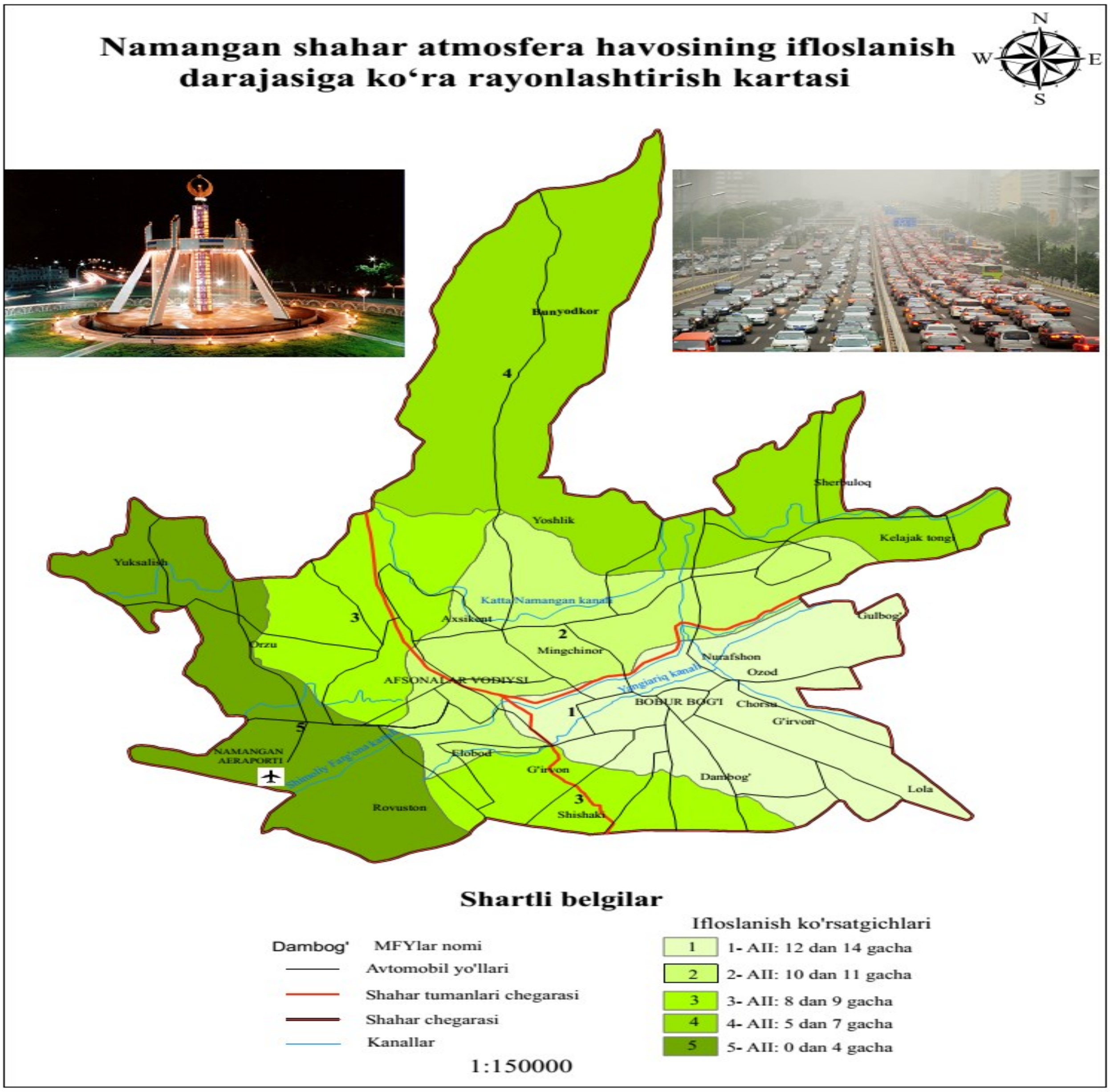
According to experts, sulfur oxides generated from fuel combustion are not absorbed or neutralized easily; they are released directly into the air along with other gases. Unless washed away by rain or carried out of the city by strong winds, these gases remain in circulation between ground and upper atmospheric levels. In valley cities, this rhythmic air circulation is continuously supported by heavy urban traffic. The fine particles released during combustion rise from asphalt surfaces, further polluting the air. Such pollution remains persistent during warm periods of the year due to the lack of consistent anticyclones or convection processes. In addition, chaotic and unregulated urban development, deforestation, elimination of water bodies, and desertification (notably from Kazakhstan) contribute to the increase in airborne dust masses.

Sulfur content varies depending on the type of vegetation and soil in the area. When sulfur interacts with atmospheric oxygen, it forms sulfur dioxide, which has harmful effects on human respiratory systems, lungs, and liver. In children, its impact manifests as coughing, colds, eye irritation, and nausea. The sulfur found in fuel can also combine with metal parts in vehicle engines, forming compounds like ferrum sulfide that can pose additional health risks—especially for young children—due to the increased volatility of these compounds.

Low atmospheric circulation in valley cities, heavy urban traffic, road congestion, widespread construction, deforestation, limited irrigation of green spaces and highway landscapes—all of these contribute to adverse meteorological conditions and increased anthropogenic burden, exacerbating air pollution levels. Such spatial variation in pollution levels within cities can lead to the formation of specific pollution zones. In valley regions, pollution is predominantly observed in urban areas. In contrast, rural regions experience little to no pollution due to low population density, minimal vehicular traffic, absence of major industries, and extensive greenery. However, some suburban and large rural settlements situated near cities may experience localized ('pendulum-type') pollution, especially along major roads during summer.

Therefore, the focus of this study was on valley cities. Among them, Namangan city was selected due to its demographic density and size. Based on analytical observations, GIS tools, and survey data, Namangan city was divided into zones based on pollution levels. The zoning process used data collected during the first ten days of June. GIS technologies and cartographic methods were used to construct the map:

Zoning map of Namangan city according to the level of atmospheric air pollution. *Figure 2.*



Map created by the author based on data and visuals from https://earth.nullschool.net and supplementary sources such as https://monitoring.meteo.uz and https://hydromet.uz/uz/node/20

As seen in the above map, Namangan city is divided into five zones based on air pollution levels. The highest pollution levels were recorded in the central parts of the city, especially areas like Chorsu and Sardoba markets, where vehicle traffic is heaviest. Although the industrial zone has a high output of pollutants, due to topography and wind direction, a significant portion of emissions are carried into Zone 1, increasing its pollution level further.

Other zones within the city also differ in pollution levels based on greenery, traffic volume, population density, residential housing, industrial activity, and wind patterns. The least polluted areas were located in the southwestern parts of the city (such as the Airport and Rovuston neighborhoods). Areas in the northern and elevated parts of the city, including Bunedkor, Yoshlik, and Sherbuloq, also experienced lower pollution levels.

In recent days, high levels of nighttime air pollution have been observed in Namangan and Andijan cities. This is mainly due to temperature inversions during the evening and night, which cause a sudden drop in temperature and increased atmospheric stability, allowing pollutants to accumulate in the lower atmosphere.

In this context, the following proposals and recommendations have been developed to protect the atmospheric air of the city and reduce the volume of waste emissions:

a) Regulate the movement of freight transport by introducing scheduled operating hours and route management systems.

b) Reduce the use of gasoline-powered vehicles. For example, gas-fueled buses emit only 0.1% toxic gases during operation, whereas gasoline-powered vehicles emit 2–3%. Thus, switching from gasoline to gas can reduce pollution by a factor of 20–30.

c) Ensure that cities maintain adequate green spaces to provide a healthy and breathable environment. Green areas should have sufficient vertical and horizontal dimensions; for example, tree height should be at least 5–7 meters and canopy volume over 15 m^3 to be effective.

d) Establish green buffer zones consisting of vegetation belts with a width of at least 100 meters—ideally extending to several kilometers—between residential areas and industrial zones for maximum protective effect.

e) Consider prevailing wind directions in urban architectural planning to avoid obstruction of natural air circulation by buildings.

f) Relocate markets such as Chorsu and Sardoba away from major transportation nodes and arterial roads. Optimize the layout of these marketplaces and increase the amount of green space around them.

g) Plant long-living, large-canopy ornamental trees such as sycamore, elm, chestnut, paulownia, cedar, oak, and white poplar to enhance urban greenery and ecological resilience.

h) Construct multi-level underground and above-ground parking facilities in major commercial centers and densely populated areas. Provide tax incentives and subsidies to private investors willing to develop such infrastructure.

Conclusion. In addition to these measures, it is crucial to raise public awareness across the Fergana Valley about the importance of: avoiding the burning of fallen leaves; refraining from using faulty or non-compliant vehicles; and adopting modern, internationally standardized heating technologies for buildings.

Improving ecological literacy and environmental responsibility in these areas will play a critical role in reducing pollution and ensuring sustainable urban development.

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TO THE COMPARATIVE MORPHOLOGY OF THE INTRAMURAL NERVOUS APPARATUS OF THE HEART IN SOME SMALL-FOODED ANIMALS

Abstract: *The article studies the histological structure of the nerve elements of the subepicardial nerve apparatus in some sexually mature mammals using silvering methods. Comparative data show that the most developed subepicardial nerve plexuses, synaptic and receptor apparatus are in pigs, in second place in terms of the development of the nerve elements of the heart are cattle and horses, and in third place is sheep.*
Keywords: *subepicardial nerve plexuses, mammals, heart, myocardium, ganglion cells, Dogel type I.*

Introduction. Due to the increasing prevalence of cardiac rhythm disorders, studying the process of heart rhythm formation is highly relevant [5]. Currently, there is evidence demonstrating the existence of a rhythm generator in the central nervous system alongside a rhythm generator within the heart itself. The intracardiac generator is a vital factor that supports the heart's pumping function when the central nervous system is in a state of deep inhibition [2,4]. The central generator facilitates adaptive cardiac responses under natural conditions. Previous chronic experiments on animals and observations in humans, where a multichannel electrode probe was implanted on the epicardial surface of the sinoatrial node during cardiac surgery for diagnostic purposes and computer mapping of the initial excitation focus was performed, revealed the following [1,3]. Unlike during anesthesia, when the isochronous map shows the initial excitation focus under a single electrode with its location dependent on heart rate, under conditions of full adaptation of the organism to the external environment (with the heart adopting central rhythmogenesis), the initial excitation focus arises in several closely located points.

Study Objective. To investigate the comparative morphology of the intramural nervous apparatus of the heart in certain mammalian animals.

Materials and Methods. The aim of this study is to examine the structure of neural elements in the subepicardial nervous apparatus of sexually mature mammals using silver staining techniques (Bielschowsky-Gross, Campos).

Study Results. The subepicardial nervous apparatus of the posterior wall of the atria in sexually mature pigs, cattle, horses, and sheep consists of large ganglia located at the intersections of fiber bundles along their course and near blood vessels, as well as individual nerve cells. Some nodes are situated in the connective tissue layers of the superficial myocardial layers. Additionally, individual neurons were observed within nerve trunks. Comparing the sizes of nodes located under the epicardium, pigs have the largest (1456×416 µm), followed by cattle and horses (873.6×377.4 µm), and sheep (728.0×416 µm) in third place. The nodes are equipped with a well-developed stroma and capsule. Ganglion cells are largest in pigs (86.2×37.8 µm), followed by cattle and horses (67.4×33.6 µm), and sheep (50.4×42.3 µm). Alongside these large neurons, medium and small-sized cells are observed in the subepicardial nervous apparatus. The nuclei of nerve cells are light, vesicular, positioned eccentrically or centrally, and contain one or two nucleoli. The neurofibrillary apparatus is predominantly reticular, less frequently fascicular. Chromophilic substance is distributed variably in neurons, ranging from dust-like to fine and coarse granularity. Apopolar arrangement of Nissl substance clumps is observed, with homogeneous staining in some cells. In nodes located under the epicardium in the atria and proximal ventricles, among Dogiel type I cells, individual large hyperargentophilic cells of oval or pear-shaped form with long processes exiting the ganglion and forming receptor structures in the node's stroma near neighboring neurons were identified. Some processes of cells resembling Dogiel type II neurons form synaptic connections with Dogiel type I cells. Alongside cells resembling Dogiel type II neurons, rare pseudounipolar cells are present. The processes of ganglion cells, intertwining with neighboring ones, often form two-neuron aggregates, indicating complex interneural connections within the nodes. Interneural connections were found between Dogiel type I and II cells, as well as among Dogiel type I neurons. In all studied animal species, transitory and terminal synaptic endings were identified. The neurofibrillary framework consisted of a dense network of neurofibrils, continuing from presynaptic nerve fibers. The synapses observed were commonly ring-shaped, button-shaped, pear-shaped, spherical, oval, or bulbous. This diversity in the synaptic apparatus likely reflects adaptive responses to varying functional conditions and autonomic dysfunctions arising from disruptions in physicochemical and biochemical balances during the animal's life. Regarding the receptor apparatus, the greatest variety of sensory endings was found in the pig heart. Alongside compact non-free sensory endings in the epicardium, subepicardium, and endocardium, both non-free and free diffuse receptors were identified. Diffuse non-free receptors are characterized by multiple dichotomous divisions of terminal branches and significant length. Compact sensory endings, unlike diffuse ones, form extensive receptor fields. In the myocardium of all studied animals, "climbing" type receptors, neuromuscular spindles, and free and non-free bush-like endings were found. In the endocardium and subendocardium of the atria, mainly compact sensory endings were observed. Free diffuse sensory endings were found in cardiac ganglia. In the ventricles, receptors were predominantly diffuse bush-like.

Conclusion. Thus, our comparative data indicate that the subepicardial nerve plexuses, synaptic, and receptor apparatus are most developed in pigs, followed by cattle and horses, with sheep in third place. Sensory nerve endings are distributed across all layers of the posterior atrial wall in the studied animals. Compact receptors in the endocardium and epicardium form receptor fields, while diffuse receptors are characterized by significant length. In the myocardium, “climbing” type receptors, neuromuscular spindles, and free and non-free bush-like sensory endings were identified.

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AYRIM SUTEMIZUVCHILARDA YURAK INTRAMURAL NERV APPARATINING QIYOSIY MORFOLOGIYASI

Annotatsiya: *Maqolada kumushlash usullari yordamida ba'zi jinsiy etuk sutemizuvchilarda subepikardial nerv apparati nerv elementlarining gistologik tuzilishi o'rganildi. Qiyosiy ma'lumotlar shuni ko'rsatadiki, eng rivojlangan subepikardial nerv pleksuslari, sinaptik va retseptor apparatlari cho'chqalarda, yurak nerv elementlarining rivojlanishi bo'yicha ikkinchi o'rinda qoramol va otlar, uchinchi o'rinda qo'ylar turadi.*

Kalit so'zlar: *subepikardial nerv pleksuslari, sutemizuvchilar, yurak, miyokard, ganglion hujayralari, Dogel I tip.*

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TO THE COMPARATIVE MORPHOLOGY OF THE INTRAMURAL NERVOUS APPARATUS OF THE HEART IN SOME SMALL-FOODED ANIMALS

Abstract: *The article studies the histological structure of the nerve elements of the subepicardial nerve apparatus in some sexually mature mammals using silvering methods. Comparative data show that the most developed subepicardial nerve plexuses, synaptic and receptor apparatus are in pigs, in second place in terms of the development of the nerve elements of the heart are cattle and horses, and in third place is sheep.*

Keywords: *subepicardial nerve plexuses, mammals, heart, myocardium, ganglion cells, Dogel type I.*

Kirish. Yurak ritmi buzilishlarining tobora ko`payib borayotganligi munosabati bilan yurak ritmi shakllanish jarayonini o`rganish dolzarb hisoblanadi [5]. Hozirgi vaqtda markaziy nerv tizimida ritm generatori mavjudligi, shuningdek, yurakning o`zida ritm generatori borligini ko`rsatuvchi dalillar mavjud. Yurak ichidagi generator hayotni ta’minlovchi omil bo`lib, markaziy nerv tizimi chuqur tormozlanish holatida bo`lganda yurakning nasos funksiyasini qo`llab-quvvatlaydi [2,4]. Markaziy generator tabiiy sharoitlarda yurakning moslashuv reaktsiyalarini ta’minlaydi. Ilgari hayvonlarda o`tkazilgan surunkali tajribalar va odamlarda yurak jarrohligi operatsiyasi chog`ida sinoatrial tugun sohasiga epikardial sirtga ko`p kanalli elektrod zondi implantatsiya qilingan va dastlabki qo`zg`alish o`chag`ining kompyuter xaritalanishi o`tkazilgan holda quyidagilar aniqlandi [1,3]. Narkoz holatidan farqli o`laroq, bunda izoxron xaritada dastlabki qo`zg`alish o`chag`i bitta elektrod ostida joylashgan va uning joylashuvi yurak urish tezligiga bog`liq bo`lsa, organizmning tashqi muhitga to`liq moslashgan sharoitida (yurak markaziy ritmogenezni o`zlashtirganda) dastlabki qo`zg`alish o`chag`i bir nechta yaqin joylashgan nuqtalarda paydo bo`ladi.

Tadqiqot maqsadi. Ba`zi sutemizuvchi hayvonlarda yurakning intramural nerv apparatining qiyosiy morfologiyasini o`rganish.

Tadqiqot materiallari va usullari. Ushbu tadqiqotning maqsadi ba`zi balog`atga yetgan sutemizuvchi hayvonlarda epikardial nerv apparatining nerv elementlari tuzilishini kumushlash usullari (Bilshovskiy-Gross, Kampos) yordamida o`rganildi.

Tadqiqot natijalari. Balog`atga yetgan cho`chqa, yirik shoxli mol, ot va qo`ylarda qorinchalarning orqa devori epikardial nerv apparatida katta gangliylar, nerv to`plamlarining kesishgan joylarida, shuningdek, qon tomirlari yaqinida joylashgan, shu bilan birga alohida nerv hujayralari mavjud. Ba’zi tugunlar miokardning sirtqi qatlamlaridagi biriktiruvchi to`qima qatlamlarida joylashgan. Shu bilan birga, alohida neyronlarning nerv magistral ichida joylashgani kuzatildi. Epikard ostida joylashgan tugunlar hajmini solishtirganda, cho`chqada ular eng katta hajmga ega (1456x416 mkm), ikkinchi o`rinda yirik shoxli mol va ot (873,6x377,4 mkm), uchinchi o`rinda qo`y (728,0x416 mkm) turadi. Tugunlar yaxshi rivojlangan stroma va kapsula bilan ta’minlangan. Ganglioz hujayralar cho`chqada eng katta hajmga ega (86,2x37,8 mkm); yirik shoxli mol va otda 67,4x33,6 mkm, qo`yda esa 50,4x42,3 mkm. Yuqorida ko`rsatilgan katta neyronlar bilan birga epikardial nerv apparatida o`rta va kichik hajmdagi hujayralar ham kuzatiladi. Nerv hujayralarining yadrolari yorug`, pufakchali, eksentrik yoki markaziy joylashgan bo`lib, bir yoki ikkita yadrochaga ega. Neyrofibrillyar apparat ko`pincha to`rsimon tipga yaqin, kamdan-kam hollarda fassikulyar tipda bo`ladi. Xromatofil modda neyronlarda turlicha taqsimlanadi: changsimon shakldan tortib mayda va yirik donadorlikgacha. Nissl moddasining apopolyar joylashuvi kuzatiladi. Alohida hujayralarda u bir xilda bo`yaladi. Qorincha va yurakning proksimal qismida epikard ostida joylashgan tugunlarda Dogelning I tipidagi hujayralar orasida uzun o`simtalarga ega bo`lgan, tugun chegarasidan chiqib, tugun stromasida yoki yaqin neyronlar atrofida retseptor apparatlarni hosil qiluvchi alohida katta giperargentofil hujayralar aniqlandi. Dogelning II tipiga o`xshash hujayralarning bir qismi o`simtalari Dogelning I tipidagi hujayralar bilan sinaptik aloqalar hosil qiladi. Dogelning II tipiga o`xshash hujayralar bilan birga alohida psevdounipolyar hujayralar ham mavjud. Ganglioz hujayralarning o`simtalari qo`shni hujayralar bilan o`zaro chigallashib, ko`pincha ikki neyronli agregatlarni hosil qiladi, bu nerv tugunlari ichidagi neyronlararo aloqalarning murakkablashganligini ko`rsatadi. Dogelning I va II tipidagi hujayralar o`rtasida, shuningdek, Dogelning I tipidagi neyronlar o`rtasida neyronlararo aloqalar aniqlandi. Tadqiq qilingan barcha hayvon turlarida tranzitor va terminal sinaptik tugunlar topildi. Neyrofibrillyar skelet pre-sinaptik nerv tolasi davomi bo`lgan zich neyrofibril to`rdan iborat edi. Topilgan sinapslar ko`pincha halqasimon, tugmachasimon, nokutsimon, shar shaklida, oval yoki kolbasimon shaklda edi. Sinaptik apparatning bunday xilma-xilligi, ehtimol, turli funksionallik sharoitlariga moslashuv reaktsiyasi, shuningdek, hayvon hayoti davomida fizik-kimyoviy va biokimyoviy muvozanatning buzilishi natijasida yuzaga keladigan vegetativ disfunksiyalarni aks ettiradi. Retseptor apparatiga kelsak, eng katta xilma-xil sezgir tugunlar cho`chqa yuragida aniqlandi. Epikardda, epikard ostida va endokardda joylashgan ixcham bo`lmagan sezgir tugunlar bilan birga diffuz xarakterdagi erkin va erkin bo`lmagan retseptorlar topildi. Diffuz erkin bo`lmagan retseptorlar uchun terminal shoxlarning ko`p marta dixotomik bo`linishi va ularning sezilarli uzunligi xosdir. Ixcham sezgir tugunlar, diffuzlardan farqli o`laroq, keng retseptor maydonlarini hosil qiladi. Barcha tadqiq qilingan hayvonlarda miokardda “o`rmalovchi” tipdagi retseptorlar, nerv-mushak shpindellari, erkin va erkin bo`lmagan butasimon tugunlar mavjud. Qorinchalarda va endokard ostida, asosan, ixcham tipdagi sezgir tugunlar aniqlandi. Yurak gangliylarida erkin diffuz sezgir tugunlar topildi. Qorinchalarda retseptorlar, asosan, diffuz butasimon shaklda edi.

Xulosa. Shunday qilib, bizning qiyosiy ma’lumotlarimiz shuni ko`rsatadiki, epikardial nerv to`rlari, sinaptik va retseptor apparat eng rivojlangan cho`chqada, ikkinchi o`rinda yirik shoxli mol va ot, uchinchi o`rinda qo`y turadi. Sezgir nerv tugunlari tadqiq qilingan hayvonlarda qorinchalarning orqa devorining barcha qatlamlarida joylashgan. Endokard va epikarddagi ixcham retseptorlar retseptor maydonlarini hosil qiladi, diffuz retseptorlar esa sezilarli uzunlikka ega. Miokardda “o`rmalovchi” tipdagi retseptorlar, nerv-mushak shpindellari, erkin va erkin bo`lmagan butasimon sezgir tugunlar aniqlandi.

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IMPROVING TECHNOLOGIES FOR DEVELOPING MANAGERIAL SKILLS IN STUDENTS

***Annotation**. This article explores the enhancement of technologies aimed at developing managerial skills in students within the context of pedagogical education in Uzbekistan. As modern education increasingly emphasizes competency-based learning, the need for integrating innovative and effective tools to foster management capabilities becomes crucial. The paper investigates digital platforms, interactive methods, simulation-based learning, and project-oriented technologies that contribute to leadership, planning, communication, and decision-making skills in learners. Emphasis is placed on adapting these technologies to the educational needs of students in pedagogical universities. The article also evaluates existing challenges and provides practical recommendations for implementation and further improvement.*

Key words: *managerial skills, educational technology, competency-based learning, student development, pedagogical education.*

In the rapidly evolving educational landscape of Uzbekistan, the development of managerial skills among students has become a central focus, especially within pedagogical universities. Managerial competencies such as leadership, decision-making, planning, problem-solving, and effective communication are not only vital in professional settings but are also key components of a well-rounded education. As higher education institutions shift toward competency-based models, the integration of technologies that support these skills has become both a necessity and a challenge.

Traditional approaches to student development often emphasize theoretical knowledge, leaving limited room for experiential or skills-based learning. However, the modern educational paradigm demands a more dynamic and interactive environment where students actively participate in constructing knowledge and acquiring practical abilities. Technologies such as digital collaboration tools, online management simulations, virtual learning environments, and mobile apps can significantly enhance the learning experience when properly implemented.

In pedagogical institutions, where future educators are trained, equipping students with managerial skills has a dual benefit: it not only prepares them for leadership roles in the educational system but also enables them to model and teach these competencies to their future pupils. Therefore, the development and refinement of technological tools to support the cultivation of managerial skills are crucial. These tools must be contextually relevant, culturally adaptable, and pedagogically sound to meet the needs of Uzbek students.

This article explores how current educational technologies can be improved and optimized to develop students' managerial skills effectively. By examining theoretical foundations, reviewing best practices, and analyzing implementation cases, the paper aims to provide practical insights and strategic recommendations for educators, administrators, and policymakers in Uzbekistan.

The integration of educational technologies into the process of developing managerial skills in students has shown promising potential across a range of disciplines. In the context of pedagogical universities in Uzbekistan, where the emphasis is increasingly placed on competency-based education, the use of innovative technologies enables a shift from passive learning to active skill acquisition. Various tools and methodologies are now being utilized to simulate real-world management scenarios, encourage collaborative problem-solving, and enhance decision-making abilities.

One of the most effective approaches is the implementation of simulation-based learning environments. Management simulations, both offline and digital, immerse students in real-life scenarios that require planning, delegation, leadership, and evaluation. Platforms such as business games and educational simulators allow students to experience the consequences of their managerial decisions in a safe and structured setting. These technologies not only build confidence but also develop critical soft skills such as adaptability and communication.

Project-based learning (PBL) supported by technology is another method that fosters managerial development. Students work in teams to solve complex problems or create tangible outcomes within a defined timeframe. Using online project management tools like Trello, Asana, or Microsoft Teams, students learn how to organize tasks, allocate responsibilities, monitor progress, and reflect on outcomes. This process mirrors professional management structures and helps students internalize the principles of effective team leadership.

Interactive digital content, such as role-playing videos, decision-tree games, and management case studies, can be integrated into e-learning platforms to provide students with immersive experiences. These tools stimulate cognitive engagement and offer personalized feedback, which reinforces learning. Furthermore, virtual reality (VR) and augmented reality (AR) applications are emerging as powerful tools for experiential learning in management education, though their application in Uzbekistan remains limited due to resource constraints.

Another essential aspect is the role of communication technologies in developing managerial competencies. Platforms like Zoom, Google Meet, and Moodle facilitate online discussions, webinars, and collaborative projects, enabling students to practice coordination, negotiation, and leadership in virtual teams. These skills are increasingly relevant in today's global and hybrid work environments. Moreover, the use of analytics in educational platforms allows educators to monitor student progress and adapt their instruction accordingly.

Despite these advancements, challenges remain. Limited access to high-quality technology infrastructure, especially in regional universities, impedes the full-scale implementation of these tools. Additionally, there is often a lack of training for faculty members in using advanced technologies effectively. Without pedagogical alignment, even the most sophisticated tools fail to produce meaningful learning outcomes.

To address these issues, educational institutions in Uzbekistan need to invest in infrastructure development, offer regular training programs for instructors, and create localized content that reflects cultural and linguistic contexts. Policy-level support is also crucial to drive systemic change and ensure equitable access to modern learning tools across all pedagogical universities.

Ultimately, the integration and improvement of technologies for developing managerial skills must be grounded in the specific needs of the student population. It should also reflect the realities of the local education system while aligning with international standards. When implemented thoughtfully, these innovations can transform students into proactive, confident, and capable future leaders in education and beyond.

The enhancement of technologies for developing managerial skills in students is a vital step toward modernizing higher education in Uzbekistan, especially in pedagogical universities where the next generation of educators is trained. As the demands of the contemporary labor market continue to evolve, equipping students with practical and transferable management competencies becomes not only desirable but essential. Technologies such as simulations, project-based digital tools, virtual collaboration platforms, and interactive content offer effective ways to cultivate leadership, strategic thinking, organization, and decision-making abilities.

However, the successful implementation of these tools requires more than access to digital resources. It demands a strategic alignment between pedagogical goals and technological integration. Educators must be adequately trained, students should be engaged through meaningful learning experiences, and institutions need to support innovation through funding, infrastructure, and policy frameworks. Furthermore, the technologies used should be culturally adapted and pedagogically grounded to ensure they meet the educational context of Uzbekistan.

This paper has shown that with the right approach, technology can significantly enhance the development of managerial skills in students, preparing them for future roles in education and other fields. Continued research, experimentation, and policy support are necessary to refine these approaches and ensure their sustainability and scalability. In doing so, pedagogical universities can fulfill their mission of producing well-rounded, competent, and visionary graduates capable of leading in various professional and social environments.

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YUQORI ENERGIYALI CU+CU TO'QNASHUVLARDA HOSIL BO'LGAN PIONLAR, KAONLAR, PROTONLAR VA ANTIPROTONLAR SPEKTRLARINI FITIRLASH

Annotatsiya *BRAHMS kollaboratsiyasi* $\sqrt{S_{NN}}$ *=200 GeV energiyali relyativistik Cu+Cu to'qnashuvlarda hosil bo'lgan pionlar, kaonlar, protonlar va antprotonlarning ko'ndalang impuls spektrlarini tezkorlikning y=0 va y=3 bo'lgan qiymatlarida o'lchagan. To'qnashuv markaziyligi oshib borishi bilan zarralar kollektiv radial oqimi ham osha boradi va kinetik friz-aut temperatura kamayadi. Old tezkorlikda radial oqim sust bo'lib, temperatura pastroq. Ko'ndalang impulsning 1,5 GeV/c <* p_t *< 2,5 GeV/c intervalida pion va kaonlarning chiqishi shu energiyadagi p+p to'qnashuvlardagiga nisbatan qiyinlashgan. Mazkur ishda tajribada olingan zarralar spektlari Levi va exponensial ko'rinishdagi Boltsman funksiyalari bilan fit qilingan. Pionlar spektrlarini Levi funksiyasi bilan, kaon va protonlar spektrlarini Boltsman tipidagi exponensial funksiya bilan fitlash yaxshi natijalarga olib kelishi ko'rsatilgan.*

Kalit so'zlar: *pion, kaon, prototon, antiproton, kvark, glyuon, plazma, ko'ndalang impuls, temperatura, exponensial, markaziylik.*

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FITTING THE SPECTRA OF PIONS, KAONS, PROTONS AND ANTIPROTONS PRODUCING IN CU + CU COLLISIONS AT HIGH ENERGY

Abstract: *The BRAHMS collaboration investigated the spectra of pions, kaons, protons, and antiprotons in relativistic Cu + Cu at an energy of* $\sqrt{S_{MN}}$ *=200 GeV/s at the rapidity values y=0 and y=3. It was found that with an increase in the centrality of collisions, the collective radial flux of particles increases and the freeze-out temperature decreases.*

1.5 GeV /c <p_t *<2.5 GeV / c, the yield of pions and kaons is suppressed than in p + p collisions at the same energy. In this work, the experimentally obtained particle spectra are fitted by the Levy function and the exponential function of the Boltzmann type. It is shown that the fitted spectra of pions by the Levy function and the spectra of kaons and protons with an exponential function describe the experimental data well.*

Keywords: *pion, kaon, proton, antiproton, quark, gluon, plasma, tranversalmomenrum, temperature, exponential, centrality.*

Kirish: Kvant xromodinamikasi (KXD)da vacuum tuzilishidan bog'liq bo'lgan ikkita asosiy muammo mavjud bo'lib, uni faqatagina relyativistik yadro fizikasi hal qila oladi. Bu muammolar: rang zaryadlari konfaynmenti va kiralsimmetriyaning spontan buzilishidir. Konfaynment adron holatlarining kuzatiluvchi spektrida rangli ob'yektlar yo'qligini bildiradi. Adronlar tuzilishi haqidagi kvark-glyuonlar tasavvurlari nuqtai nazaridan qaralganda, konfaynment - kvark va glyuonlarning 1fm (adronlar o'lchami)dan katta masofalarga tarqala olmasligini anglatadi [1]. Biroq bu tasdiq normal yadro zichligidagina o'rinlidir. Relyativistik yadrolarning to'qnashuvlarida hosil bo'luvchi yuqori zichlikdagi yadro moddasi dekonfaynmentli fazada, ya'ni bitta nuklonga tegishli bo'lgan kvark va glyuonlarning umumlashib qolishi sodir bo'ladi va protonlar to'qnashuvchi yadrolar o'lchami qadar masofalarga tarqalishi mumkin. Kiral simmetriyaning spontan buzlishi quyidagini anglatadi: Kvarklar massasining nolga yaqin bo'lgan chegarasida, KXDda bu chegara **u** va **d** kvarklar uchun to'la o'rinli bo'ladi. Chunki $m_{u,d} << m_\pi << m_N$, ularning KXD lagranjianidagi o'ng va chap komponentalar o'zaro farq qiladi va vektor gluonlar o'zaro ta'sirlashuvlari bilan qo'shilib ketmaydi. Bu esa fizik holatning juftlik bo'yicha g'alayonlanishiga olib kelishi lozim. Boshqa adronlarga nisbatan deyarli massaga ega bo'lmagan va manfiy ichki juftlikka ega bo'lgan π-mezon mavjudligi sababli KXD vakuumi kiral asimmetrikdir. Shunday qilib, nol temperatura va normal yadro zichliklarida KXD vakuumi konfaynmentlik xususiyatiga ega bo'ladi va buzilgan kiral simmetriya holatida turadi.

Tajriba qurilmasi va natijalarni olish haqida qisqacha ma'lumot

Hozirgi kunda mikroolam fizikasining eng dolzarb muammolari tezlashtirilayotgan yadrolarning energiyasi bir necha TeV ga qadar bo'lgan ulkan kollayderlarda hal etilmoqda. Tuzilishiga ko'ra kollayderlar har xil konstruksiyaviy yechimlarga ega bo'ladi.Kollayderlar ulkan taqiqot majmuasi bo'lib, unda zarralar yoki ionlashtirilgan og'ir yadrolar (Au, Pb, U) tezlatiluvchi orbitaning uzunligi bir necha o'n kilometrgacha yetadi. Odatda kollayderlar bitta halqaga ega bo'lgan ikkita sinxrotrondan iborat bo'lib, unga kirirtiluvchi bir xil zaryadli ionlar qarama-qarshi yo'nalishda tezlashtiriladi va bu dastalarning orbita bo'ylab uchrashuv nuqtalari tajriba qurilmalari – detektorlar o'rnatilgan sohada yuzaga keltiriladi. Qarama-qarshi dastalarni tashkil etgan og'ir ionlar to'qnashuvi natijasida yadroviy reaksiya sodir bo'ladi. Bunday kollayderlardan biri Amerika qo'shma shtatlari Brukxeyven milliy laboratoriyasidagi RHIC (Relativistic Heavy Ion Collider – relyativistik o'g'ir ion kollayderi) bo'lib, bu kollayderda Cu, Au va Pb yadrolari tezlashtiriladi. RHIC orbitasining uzunligi 3834 m, yadrolarni bir tomonlama tezlatish energiyasi 100 GeV/nuklon bo'lib, u 2000 yilda ishga tushirilgan.

RHIC da oltin (Au) va uran (U) kabi yadrolar har bir nuklonga to'g'ri keluvchi massa markazi energiyasi 200 GeV bo'lgan energiya bilan to'qnashtiriladi [2]. Bunday to'qnashuvlar natijasida partonlardan tashkil topgan, kuchli bog'langan, cho'zilgan, gidrodinamik oqimni namoyon qiluvchi noshaffof sistema (muhit) hosil bo'ladi. Bunday muhit kuchli bog'langan kvark-glyuonlar plazmasi (KGP) deyiladi.

Og'ir ionlar to'qnashuvlarida vujudga kelgan materiya juda qisqa vaqtda mavjud bo'ladi. To'qnashuvdan so'ng u kengayadi va so'ngra barcha partonlarning adronlarga aylanishi (adronizatsiylashuvi) bilan soviydi va ularning ba'zi birlari tajribada detektorlar orqali torlar yoki lider adronlar (masalan, yuqori energiyali π-mezonlar) sifatida qayd qilinishi mumkin. KGP moddasini og'ir ionlar to'qnashuvida hosil bo'lgan namuna zarralar spektrlarini shu energiyadagi *p*+*p* to'qnashuvlarida hosil bo'lgan zarralar spektrlari bilan taqqoslash orqali tadqiq qilish mumkin.Tor va lider adronlarni o'lchashda namuna zarracha zich muhitning ilk holatida paydo bo'lgan deb qaraladi. Kuzatiuvchi past energiyali adronlar sistemaning boshlang'ich holati va uning evolyutsiyasi haqida ma'lumot beradi. Bunday kuzatishlarni to'qnashuvda ishtirok etuvchi adronlar N_{part} funksiyasi sifatida sistematik ravishda olib borish $\sqrt{S_{NN}}$ =200 GeV enrgiyali Au+Au to'qnashuvlarda hosil bo'lgan materiya xossalari va holatini tushinib olishda juda muhimdir. Biroq $N_{part}<60$ bo'lgan Au+Au periferik to'qnashuvlarda N_{part} ni aniqlashdagi xatolik 20% atrofida bo'lib [3,4], bunda zarralar to'qnashuv sohasini ularning chiqishiga bog'liq bo'lgan har xil ssenariylar bo'yicha tark etishadi.

Zarralar spektrlari va ularni fitirlash

Fizikaviy jihatdan kuzatilayotgan d+Au va *p*+*p*, A_{Cu}=63 bo'lgan Cu+Cu kabi nisbatan kichik sistemalar o'lchamining uzaishi yaxshi ekranlangan periferial Au+Au to'qnashuvlardagi ishtirokchi zarralar miqdori bilan ajratib olinadi. Cu+Cu to'qnashuvlar kesimlaridagi noaniqlik xuddi shunday ishtirokchilar sonidagi Au+Au to'qnashuvlar bilan juda kam solishtirilgan.Massa bo'yicha taqsimotni izotrop deb taxmin qilsak, Cu+Cu markaziy to'qnashuvlarda ekranlashtirish sohasi sferik ko'rinishda bo'ladi. Xuddi shunday ishtirokchi mavjud bo'lgan Au+Au to'qnashuvlardagi sistemaning shakli esa mindal shaklda (pillasimon shaklda) bo'lib, tajriba kuzatishlarida undagi geometrk effektlarni tadqiq qilishga imkon beradi.

Qayd qilingan adronlar bo'yich olingan ko'pgina ma'lumotlar o'rtacha tezkorlik atrofidan olingan. BRAHMS ma'lumotlari ikkala o'rtacha tezkorlik va old sohadagi tezkorliklarda hosil bo'luvchi adronlarni o'rganish, ularning xossalarini solishtirish orqali materiya shakllanishi va har xil kimyoviy shartlar haqidagi bizning bilimlarimizni oshirishning ajoyib yo'lini taklif etadi. $\sqrt{S_{NN}}$=200 GeV energiyali Cu+Cu to'qnashuvlardagi zaryadlangan adronlarning ($\pi^{\pm}$, $K^{\pm}$, p, ṕ) ko'ndalang impuls p_t spektrlari tezkorlikning y=0 va y=3 qiymatlarida to'qnashuv markaziyligining funksiyasi sifatida o'lchanadi. Natijalar xuddi shunday energiya, tezkorlik va markaziylik (ishtirokchi zarralar soni) ga ega bo'lgan *p+p* va Au+Au to'qnashuvlarda olingan natijalar bilan solishtirildi.

Elementar *p+p* va *p+ṕ* to'qnashuvlarda adronlar spektrlari p_t ~2 GeV bo'lgan hol uchun peturbativ KXD orqali ifodalab beriladi [5-7]. Bu maqolada Cu+Cu to'qnashuvlar bo'yicha keltirilgan ma'lumotlar quyi fizika sohasini hamda yuqori p_t-o'tish fenomenini qamrab olgan. Bu ishda biz bunday o'tishning kelib chiqishini avvalo sistemaning global gidrodinamik xususiyatlarini portlash to'lqini fitlaridan foydalanib o'rganishdan, ikkinchidan har bir zarra turi uchun to'la chiqishni va $\langle p_t \rangle$o'rtacha ko'ndalang impulsni keltirish, uchinchidan har xil zarralar nisbatini p_t ning funksiyasi sifatida ko'rsatish va, nihoyat, yadro o'zgarishi (R_{AA}) faktorini p_t va tezkorlik funksiyasi sifatida yig'ish orqali axtariladi.

Cu+Cu sistemada to'qnashuv markaziyligini aniqlash jarayoni ishtirokchi zarralar $<N_{part}>$ va ketma-ket to'qnashuvchi nuklonlar $<N_{coll}>$ miqdorini qo'llash Au+Au to'qnashuvlar o'rganilgan ish [8] da batafsil bayon etilgan. Jaryon davomida olingan qiymatlar 1-jadvalda keltirilgan. Bu tahlil uchun holatlar 4 ta markaziylik sohasiga bo'lingan: 0-10%, 10-30%, 30-50%, 50-70%. Nominal to'qnashuv nuqtasidan ±25 sm masofadagi holatlar tanlangan.

1-jadval. Cu+Cu to'qnashuvlar markaziyligi sohasi uchun $<N_{part}>$va$<N_{coll}>$ kattaliklar qiymatlari.

Markaziylik	$<N_{part}>$	$<N_{coll}>$
0-10%	97±0,8	166±2
10-30%	61±02,6	85±5
30-50%	29±4,3	30±6
50-70%	12±3,2	9.6±3,2

Og'ir ionlarning to'qnashuvlarida hosil bo'lgan ikkilamchi zarralarning ko'ndalang impuls p_t spektrini o'lchash partonli muhitning xususiyatlarini namoyon etuvchi bir qator kattaliklarni o'rganishda birinchi va muhim qadam hisoblanadi.

2-jadval. π^+-mezonlarni Levi funksiyasi bilan fitirlash natijalari. Fitirlash sohasi y=0 holatda 0,35 GeV/c < p_t<2,0 GeV/c va y=3 holatda 0,45 GeV/c < p_t<2,0 GeV/c

	Marka-ziylik	dN/dy	$(dN/dy)_m$	N_m/N	$\langle p_t \rangle$, MeV	χ^2/EDS	n_0	T, MeV
y=0	0-10%	81,1±3,1±5,9	42,1	0.52	454±2±21	0,2/9	12,8	172
	10-30%	48,0±2,1±3,5	24,3	0,51	445±4±21	0,9/9	11,6	164
	30-50%	21,8±0,5±1,6	10,8	0,50	438±2±21	0,2/9	11,2	159
	50-70%	8,5±0,40±0,62	4,0	0,47	418±5±20	2,4/9	10,2	147
y=3	0-10%	33,7±3,5±3,0	11,2	0,33	401±8±26	12,2/9	17,0	159
	10-30%	18,3±1,9±1,6	6,6	0,36	424±9±28	16,2/9	19,3	173
	30-50%	9,3±0,88±0,83	3,1	0,33	403±7±26	7,3/9	16,1	158
	50-70%	3,3±,0,70±0,29	1,2	0,35	418±14±27	23,0/9	17,9	168

3-jadval.π^--mezonlarni Levi funksiyasi bilan fitirlash natijalari. Fitirlash sohasi y=0 holatda 0,35 GeV/c < p_t<2,0 GeV/c va y=3 holatda 0,45 GeV/c < p_t<2,0 GeV/c

	Marka-ziylik	dN/dy	$(dN/dy)_m$	N_m/N	$<p_t>$, MeV	χ^2/ EDS	n_0	T, MeV
y=0	0-10%	78,0±3,3±4,9	41,1	0,53	460±4±22	0,9/9	13,3	176
	10-30%	44,7±1,9±2,8	23,2	0,52	455±5±21	2,1/9	12,3	170
	30-50%	20,5±0,9±1,3	10,2	0,50	441±3±21	0,5/9	10,6	158
	50-70%	8,0±0,36±0,51	3,8	0,47	421±4±20	0,7/9	10,2	148
y=3	0-10%	32,4±3,1±2,9	11,2	0,35	411±8±27	14,5/9	17,5	164
	10-30%	20,8±1,8±1,8	7,4	0,36	419±8±27	13,9/9	21,0	173
	30-50%	11,1±1,4±1,0	3,5	0,32	392±9±25	16,8/9	15,5	152
	50-70%	3,6±0,40±0,32	1,3	0,36	424±8±28	5,2/9	20,5	174

Spektrlarni sistematik ravishda tadqiq qilish har xil funksiyalar bilan fitirlashni talab etadi. Pionlar spektrini $A\cdot(1+\frac{m_T-m_0}{n_0T})^{-n_0}$ ko'rinishdagi Levi funksiyasi bilan fitirlash yaxshi natija beradi [9-11]. Fitirlash natijalari 2- va 3-jadvallarda keltirilgan.

Kaonlar va protonlar uchun spektrlar $A\cdot m_T e^{-\frac{m_T}{T}}$ ko'rinishdagi Boltsman exponensial funksiyasi bilan fitirlanishi maqsadga muvofiq ekanligi aniqlandi. Boltsman funksiyasi uchun T fitirlash parametrini sistemaning effektiv temperaturasi deb olish mumkin. Levi funksiyasi bilan fitirlash uchun olingan p_t ko'ndalng impuls sohasi Boltsman funksiyasi yordamida p_t bilan fitirlash sohasidan ancha keng bo'lishligi pionlar chiqishini va $<p_t>$ ni yaxshiroq aniqlashga imkon beradi.

Fitirlash jarayonida vaznlar statistik xatoliklar kvadratlarining hamda nuqtalardagi sistematik xatoliklarning yig'indisi sifatida olindi. Fitirlash sohasi (oralig'i) fitirlash parametrlari, erkinlik darajalari soni (EDS) va χ^2/EDS qiymatlar pionlar, kaonlar va protonlar uchun 4-7 jadvallarda keltirilgan. Chiqishning yig'indi qiymati dN/dy va ko'ndalang impulsning o'rtacha qiymati $<p_t>$ fitirlovchi funksiyani o'lchash chegarasidan tashqarida extrapolyatsiya qilish yo'li bilan olindi. dN/dy va <p_t> kattaliklarning natijalaridagi dominant noaniqliklar spektrni p_t=0 qadar extropolyatsiya qilishdan paydo bo'ladi. Ular fitirlashda funksiyaning har xil shakli hamda p_t ning l sohasi bilan baholanadi. Pionlar va kaonlar uchun p_t=0 qadar extropolyatsiya qilish y=3 holatda y=0 bo'lgandagi holatga nisbatan ancha sezilarli. Chunki p_t sohasining quyi chegarasi y=3 holatdagiga nisbatan ancha yuqori. Bu effekt old spektrlardagi sistematik noaniqliklarni oshiradi. Chiquvchi zarralarning bir qismi BRAHMSda spektrometr ulanishi va zarralar turiga bog'liq holda 30-75% atrofida qayd qilinadi.

O'rtacha tezkorlik va old tezkorlik ma'lumotlari uchun bir vaqtda pion, kaon, proton va antiprotonlar spektrlari bir vaqtda uchta parameter: T_{kin} , β_s va α bilan fitirlash bajarildi. Normallashtirish parametri ma'lumotlar yiqindisini fitirlash orqali olindi.Reazonaslardan hosil bo'luvchi va impulsi 0,4 GeV/c dan past bo'lgan zarralar hisobga olinmadi, chunki ular tufayli sodir bo'luvchi effektlar deyarli sezilmaydi. Fitirlash sohasi pionlar uchun p_t<1,8 GeV/c, kaonlar uchun p_t<2,0 GeV/c, protonlar uchun p_t< 3,0 GeV/c.

4-jadval.K^+-mezonlarni m_T ga bjg'liq exponensial funkiya bilan fitirlash natijalari. Fitirlash sohasi y=0 holatda 0,45 GeV/c < p_t<2,0 GeV/c va y=3 holatda 0,75 GeV/c < p_t<2,5 GeV/c

	Marka-ziylik	dN/dy	$(dN/dy)_m$	N_m/N	<p_t>, MeV	χ^2/EDS	T, MeV
y=0	0-10%	12,3±0,32±0,89	7,6	0,62	674±10±22	1,6/7	277
	10-30%	6,9±0,01±0,50	4,2	0,61	663±7±21	0,9/7	271
	30-50%	2,8±0,02, ±0,20	1,7	0,62	663±7±21	3,9/7	273
	50-70%	1,0±0,05±,0,12	0,6	0,59	625±14±20	3,4/7	251
y=3	0-10%	4,6±0,29±0,36	1,3	0,27	611±14±20	4,1/4	244
	10-30%	3,0±0,20±0,23	0,78	0,26	594±19±19	5,8/4	235
	30-50%	1,4±0,11±0,11	0,34	0,25	577±20±18	5,7/4	226
	50-70%	0,39±0,05±0,03	0,10	0,26	600±27±19	5,4/4	238

5-jadval.K^--mezonlarni m_T ga bog'liq exponensial funkiya bilan fitirlash natijalari. Fitirlash sohasi y=0 holatda 0,45 GeV/c < p_t<2,0 GeV/c va y=3 holatda 0,75 GeV/c < p_t<2,5 GeV/c

	Marka-ziylik	dN/dy	$(dN/dy)_m$	N_m/N	$<p_t>$, MeV	χ^2/ EDS	*T*, MeV
y=0	0-10%	11,2±0,23±0,71	7,2	0,64	6829±22	2,0/8	282
	10-30%	6,1±0,15±0,38	3,9	0,64	683±12±22	4,3/8	282
	30-50%	2,5±0,08±0,16	1,6	0,63	677±26±22	11,4/8	279
	50-70%	0,7±0,02±0,10	0,5	0,64	685±28±22	10,8/8	283
y=3	0-10%	3,9±0,02±0,30	0,96	0,25	569±12±18	5,5/5	222
	10-30%	2,2±0,12±0,17	0,57	0,26	580±10±19	4,4/5	227
	30-50%	1,0±0,05±0,08	0,24	0,23	551±12±18	4,8/5	213
	50-70%	0,34±0,02±0,03	0,08	0,25	572±12±18	1,5/5	223

6-jadval.Protonlarni m_T ga bog'liq exponensial funkiya bilan fitirlash natijalari. Fitirlash sohasi y=0 holatda 0,55 GeV/c < p_t<2,0 GeV/c va y=3 holatda 0,45 GeV/c < p_t<2,5 GeV/c

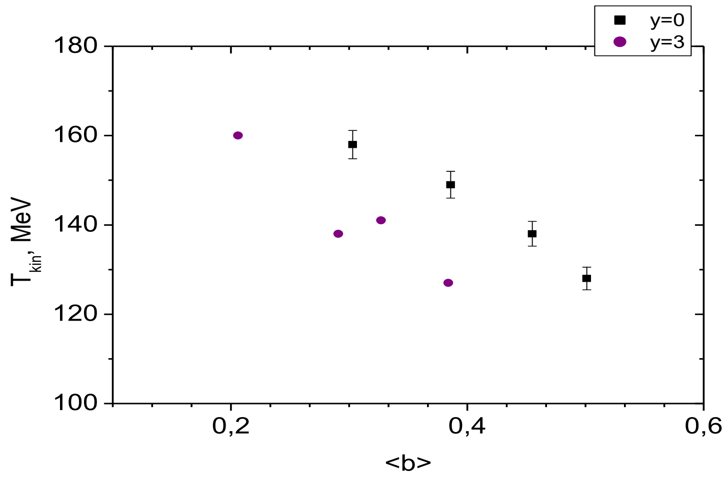
	Marka-ziylik	dN/dy	$(dN/dy)_m$	N_m/N	$<p_t>$, MeV	χ^2/ EDS	*T*, MeV
y=0	0-10%	8,1±0,03±0,51	5,7	0,70	896±18±29	9,1/9	332
	10-30%	4,7±0,10±0,29	3,2	0,69	874±9±28	1,9/9	320
	30-50%	2,1±0,05±0,13	1,4	0,67	831±14±27	6,4/9	296
	50-70%	0,7±0,03±0,05	0,46	0,64	784±25±25	12,3/9	271
y=3	0-10%	7,0±0,03±0,44	5,1	0,74	775±13±25	10,3/10	266
	10-30%	4,3±0,11±0,27	3,2	0,73	761±16±24	12,4/10	259
	30-50%	2,0±0,07±0,12	1,4	0,71	737±38±24	23,2/10	247

	50-70%	0,76±0,04±0,05	0,54	0,70	712±57±23	30,7/10	234

7-jadval.Antirotonlarni m_T ga bog'liq exponensial funkiya bilan fitirlash natijalari. Fitirlash sohasi y=0 holatda 0,55 GeV/c < p_t<2,0 GeV/c va y=3 holatda 0,45 GeV/c < p_t<2,5 GeV/c

	Marka-ziylik	dN/dy	$(dN/dy)_m$	N_m/N	$<p_t>$, MeV	χ^2/ EDS	*T*, MeV
y=0	0-10%	6,0±0,17±0,38	4,3	0,70	906±38±29	15,9/9	338
	10-30%	3,5±0,11±0,22	2,4	0,69	880±12±28	3,9/9	323
	30-50%	1,5±0,04±0,10	1,0	0,68	839±16±27	7,7/9	300
	50-70%	0,6±0,02±0,04	0,38	0,64	781±22±25	10,9/9	269
y=3	0-10%	1,2±0,04±0,07	0,73	0,62	750±20±24	11,7/9	254
	10-30%	0,86±0,04±0,05	0,53	0,61	731±31±23	17,1/9	244
	30-50%	0,37±0,01±0,02	0,22	0,60	719±27±23	14,2/9	238
	50-70%	0,15±0,01±0,01	0,09	0,57	685±42±22	18,2/9	221

1-rasmda tezkorlikning ikkala qiymatidagi (y=0 va y=3) markaziy to'qnashuvlar uchun kinetik temperatura T_{kin} va o'rtacha ko'ndalang tezlik $<\beta> = \frac{2}{\alpha+2} \cdot \beta_s$ o'rtasidagi korrelyatsiyasi keltirilgan. To'qnashuv markaziyligi oshishida $<\beta>$ oshisb borishi bilan T_{kin} ning pasayib borishi kuzatiladi. Bu esa keng (cho'zilgan) tizim ko'proq vaqt qolishligini anglatadi.Sistema protonlarning tasodifiy termal harakatlari oqibatida sovushligi sababli ular temperaturasini yo'qotish bilan hajmiy radial oqimga o'tadi va o'rtacha tezlikni oshiradi.



1-rasm.$\sqrt{S_{NN}}$ = 200 GeV energiyali Cu+Cu to'qnashuvlarda portlash to'lqini fit parametrlari kinetik energiya T_{kin}va o'rtacha ko'ndalang tezlik <b> o'rtasidagi bog'lanish.

y=0 vay=3 holatlarda T_{kin} chiziqlari o'xshash bo'lsada, <β>~0,3 qiymatida (y=3) biroz aks holat paydo bo'lib, bu temperturaning taxminan 20 MeVga qadar past ekanligini va y=3 bo'lganda zarralar zichligining past bo'lishi ehtimoli borligini ko'rsatadi. Berilgan dN/dy uchun T_{kin}va<β> kattaliklar y=3 bo'lganda kichik (kichik energiya qayd qilinadi) bo'lib, old tezkorlikdagi materiyani ifodalaydi. Cu+Cu va Au+Au reaksiyalarda dN/dy o'zgaruvchining T_{kin} va <β> kattaliklarga bog'liqligi juda o'xshash bo'lib, kinetik energiya biroz yuqori va o'rtacha tezlik biroz pastligi bilan farq qiladi.

Xulosa: $\sqrt{S_{NN}}$=200 GeV energiyali Cu+Cu to'qnashuvlardagi zaryadlangan adronlarning ($\pi^{\pm}$, $K^{\pm}$, p, ṕ) ko'ndalang impuls p_t spektrlari $A\cdot(1+\frac{m_T-m_0}{n_0T})^{-n_0}$ko'rinishdagi Levi funksiyasi hamda $A\cdot m_T e^{-\frac{m_T}{T}}$ ko'rinishdagi Boltsman exponensial funksiyasi bilan juda yaxshi fitirlanadi (ifodalanadi). Zarralar soni N_{part} oshib borishi bilan T_{kin} tempertura kamayadi va<β> tezilik oshib boradi. Berilgan <β> uchun T_{kin} kinetik energiya y=3 holatda y=0 holatga nisbatan 15-20 MeV pastroq. Berilgan N_{part} uchun kaonlar dN/dy qiymati Cu+Cu to'qnashuvlarda Au+Au to'qnashuvlarga nisbatan bir muncha kichik.

Cu+Cu to'qnashuvlarda pionlar va kaonlarning chiqishi p+p to'qnashuvlarga nisbatan anchayin qiyinlashgan. To'qnashuv markaziyligi oshishi bilan bu qiyinlashish ham kuchayib boradi. Bu hodisa ayniqsa old tezkorlikda yaqqol kuzatiladi.

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TEXNOLOGIK YONDASHUVLAR ASOSIDA TALABALARDA KASBIY MOBILLIKNI SHAKLLANTIRISHNING ILMIY-NAZARIY ASOSLARI

Annotatsiya: *Mazkur maqolada zamonaviy texnologik yondashuvlar asosida talabalarda kasbiy mobillikni shakllantirishning ilmiy-nazariy asoslari yoritilgan. Kasbiy mobillik tushunchasining mazmuni, uning hozirgi mehnat bozori talablariga mosligi va uni rivojlantirishda innovatsion pedagogik texnologiyalarning o‘rni ko‘rib chiqiladi.*
Kalit so‘zlar: *kasbiy mobillik, texnologik yondashuv, raqamli kompetensiya, innovatsion texnologiyalar, zamonaviy ta’lim, o‘quv jarayoni.*

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SCIENTIFIC AND THEORETICAL FOUNDATIONS FOR DEVELOPING STUDENTS' PROFESSIONAL MOBILITY BASED ON TECHNOLOGICAL APPROACHES

Abstract: *This article highlights the scientific and theoretical foundations for developing students' professional mobility based on modern technological approaches. It examines the concept of professional mobility, its relevance to the current labor market demands, and the role of innovative pedagogical technologies in fostering its development.*
Keywords: *professional mobility, technological approach, digital competence, innovative technologies, modern education, educational process.*

2022–2026 yillarga mo‘ljallangan O‘zbekiston Respublikasi rivojlanish strategiyasida raqamli ta’lim, innovatsion metodlar, mehnat bozori bilan integratsiya qilish haqida alohida e’tibor qaratilgan. Raqamli transformatsiya orqali kasbiy tayyorlik modellarini moslashtirish imkoniyati ortmoqda. Kasbiy mobillik zamonaviy mehnat bozorining ajralmas talabi bo‘lib, u o‘zgaruvchan sharoitlarda raqobatbardosh shaxsni shakllantirishni taqozo etadi. Texnologik yondashuvlar bu jarayonda yangi formatdagi o‘quv muhitini yaratadi, u esa talabalarning o‘quv motivatsiyasi, faolligi va o‘zini o‘zi rivojlantirishini kuchaytiradi. Oliy ta’lim tizimida texnologik yondashuvlar orqali kasbiy mobillikni rivojlantirish — innovatsion taraqqiyot uchun strategik ahamiyatga ega.

Globalizatsiya va raqamli texnologiyalar rivojlanayotgan bir davrda mehnat bozorida raqobatbardosh, moslashuvchan va yangiliklarga ochiq mutaxassislar talab etiladi. Bu holat oliy ta’lim muassasalari oldiga kasbiy mobillikka ega bo‘lgan kadrlarni tayyorlash vazifasini qo‘yadi. Mazkur maqolada aynan texnologik yondashuvlar asosida talabalarda kasbiy mobillikni shakllantirishning ilmiy-nazariy asoslari o‘rganiladi. Kasbiy mobillik — bu shaxsning o‘z kasbiy faoliyat sohasida yoki unga yaqin sohalarda moslashish, o‘zgarishlarga tez javob bera olish va yangi bilim va ko‘nikmalarni egallashga tayyorligi sifatida talqin etiladi. Kasbiy mobillikka ega shaxs quyidagi xususiyatlarga ega bo‘ladi:

o‘z kasbining zamonaviy tendensiyalarini anglay oladi;

yangi kasbiy vazifalarni bajarishga layoqatli;

raqamli vositalardan samarali foydalana oladi;

doimiy o‘qib-o‘rganishga tayyor.

Texnologik yondashuv — bu o‘quv jarayonini interaktiv, raqamli va innovatsion vositalar yordamida tashkil etish yondashuvidir. Bu yondashuv quyidagi imkoniyatlarni yaratadi:

masofaviy ta’lim va onlayn platformalardan foydalanish;

raqamli kompetensiyalarni rivojlantirish;

axborot-kommunikatsiya texnologiyalari (AKT) asosida ta’limni individuallashtirish.

Kasbiy mobillikni shakllantirishda texnologik yondashuvlar quyidagi jihatlardan muhim hisoblanadi:

a) Raqamli savodxonlikni oshirish

Talabalar texnologiyalardan foydalangan holda o‘z kasbiy ko‘nikmalarini mustahkamlashadi. Bu esa ularning turli kasbiy vaziyatlarga moslasha olish qobiliyatini kuchaytiradi.

b) Ko‘nikmalarning modullashtirilgan o‘rganilishi

Modul asosida tashkil etilgan darslar talabalarga o‘z bilimlarini bosqichma-bosqich oshirish imkonini beradi.

c) Virtual laboratoriyalar va simulyatsiyalar

Texnik yo‘nalishdagi mutaxassislar uchun real ish sharoitlarini takrorlaydigan virtual muhitlar kasbiy tayyorgarlikni oshiradi.

d) Kasbiy orientatsiya va self-brending

Blog yuritish, onlayn portfolio yaratish, LinkedIn kabi professional platformalarda ishtirok etish talabaning kasbiy o‘sishiga xizmat qiladi.

Ilmiy-nazariy asoslar

Texnologik yondashuvlar asosida kasbiy mobillikni rivojlantirish quyidagi pedagogik nazariyalar bilan bog‘liq:

Konstruktivistik ta’lim nazariyasi (J. Piaget, L. Vygotsky): o‘quvchining o‘z faol ishtiroki orqali bilim hosil qilishi.

Andragogika (M. Knowles): katta yoshdagi o‘rganuvchilarning o‘quv ehtiyojlari va motivatsiyasiga asoslangan yondashuv.

Raqamli kompetensiyalar modeli (EU DigComp): axborot texnologiyalaridan foydalanish ko‘nikmalarini baholash va rivojlantirish mezonlari.

Texnologik yondashuvlar asosida talabalarda kasbiy mobillikni shakllantirish zamonaviy ta’limning ajralmas qismiga aylanmoqda. Oliy ta’lim tizimi bu borada yangicha strategiyalarni ishlab chiqishi, innovatsion texnologiyalarni keng joriy etishi orqali mehnat bozori talablariga mos va zamonaviy kasbiy ko‘nikmalarga ega bo‘lgan mutaxassislarni yetishtirishi zarur. Bugungi kunda mehnat bozori tez o‘zgarayotgan, yangi texnologiyalar kirib kelayotgan va kasblar diversifikatsiyalanayotgan bir davrda **kasbiy mobillik** — ya’ni talabalar tomonidan turli kasbiy muhitlarga moslasha olish, o‘z kasbini yangilash yoki almashtirishga tayyor bo‘lish — muhim kompetensiyaga aylangan. Shu jihatdan, **texnologik yondashuvlar asosida** bu kompetensiyani shakllantirish dolzarb masala hisoblanadi. Kasbiy mobillik — bu shaxsning turli kasbiy faoliyatlarga moslasha olish, yangi mehnat sharoitlariga tez moslashish, malakani yangilash, o‘qishni davom ettirish va kerak bo‘lsa, kasbni o‘zgartirishga tayyorlik darajasidir.

Vertikal mobillik (lavozim o‘sishi, malaka oshirish)

Gorizontal mobillik (bir sohada boshqa ishga o‘tish)

Geografik mobillik (joylashuv bo‘yicha ish o‘zgartirish)

Kasbiy-ko‘nikmaviy mobillik (turli ko‘nikmalarni egallash orqali yangi faoliyatga o‘tish)

Texnologik yondashuvlar deganda:

Axborot-kommunikatsion texnologiyalar

Raqamli ta’lim platformalari,

Interaktiv dasturlar, simulyatorlar,

LMS tizimlari (Moodle, Google Classroom),

Sun’iy intellekt asosida o‘quv modullar,

Virtual va kengaytirilgaan reallik texnologiyalari (VR/AR) kabilar nazarda tutiladi.

Moslashuvchan o‘qitish,

Individual o‘quv trayektoriyalarini yaratish,

Real ish sharoitlariga yaqin tajribalarni simulyatsiya qilish,

Raqamli savodxonlikni oshirish orqali moslashuvchan kadrlar tayyorlash.

Interaktiv kurslar yaratish — zamonaviy platformalar yordamida talabaning mustaqil ishlash salohiyatini rivojlantirish.

Loyiha asosida o‘qitish — real muammolar yechimiga yo‘naltirilgan topshiriqlar orqali ko‘nikmalarni mustahkamlash.

Gamifikatsiya — ta’lim jarayonini o‘yin shaklida tashkil qilish orqali motivatsiyani oshirish.

Monitoring va baholash tizimlari — talabalarning rivojlanishini sun’iy intellekt yordamida tahlil qilish.

Konstruktivistik pedagogika — o‘quvchini o‘quv jarayonining faol ishtirokchisiga aylantirish.

Kompetensiyaviy yondashuv — bilim emas, balki amaliyotga tayyor kadr tayyorlash.

Modullik yondashuvi — o‘quv kurslarini bloklarga bo‘lib, individual ehtiyojlarga moslashtirish.

Kasbiy mobillik — zamonaviy ta’limning asosiy yo‘nalishlaridan biri bo‘lib, u uzluksiz ta’lim va o‘zini o‘zi rivojlantirishga asoslangan bo‘lishi kerak.

Texnologik yondashuvlar bu yo‘lda samarali vosita bo‘lib xizmat qiladi.

Pedagoglar yangi texnologiyalardan foydalanishni chuqur o‘rganib, talabalarning individual o‘zlashuv darajasiga mos o‘quv strategiyalarini ishlab chiqishlari lozim.

Oliy ta’lim muassasalari AKT infratuzilmasini mustahkamlab, talabalarga raqamli ta’lim muhitini yaratishi zarur. Bugungi globallashuv davrida iqtisodiy va texnologik o‘zgarishlar ta’lim sohasiga bevosita ta’sir ko‘rsatmoqda. Raqobatbardosh, zamonaviy texnologiyalardan xabardor, turli kasbiy sharoitlarda ishlay oladigan kadrlarga talab ortib bormoqda. Bunday vaziyatda **kasbiy mobillik** — ya’ni shaxsning mehnat bozoridagi o‘zgarishlarga tez moslasha olishi, yangi kompetensiyalarni tez egallay olishi, har xil sohalarda samarali ishlay olish qobiliyati — dolzarb kompetensiyaga aylangan. Kasbiy mobillikni shakllantirishda **texnologik yondashuvlar**, ayniqsa axborot-kommunikatsiya texnologiyalari sun’iy intellekt, raqamli ta’lim resurslari, virtual reallik (VR), modulli o‘quv dasturlari, interaktiv platformalarning roli ortib bormoqda. Kasbiy mobillik — bu shaxsning o‘z kasbiy faoliyatini muayyan sohada yoki boshqa sohaga o‘zgartira olishi, yangi kasbiy vazifalarni bajara olishi, malaka va kompetensiyalarni qayta shakllantira olish layoqatidir.

Turlari:

Vertikal mobillik – lavozimda ko‘tarilish, malaka oshirish.

Gorizontal mobillik – bir sohadan boshqa sohaga o‘tish.

Ichki mobillik – kasb ichidagi faoliyat turini o‘zgartirish.

Tashqi mobillik – boshqa tashkilot, hudud yoki davlatda ishlash imkoniyati.

Bu yondashuv ta’lim jarayoniga texnologik vositalarni — kompyuter, mobil qurilmalar, raqamli platformalar, sun’iy intellekt, o‘quv dasturlari, LMS tizimlari (Learning Management System) — kiritish orqali **individual, moslashuvchan va interaktiv o‘qitish**ni nazarda tutadi.

Multimedia platformalar: Google Classroom, Moodle, Zoom.

Sun’iy intellekt yordamida baholash.

Virtual va kengaytirilgan reallik (VR/AR) – tajribaviy o‘qitish imkoniyatlari.

Gamifikatsiya – o‘yin elementlari asosida o‘qitish.

Massive Open Online Courses (MOOC) – ochiq ta’lim kurslari.

O‘quvchi (talaba) bilimni o‘zi kashf etadi, texnologik vositalar esa bu jarayonda yordamchi rolini bajaradi. Kasbiy mobillikni shakllantirishda talabaning o‘z-o‘zini rivojlantirishiga urg‘u beriladi. Bugungi ta’lim tizimi bilim berishga emas, balki **amalga oshirishga qaratilgan kasbiy kompetensiyalarni shakllantirish**ga qaratilgan. Texnologiyalar bu kompetensiyalarni real muhitda mustahkamlash vositasidir. Kattalar (ya’ni talabalar) o‘rganish jarayoniga mustaqil, maqsadli yondashadi. Texnologiyalar ularning o‘z ta’lim yo‘lini o‘zi tanlashiga, modullar orqali harakatlanishiga yordam beradi. **Moslashuvchan o‘quv modellarini yaratish:** Talabaning individual qobiliyatiga qarab moslashadigan o‘quv modullari. **Onlayn kurslar va ochiq ta’lim resurslaridan foydalanish:** Coursera, Udemy, Khan Academy orqali istalgan sohada bilim olish. **Amaliy mashg‘ulotlar uchun simulyatsiya va VR:** Muhandislik, tibbiyot, pedagogika sohalarida real muhitda sinov o‘tkazish imkoniyati.

Talabalar o‘zlarining raqamli ish portfellarini yaratishadi, bu esa kasbiy mobillikni amalda namoyon qiladi.

Sun’iy intellekt asosidagi ta’lim tahlili. Talabaning qiziqishi va rivojlanishiga mos ravishda takliflar, mashqlar berish.

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METHODOLOGY OF USING PEDAGOGICAL TECHNOLOGIES IN ORGANIZING PRACTICAL TRAINING

Abstract: *This article describes the problems of methodological preparation of students in the preparation of future geography teachers in higher pedagogical institutions, the formation of practical skills of future teachers through the use of pedagogical technologies and the organization of the educational process using them in each lesson. Also, the methodology of using game exercises of didactic game technology is revealed on the example of one subject.*

Keywords: *Geography, education, professional training, pedagogical technology, practical training, General Geography, game exercises, geography teacher.*

The introduction of modern educational technologies into geography education, ensuring mutual cooperation between teachers and students in the educational process, and developing students' skills in independent knowledge acquisition, independent and creative thinking are important tasks facing education. Educational institutions, including higher pedagogical universities, play an important role in their implementation.

To implement the above-mentioned tasks, first of all, teachers teaching in educational institutions, including geography teachers, must have methodological training and skills in using them, along with theoretical knowledge. Therefore, it is advisable to form the practical skills of future teachers by organizing the educational process using them in each lesson, along with teaching the scientific and theoretical foundations of pedagogical technology as a separate subject in higher educational institutions that train teachers.

Some of the tasks of pedagogical technologies used in preparing future geography teachers for pedagogical work are as follows:

• Developing critical thinking: The ability to analyze information, evaluate evidence, put forward hypotheses and draw conclusions.

• Developing creative thinking: The ability to generate new ideas, find innovative solutions and demonstrate creativity.

• Developing problem-solving skills: Developing the skills of setting goals, analyzing situations, developing an action plan and making decisions.

• Teaching independent learning: Developing the ability to independently search for information, learn from mistakes, adapt to new conditions and apply the knowledge gained in practice.

• Developing teamwork and communication skills: The ability to communicate effectively with others, share information, listen and understand the points of view of others.

• Increased interest in science: The use of new technologies such as multimedia textbooks, interactive programs, online courses, etc. helps make education more attractive and fun for students.

As can be seen from the above, pedagogical technology is based on principles that develop education and educate a complete person. In this case, the educator (teacher) and the learner (student) are at the center of the pedagogical process, and the mutual cooperation and communication between them must meet modern requirements [3,7].

Through a lesson organized on the basis of pedagogical technologies, students quickly and easily absorb the theoretical information provided, understand the content and essence of the laws, causes and effects, and arguments related to the subject. With the help of various technologies, the knowledge acquired by students through independent thinking and observation is retained in their memory for a long time, and they also master the features of modern pedagogical technologies, become aware of their use, and develop and develop knowledge, skills, and competencies for use in their future activities [10].

To do this, the teacher must first of all be armed with the requirements for organizing the educational process, the forms of organizing education and management principles, the use of methods that serve the mental and physical development of the student, the correct organization of the student's personal activity towards reading and learning, the ability to communicate with them, the ability to resolve problems and conflicts that arise in the process of organizing pedagogical activity, the ability to organize a productive and creative atmosphere in the classroom, and the ability to accurately and accurately assess educational activity [2,8].

Therefore, the urgent issue of today's education is to create conditions that will allow the younger generation to master the basics of science so that it does not lag behind scientific and technological progress. This leads to the need to select the content and volume of education taking into account individual and age characteristics of students, to adapt it to the capabilities of students, to adapt it to the capabilities of students, to inform and educate them, to develop their minds, and to direct them to a profession.

As a result of the conducted experimental work, it was found that there is a great potential for the use of pedagogical and information technologies in organizing practical exercises that will help students work freely and independently in general geography classes.

In the course of our research, it was found that in order to organize the cognitive activity of students in General Geography and improve the methodology of vocationally oriented teaching, it is advisable to first use pedagogical technology at a certain stage of the lesson at the local (module) level. In this case, first a new topic is studied, then control tests, various game exercises, competitions, trainings are held to control and evaluate the knowledge, skills and qualifications acquired by students. After students engage in this activity and acquire certain skills and qualifications, it is advisable to conduct lessons based on pedagogical technologies, that is, to use it at a private methodological level.

In technologies of a special methodological level, all stages of the lesson are organized on the basis of the requirements of pedagogical technology, that is, the process of studying a new topic is completely based on a certain type of pedagogical technology (modular learning, cooperative learning, problem-based learning, didactic games, etc.). For example, the topic “The Solar System. The shape and movements of the Earth. Their geographical consequences”. In this case, proceeding from the educational, educational and developmental goals of the topic being studied, the teacher must determine which technology to use in the educational process, the specific aspects of organizing students' cognitive activity on its basis, the educational tasks that students must complete in the lesson, and the ways to control and evaluate the acquired knowledge.

In order to improve the methodology of vocational training of students in practical classes in General Earth Science, we organized practical training classes on pedagogical technologies such as didactic games, modular learning, collaborative learning technologies, and some types of interactive methods. Below, we will discuss the importance of didactic game technology in increasing the effectiveness of lessons and vocational training.

In the system of pedagogical technology, didactic game technology occupies a special place. In the educational process, they are used in the form of didactic game lessons. In lessons organized on the basis of didactic game technology, the process of students' learning is combined with game activity. Therefore, lessons that combine students' learning activity with game activity are called didactic game lessons [5];

Many scientists have conducted research on the use of games in geography lessons, and they have discussed the role and importance of didactic games: L.M. Pancheshnikova, S.N. Praslova, G.A. Ponurova, L.V. Belyaeva, G.Ya. Lisenkova, V.V. Pyatunin - as a form of problem-based learning, part of the lesson, a form of developing thinking; V.P. Korneev, Ye.G. Kolovsky, V.M. Lyantsevich, L.P. Simenova, A.V. Prokofiev - as a form of learning designed for a whole lesson, a form of developing interest in knowledge; V.I. Sereda, M.G. Zakharov, K.S. Momentova - as extracurricular work form or a condition for expanding the level of knowledge of the lesson, P. Musaev, R. Kurbanniyozov, V. V. Nikolina, G. S. Kulinch, O. Safarov, A. Khayitov, O. Mominov - a form of study and extracurricular activities that contribute to the comprehensive education, knowledge and development of students, M. Abdurakhmanov, B. Abdurakhmanov - a form of increasing the effectiveness of geography education, - they expressed the opinion [1]. They developed a methodology for organizing and conducting didactic games in geography lessons and extracurricular activities. Agreeing with the opinions of the above scientists, in our opinion, didactic games are a form of increasing the effectiveness of education and developing practical skills.

We have determined the main features of geographical games used in improving the methodology of vocationally oriented training of students in practical classes in general geography as follows:

1. When a lesson is organized using geographical games, developing activity occurs in students. Students participating in this lesson freely choose the roles and tasks they will perform. For example, in expedition games, the ship's captain, observer, cartographers, sailors, and others.

2. In the process of lessons with geographical games, a creative atmosphere and controversial situations arise. During the geographical game, students are engaged in creative work in the process of performing a specific role and task, and if problematic situations arise, they solve them in cooperation. In the course of our research, it was found that didactic game lessons can fulfill such functions as education, personal development, directing students to creative activity, monitoring and analyzing knowledge, introducing and directing to professions, and developing a culture of communication and speech.

These functions are implemented in a complex way in the educational process, however, there are several types of didactic games, in which some function is dominant. For example, in conference lessons, personality development prevails, in game exercises, control and analysis of knowledge prevails, and the remaining functions complement them.

Didactic game lessons, depending on the combination of students' knowledge acquisition and game activity, include plot-role-playing games, creative games, business games, conferences, game exercises, etc. Each type of game has its own characteristics and plays a special role in guiding students to professional activity. For example, plot-role-playing games are aimed at studying the relationship between natural and socio-economic phenomena, events and phenomena, while creative games are designed to help students solve a specific geographical problem based on their previously acquired knowledge.

Game exercises in didactic games are of particular importance in vocational education of students. The high effectiveness of this method was determined during the experimental testing conducted during our research.

The game exercise method of didactic game technology is also of particular importance in vocational education of students. We can also conduct individual didactic games on general Earth knowledge, setting up game exercises in the form of problems and exercises. This method of didactic games not only increases students' knowledge and interest in their profession, but also teaches them the methodology for using these methods in their future activities [9]. Game exercises on the topic "General information about the Earth" can be used as follows.

1. The angular velocity of the Earth's rotation, that is, the angle of rotation of a point on the Earth's surface for any given time, is the same for all latitudes. A point travels 150 times in one hour ( ). However, the velocity in meters per second varies with latitude and is calculated using the following formula:

$$\vartheta_{э} = \frac{2\pi R}{T}$$

Here, - the frequency of rotation, at the equator (second), - is the Pythagorean number, which is equal to 3.14 radians. 3.14 radians is equal to 1800. Knowing that the area of a circle is 3600, when we convert it to the Pythagorean number, i.e. radians, it is equal to (6.28). R-radius, T-time (second).

To solve this problem in the form of a game, the student should use the knowledge acquired in the following lecture on this topic. To solve this problem, the student must use his knowledge of the Earth's motion, that is, he must know the angular velocity of the Earth, the length of 10 arcs at the equator. The angular velocity of the Earth is 150 per hour, that is, the Earth travels a distance of 150 in one hour. The length of 10 arcs along the equator is 111.3 km. Based on the above formula, we calculate the speed of rotation of the Earth in 1 second at the equator as follows:

$$\vartheta_э = \frac{2\pi R}{T} = \frac{2 \times 3{,}14 \times R}{86400} = \frac{6.28 \times 6378{,}245}{86400} = \frac{40\ 055378{,}6}{86400} = 463{,}6 = 464\ m/sek$$

The value of 86,400 days in seconds is substituted for T in the formula. Therefore, the speed at the equator is 464 meters per second.

2. The width of the Atlantic Ocean at the equator is 600, how long will it take a spacecraft moving at the speed of the Earth to reach its shore from one coast to the other? To solve this problem in the form of a game, the student uses the knowledge acquired in the lecture on this topic. If the spacecraft is flying at ground speed, we divide the width of the Atlantic Ocean by the angular velocity of the Earth,

600:15=4. Then we calculate the distance:

60 x 111.3 km2 = 6678 km.

So, the ship will reach from one coast to the other in 4 hours. The width of the Atlantic Ocean at the equator is 6678 km [6].

By organizing game exercises like the above in accordance with the topics of General Earth Science, we will achieve the transformation of the knowledge acquired by students in the lecture into practical skills and the training of highly competent geography teachers. Because during game exercises: communication occurs between students at all stages of the learning process; students are given equal opportunities in the learning process to demonstrate their strengths, knowledge, and talents; a socio-psychologically favorable environment is created for students (individually or in small groups) to work together, and the ground is prepared for their gradual and effective participation in the conversation; students understand that in order to actively participate in the conversation, they need not only to hear, but also to analyze what they hear, think, and achieve the basis and clarity of their thoughts; By working together with students and mastering educational materials, they can achieve the required level of fulfillment of the tasks set, analyze the results obtained, check their accuracy, present and receive recognition from others [4]. The use of pedagogical technologies in the lesson process allows students to form pedagogical characteristics such as a creative approach, logical thinking, the ability to express their thoughts independently and freely, self-assessment, work individually and in small groups, respect the opinions of others, select the necessary one from many opinions, and effectively use the learned knowledge in necessary conditions.

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VANESSA CARDIU L. (LEPIDOPTERA, NIMPHALIDAE) NING MORFOBIOLOGIK XUSUSIYATLARI

Annotatsiya. *Ushbu maqolada Nimphalidae oilasiga mansub* ***Vanessa cardui*** *L. kapalak turining hozirgi o'rganilish darajasi, ilmiy adabiyotlarda aks etgan asosiy tadqiqot yo'nalishlari yoritib beriladi.* Vanessa cardui *L. kapalagi dunyo bo'ylab tarqalgan va har xil iqlim sharoitlariga moslashgan hasharotdir. Shuningdek, bu turning morfologiyasi, rivojlanish davri, lichinka va imagolarning rivojlanish bosqichlari va o'ziga xos ekologik moslashuvlari batafsil tahlil qilingan. Xususan, tur xilma-xilligi, ekologik va evolyutsion jihatlari hamda ularni saqlab qolish choralari tahlil qilingan hamda genetik tadqiqotlar va zamonaviy texnologiyalar yordamida olib borilayotgan izlanishlarning ahamiyati tahlil qilingan.*

Kalit so'zlar: *Nimphalidae, Lepidoptera,* Vanessa cardui *L., kapalaklar, lichinka, imago, migratsiya, zararkunanda.*

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MORPHOBIOLOGICAL CHARACTERISTICS OF VANESSA CARDUI L. (LEPIDOPTERA, NYMPHALIDAE)

Abstract. *This article discusses the current state of research on Vanessa cardui L., a butterfly species belonging to the family Nymphalidae, as well as the main research directions reflected in scientific literature. Vanessa cardui L. is an insect species distributed across the globe and adapted to various climatic conditions. The article provides a detailed analysis of the morphology, developmental stages, larval and adult (imago) phases, and the species' unique ecological adaptations. In particular, it examines species diversity, ecological and evolutionary aspects, and measures for their conservation. Additionally, it evaluates the significance of genetic research and investigations conducted using modern technologies.*

Key words: *Nymphalidae, Lepidoptera, Vanessa cardui L., butterflies, larva, imago, migration, pest.*

Vanessa cardui L. bu kapalak turi **Nymphalidae** oilasi, Vanessa avlodiga va Lepidoptera turkumiga mansub. **Nymphalidae** oilasi dunyoda keng tarqalgan xilma-xil va eng katta oilalardan biridir. **Nymphalidae** oilasi kapalaklari dunyo bo‘ylab taxminan **6000 dan ortiq** turni o‘z ichiga oladi va ular turli ekosistemalarda va iqlim sharoitlarida yashaydi. Nymphalidae oilasidagi kapalaklar, rang-barang va jozibali qanotlari bilan ajralib turadi, bu esa ularni o‘simliklarni changlatish jarayonlarida muhim rol o‘ynaydigan hasharotlar sifatida ajralib turadi[5,7]. Oiladagi turlar ko‘plab avlodlarga bo‘lingan bo‘lib, ular o‘zlarining ekologik xususiyatlari, oziqlanishi va migratsiya xususiyatlari bilan ajralib turadi. **Vanessa cardui** L. kapalaklari keng tarqalgan va ko‘plab iqlim sharoitlariga moslashgan turlaridan biridir. Bu tur ko‘plab iqlim sharoitlariga moslashgan. **Vanessa cardui** L. turining eng keng tarqalgan hududi mo‘tadil iqlim sharoitlaridir. U Yevropaning ko‘plab qismlarida jumladan, Britaniya orollari, Fransiya, Germaniya, Italiya, Ispaniya va boshqa mamlakatlarda hamda AQSh va Kanadaning janubiy qismlarida bu tur keng tarqalgan. Kuzda va bahorda bu kapalaklar janubga yo‘nalib, Meksikaga va Karib dengiziga migratsiya qiladi. Osiyoning janubiy va markaziy qismlaridan Hindiston, Xitoy, va Janubiy Osiyo hududlarida tarqalgan. Afrika qit’asining janubiy va sharqiy qismlarida tarqalgan, lekin tropik o‘rmonlarida kamroq uchraydi. **Vanessa cardui** L. tropik o‘rmonlar yoki doimiy issiq va nam iqlimlarda yashamaydi ya’ni **Antarktidada** yoki **Arktikada** uchramaydi, sovuq iqlimlar bu kapalak turiga mos kelmaydi[6]. Bundan tashqari, quruq cho‘l hududlarida ham keng tarqalgan emas. Bu tur kapalaklari odatda, o‘simliklar va gullar mavjud bo‘lgan joylarda yashaydi shuning uchun cho‘l va juda quruq hududlarda ham uchramaydi.

Vanessa cardui L. nomini birinchi bo‘lib 1758-yilda Shvetsiya olimi Karl Linney tomonidan taklif etilgan va bugunga qadar ushbu nom bilan atalib kelinmoqda. K Linneydan keyin, O. Lange va boshqa shved entomologlari bu turdagi hasharotlarning biologiyasini, migratsiya yo‘llarini va ekologik xususiyatlarini o‘rganishgan. Vanessa cardui bo‘yicha XX asrda AQSh olimlaridan L.W.O'Brien, **W.F. Marquart** hamda J.M. Devrieslar bu turning turli geografik hududlarda yashash muhitlari, migratsiya yo‘llari, rivojlanish bosqichlari va ularning ekologik roli haqida keng qamrovli tadqiqotlar olib brogan[4,6].

Vanessa cardui L. kapalagi tabiatda juda muhim ekologik rol o‘ynaydi. Bu kapalakning tabiatda foydali bilan birga ba’zi zararli xususiyatlari ham mavjud. Foydali xususiyatlariga to‘xtalib o‘tadigan bo‘lsak, bu kapalaklar ko‘plab o‘simliklar, shu jumladan hosil olish uchun zarur bo‘lgan ko‘plab gullar va mevalarni changlatishda ishtirok etadi. Ular ayniqsa tog‘li mintaqalarda tarqalgan yovvoyi o‘simliklarning urug‘lanishiga yordam beradi, bu esa biologik xilma-xillikni ta’minlaydi[9].

Tuproqning sifatini yaxshilashda ham muhim ahamiyatga ega, misol uchun kapalakning lichinkalari o‘simliklarning barglari bilan oziqlanib o‘g‘itlar hosil qiladi, shu orqali ularning o‘sishiga ijobiy ta’sir qiladi. **Tabiiy muvozanatni** saqlashda ahamiyatga ega hisoblanadi. Ular ekotizimda oziq zanjirlarining bir qismi sifatida ishlaydi, ayniqsa yirtqich va parazitlar bilan bog‘liq bo‘lgan ekologik jarayonlarda.

Shu bilan birga zararli xususiyatlari ham mavjud: misol uchun, ularning lichinkalari mevali o‘simliklar barglari bilan oziqlanib zarar yetkazadi va hosilni kamayishiga olib keladi. Bu esa qishloq xo‘jaligida muammoga aylanishi va o‘simliklar populyatsiyasining kamayishiga olib kelishi mumkin[2,7].

Vanessa cardui L. kapalaklarining lichinkasi va imagosi (katta kapalagi) alohida ko‘rib chiqilishi lozim, chunki ular o‘zaro farqlanadi.

Lichinka (yoki chumolilar) kapalakning eng dastlabki bosqichidir va u o‘simlik barglari bilan oziqlanadi. Lichinkalar kapalakning o‘ziga xos shakliga mos ravishda rivojlanadi va ularning morfologik xususiyatlari quyidagicha: lichinka uzun, tor va mo‘ylovli tanaga ega bo‘lib o‘simlik barglari bilan bir xil rangda bo‘ladi, bu ular uchun himoya vazifasini ta’minlaydi. Shuning uchun lichinkalar turli xil xavf-xatarlardan himoyalanishga qodir bo‘ladi. Lichinka b**oshi** kichik bo‘lib, ayrim hollarda juda o‘zgaruvchan ko‘rinishga ega bo‘ladi (1-rasm).

1-rasm. Vanessa cardui (Linnaeus, 1758) kapalagining lichinkasi

2-rasm. Vanessa cardui (Linnaeus, 1758) kapalagining imagosi

Imago bosqichi kapalak rivojlanishining oxirgi bosqichi bo‘lib, katta va yorqin ranglari bilan ajralib turadi. Shuningdek old qanotlari to‘q qizil rangda bo‘lib, qora va sariq rangli chiziqlar va qanotning markazida oq-yashil dog‘ mavjud. **Orqa qanotlari**, jigarrangda bo‘lib, ularning uchida oqish rangli to‘rt burchak shaklidagi belgilari mavjud, ular odatda qora nuqtalar bilan taminlangan (2-rasm). Vanessa cardui L. qanotlarining kengligi 5,0-5,5 sm atrofida, va bu o‘lcham uning yashash joylarida uzoq masofalarga uchishiga imkon beradi. Boshida uzun va spiral shakldagi "xartumi" (yutuvchi tili) mavjud bo‘lib, nektar yig‘ish uchun ishlatiladi[1,3].

Xulosa qilib aytganda, Nimphalidae oilasiga mansub kapalaklar tabiatda muhim ekologik ahamiyatga ega bo‘lib, ular changlatuvchilar va oziq zanjirining muhim bo‘g‘inlaridan biri hisoblanadi. Nimphalidae oilasi kapalaklarini tadqiq etish yuqorida keltirilgan manbalardan ko‘rinib turibdiki, keng qamrovli emas. Shuningdek ushbu oilani to‘liq va batafsil o‘rganishni taqozo etadi.

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HARBIY TA'LIMDA STEM TA'LIMINING AHAMIYATI

Annotatsiya:*Ushbu maqolada harbiy ta'lim tizimida STEM (Fan, Texnologiya, Muhandislik va Matematika) ta'limining ahamiyati tahlil qilinadi. Zamonaviy harbiy mojarolar texnologik taraqqiyot bilan chambarchas bog'liq bo'lib, harbiy kadrlarning ilmiy-texnik bilimlarga ega bo'lishi strategik ustunlikni ta'minlashda muhim omil hisoblanadi. Tadqiqotda AQSh va Rossiya harbiy akademiyalaridagi STEM dasturlarining samaradorligi, O'zbekistonda bu yo'nalishdagi tajribalar va harbiy sohaga innovatsion texnologiyalarni joriy etishning afzalliklari yoritiladi.*

Kalit so'zlar: *STEM ta'limi, harbiy ta'lim, innovatsion texnologiyalar, sun'iy intellekt, kiberxavfsizlik, harbiy strategiya, dron texnologiyalari, muhandislik, matematika, zamonaviy harbiy texnologiyalar.*

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THE IMPORTANCE OF STEM EDUCATION IN MILITARY TRAINING

Summary:*This article analyzes the significance of STEM (Science, Technology, Engineering, and Mathematics) education in the military training system. Modern military conflicts are closely linked to technological advancements, making scientific and technical knowledge essential for ensuring strategic superiority. The study explores the effectiveness of STEM programs in U.S. and Russian military academies, Uzbekistan's experience in this field, and the benefits of integrating innovative technologies into the military sector.*

Keywords: *STEM education, military training, innovative technologies, artificial intelligence, cybersecurity, military strategy, drone technologies, engineering, mathematics, modern military technologies.*

Kirish

Hozirgi vaqtda dunyo miqyosida xavf-xatarlar, harbiy mojarolar va qurolli to'qnashuvlar tobora avj olib borayotgan o'ta murakkab vaziyatlarda zamonaviy texnologiyalar ularning ajralmas qismiga aylanib bormoqda. Sun'iy intellekt, dronlar, kiberxavfsizlik, yuqori aniqlikdagi qurollar va avtomatlashtirilgan jangovar tizimlar harbiy harakatlarning strategiyasini tubdan o'zgarishiga sabab bo'lmoqda.

Shunday sharoitda harbiy ta’lim va tarbiya jarayonida an’anaviy yondashuvlardan voz kechgan holda innovatsion bilim va texnologik yechimlarni sohaga ko‘proq tatbiq etish darkor. STEM ta’limini harbiy sohada joriy etish zamonaviy urushlarda ustunlikka erishish, harbiy kadrlarni zamonaviy jang maydoniga tayyorlash va global xavfsizlik tahdidlariga samarali javob berish uchun tashlanadigan muhim qadam hisoblanadi.

Harbiy kadrlarning ta’limi, tarbiyasi va ularning ma’naviyati xizmat faoliyatining ajralmas qismi hisoblanadi, desak mubolag‘a bo‘lmaydi. Zero, Prezidentimiz, Qurolli Kuchlar Oliy Bosh Qo‘mondoni Shavkat Mirziyoyev tomonidan “Harbiylar xalqimizning ma’naviy yetuk farzandlari bo‘lishi kerak. Buning uchun shaxsiy tarkibning ma’naviy yetukligini, harbiy xizmatchilarning jangovar tayyorgarligini yuksaltirish lozim. Siz Amir Temur, Jaloliddin Manguberdi kabi buyuk ajdodlarimiz vorislari ekanligingizni doim his qilib, shunga munosib xizmat qilsangiz, yoshlarimiz vatanparvarlik, ona yurtga sadoqat tuyg‘ularini sizlardan o‘rganadi” – deya, fikr bildirilgan [1].

Shunday ekan, harbiy xizmatchilarning ma’naviyatini yuksaltirish, harbiy tizimni modernizatsiya qilishda innovatsion islohotlarni amalga oshirish, jumladan, STEM ta’limini yo‘lga qo‘yish dolzarb masala sanalmoqda. Fikrimizcha, STEM ta’limi harbiy kadrlarni ilmiy-texnik bilimlar bilan qurollantirib, ularning jangovar tayyorgarligi, strategik fikrlash qobiliyati va innovatsion yechimlarni yaratish salohiyatini oshiradi.

Adabiyotlar tahlili va metodologiya

Ushbu ilmiy maqolani tadqiq etishda harbiy ta’lim va STEM yo‘nalishlari bo‘yicha ilmiy maqolalar, hukumat rasmiy hisobotlari, BMT statistikalari va harbiy ta’lim muassasalari ma’lumotlari tahlil qilindi. Shuningdek, AQSh harbiy akademiyalaridagi va Rossiya Federatsiyasi oliy harbiy ta’lim muassasalaridagi STEM dasturlarining samaradorligi haqidagi ma’lumotlar o‘rganildi. Hosil qilingan ma’lumotlar ilmiy-qiyosiy solishtirish metodi orqali yaxlit holga keltirildi. Asosiy maqsad – STEM ta’limining harbiy ta’limdagi ahamiyatini aniqlashdan iborat bo‘ladi.

Natijalar

Asrimiz boshlarida AQSH milliy ilmiy jamg‘armasi mamlakatda texnik mutaxassislar taqchilligini bartaraf etishga mo‘ljallangan yangi ta’lim yo‘nalishini ifodalash maqsadida STEM (Science, Technology, Engineering, Mathematics / Fan, Texnologiya, Muhandislik va Matematika) ta’lim tizimini yaratdi. Shundan so‘ng bu ta’lim haqidagi ilk g‘oyalar akademik nashrlar va ommaviy axborot vositalarida paydo bo‘la boshladi. O‘shandan beri bu shakldagi ta’limni rivojlantirish AQSH davlat siyosatining muhim strategiyalaridan biriga aylandi. Keyinchalik global texnologik taraqqiyot tufayli butun dunyoga yoyila boshladi.

STEM tabiiy va muhandislik fanlarini yagona, o‘zaro bog‘liq tizimda birlashtirgan ta’lim modelidir. U fizika, matematika, biologiya kabi fanlarni muayyan o‘quv dasturi doirasida o‘rganish bilan birga ularni yangi tizimda, yaxlit birlashtirishni nazarda tutadi. Olimlarning ta’kidlashicha, bunday yaxlit o‘rganish muammolarni faqat bitta sohaga tayangan holda qismlarga bo‘lib emas, balki yanada kengroq va global miqyosda koʻrib chiqish va hal qilish imkonini beradi. Ushbu yondashuv STEM taʼlimning asosiy jihati va asosiy tamoyilini — fanlararo uygʻunlikni belgilaydi [2]. Shunisi ahamiyatliki, STEM fanlar boʻyicha emas, balki “mavzu”lar boʻyicha integratsiyalashgan oʻqitish tizimidir. STEM – taʼlimda amaliy mashgʻulotlar yordamida ilmiy-texnik bilimlarni real hayotda qoʻllash oʻrgatiladi. Har bir darsda ular zamonaviy industriyaning mahsulotlarini ishlab chiqadi, barpo qiladi va rivojlantiradi [3].

BMT prognozlariga koʻra 2050-yilga borib kasblarining 75 foizi STEM fanlariga aloqador boʻlishi kutilmoqda. Aynan mana shu tizim asosida taʼlim olish orqali oʻquvchilar kelajak muammolariga yechim topa oladigan, yangi kashfiyotlar qila oladigan kadrlarga aylanishiga ishonilmoqda [4]. Shuningdek, hozirgi kunda STEM taʼlimi yoʻnalishlari boʻyicha bilim va tayyorgarlikka ega boʻlgan mutaxassislarga boʻlgan talab har qachongidan ham yuqori darajani koʻrsatmoqda [5].

STEM taʼlimining harbiy sohada qoʻllanilishi esa harbiy xizmatchilarning strategik qaror qabul qilishda tezroq va samaraliroq harakat qilishlari uchun zamin yaratadi. Shuningdek, harbiy sohada texnologik rivojlanish muhim ahamiyat kasb etadi va dronlar, sunʼiy intellekt va avtomatlashtirilgan tizimlar boʻyicha yetuk mutaxassislarni tayyorlashda katta ahamiyat kasb etadi. Qolaversa, STEM taʼlimi harbiy xizmatchilarga jangovar sharoitlarda tez va toʻgʻri qaror qabul qilish imkonini berish bilan bir qatorda, harbiy muhandislik, kiberxavfsizlik va robototexnika sohalarida STEM bilimlariga ega boʻlgan harbiy mutaxassislar Qurolli Kuchlarning texnologik imkoniyatlarini oshiradi.

Muhokama

XX asrda II-jahon urushining oqibatlari Gʻarb mamlakatlarining harbiy tizimida misli koʻrilmagan transformatsiyani vujudga keltirgan boʻlsa, XXI asrda STEM taʼlimi harbiy sohada navbatdagi inqilobni amalga oshirdi. Ilgʻor texnologiyalar va mudofaa tizimlarini rivojlantirish orqali STEM fanlari mamlakatlarga xavfsizlik va strategik ustunlikni oshirish imkonini berdi. Shuningdek, STEM taʼlimi orqali amalga oshirilgan innovatsiyalar harbiy sohaning murakkab muammolariga yechim topishda yordam berdi hamda harbiy operatsiyalarning samaradorligi va natijadorligini oshirishga sabab boʻldi [6].

Kollektiv Gʻarb mamlakatlarining harbiy sohadagi tajribalarida shuni guvohi boʻlish mumkinki, STEM taʼlimi orqali sunʼiy intellekt, dronlar, robototexnika, kiberxavfsizlik va avtomatlashtirilgan tizimlarning harbiy sohaga moslashtirilishiga, ularni muntazam takomillashtirib borishga, fortifikatsiya, jang maydonining arxitekturasi, jangovar vaziyatlarni modellashtirishga, ularning asoslarini chuqush bilishga, matematik modellashtirish va fizika qonunlarini tushunish orqali aniq hisob-kitoblar va strategik rejalarni tuzishga, shifrlash texnologiyalari, tarmoq xavfsizligi va razvedka tizimlarini rivojlantirishga yordam berdi. Shu bilan birga, muhandislik va texnologiya sohasidagi bilimlar transport tizimlari, harbiy taʼminot va resurslarni boshqarish imkoniyatini hamda sunʼiy intellekt asosida harbiy taʼminot tizimlarini avtomatlashtirish orqali resurslardan samarali foydalanishni vujudga keltirdi.

Hozirgi kunda ham dunyoning rivojlangan davlatlari harbiy sohada STEM ta’limiga alohida e’tibor qaratmoqda. Amerika Qo‘shma Shtatlari West Point harbiy akademiyasi va boshqa ilmiy tadqiqot institutlari texnologik rivojlanish bo‘yicha nafaqat Amerikaning o‘zida, balki dunyo miqyosida ham yetakchilik qilishmoqda [7]. Mazkur akademiya va institutlarida sun’iy intellekt, dron texnologiyalari va kvant kompyuterlar faol qo‘llanilmoqda.

Shuningdek, Rossiya hukumati tomonidan ham harbiy sohada fizika fani rivojlantirish maqsadida STEM ta’limi yo‘lga qo‘yilgan [8]. Ushbu islohotlar elektron urush va harbiy robototexnika sohasida yangi ilmiy tadqiqotlarga va kiberxavfsizlik hamda sun’iy intellekt asosida strategik rejalashtirish munosib hissasini qo‘shmoqda

O‘zbekiston Respublikasi Prezidentining 2018-yil 5-sentabrdagi “Xalq ta’limi tizimiga boshqaruvning yangi tamoyillarini joriy etish chora-tadbirlari to‘g‘risida”gi PQ-3931-sonli qarorda STEM ta’limini bosqichma-bosqich amaliyotga joriy etish belgilab berilgan. Mazkur vazifalarni bajarish uchun, avvalo, ta’lim ishtirokchilari – pedagoglar, metodistlar, o‘quvchilar, ota-onalar va boshqalar STEM ta’limi yo‘nalishida o‘tkaziladigan xalqaro tadqiqotlar haqidagi ma’lumotlarni bilishi hamda ularni amaliyotda qo‘llash uchun malakalarga ega bo‘lishlari zarur bo‘ladi [9].

Hozirgi kunda mamlakatimiz hududidagi oliy harbiy ta’lim muassasalarida axborot-texnologiyalar yo‘nalishida harbiy xizmatchilarni kasbiy tayyorlash yo‘lga qo‘yilgan. Ammo, oliy harbiy ta’lim muassasalaridagi o‘quv dasturi asosan nazariy bilimlarni berishga asoslangan. Shuningdek, harbiy xizmatchilarning kasbiy tayyorgarligida bilimlarning ajratilgan holda yetkazilishi interdissiplinarlik xususiyatini yuzaga kelmasligida, bu esa o‘z navbatida, harbiy sohani modernizatsiyalash bilan bog‘liq bilimlarni yaxlit tasavvur qilinmasligiga olib kelmoqda. Fikrimizcha, STEM ta’lim tizimini harbiy ta’limga integratsiya qilsak, harbiy soha yanada taraqqiy etishi turgan gap. STEM ta’limini harbiy sohaga tatbiq etilishi zamonaviy texnologiyalarni o‘zlashtirishni tezlashtirish, jangovar tayyorgarlik va strategik fikrlash qobiliyatini oshirish, innovatsion harbiy texnologiyalarni rivojlantirish imkonini berish, kiberxavfsizlik va axborot urushlarida ustunlikni ta’minlash bilan bir qatorda harbiy muhandislik va logistikani yangi bosqichga olib chiqish kabi afzalliklarga ega. STEM ta’limining harbiy sohaga tatbiq etilishi Qurolli Kuchlarimiz tasarrufidagi zamonaviy qurollarni samarali boshqarish, jangovar sharoitni tezkor tahlil qilish, raqamli texnologiyalar yordamida real vaqtda ma’lumotlarni qayta ishlash va strategik qarorlar qabul qilish, sun’iy intellekt yordamida jangovar operatsiyalarni avtomatlashtirish orqali inson omiliga bog‘liq xatolarni kamaytirish, terroristik tashkilotlarning kiberhujumlariga qarshi samarali himoya strategiyalarini yaratish hamda oliy harbiy ta’lim muassasalarida ilg‘or ilmiy va texnik bilimlarga ega ofitserlar va mutaxassislarni tayyorlash jabhalarida yuqori samaradorlikni namoyon etadi.

Yana shunisi ahamiyatliki, STEM ta’limni harbiy sohaga tatbiq etish ijtimoiy tomondan ham foyda keltiradi. Zero, harbiy xizmatdan nafaqaga chiquvchi faxriylarga STEM sohasida yuqori maoshli ishlarga joylashishilariga zamin yaratiladi.

Shunday ekan, harbiy ta’lim muassasalarida STEM fanlariga katta e’tibor qaratish – zamonaviy armiya va mudofaa tizimini rivojlantirishning muhim yo‘nalishlaridan biridir.

Xulosa

Xulosa sifatida shuni aytishimiz mumkinki, harbiy ta’limda STEM yondashuvining joriy etilishi zamonaviy armiya uchun muhim ustunlik yaratadi. Bu nafaqat jangovar operatsiyalarni olib borishda ilg‘or texnologiyalardan samarali foydalanish imkonini beradi, balki harbiy xizmatchilarning muhandislik, texnologik va tahliliy fikrlash ko‘nikmalarini ham oshiradi. Natijada, strategik rejalashtirish, mudofaa tizimlarini rivojlantirish va milliy xavfsizlikni ta’minlash yanada samarali bo‘ladi.

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BO'LAJAK BOSHLANG‘ICH TA'LIM ZET-AVLOD O'QITUVCHILARINING EKOLOGIK KOMPETENTLIGINI OSHIRISHDA STEAM TA'LIMINING IMKONIYATLARI

Annotatsiya: *Ushbu tadqiqotda Zet-avlodga mansub bo‘lajak boshlang‘ich ta’lim o‘qituvchilarining ekologik kompetentligini rivojlantirishda STEAM ta’limi imkoniyatlari tahlil qilinadi. Zamonaviy ta’limda integrativ yondashuv orqali ekologik ong, mas’uliyat va amaliy ko‘nikmalarni shakllantirish muhim ahamiyat kasb etadi. STEAM ta’limi fan, texnologiya, muhandislik, san’at va matematika sohalarini birlashtirgan holda atrof-muhitga bag‘rikeng munosabatni shakllantirishga xizmat qiladi.*

Kalit so‘zlar: *Zet-avlod, bo‘lajak o‘qituvchi, boshlang‘ich ta’lim, ekologik kompetentlik, STEAM ta’limi, innovatsion yondashuv, fanlararo integratsiya, ekologik ong, amaliy ko‘nikma, ta’lim texnologiyalari.*

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FUTURE PRIMARY EDUCATION OPPORTUNITIES FOR STEAM EDUCATION IN INCREASING ENVIRONMENTAL COMPETENCE OF ZET-GENERATION TEACHERS

Annotation: *This study analyzes the potential of STEAM education in developing the ecological competence of future primary education teachers belonging to the Z-generation. In modern education, the formation of environmental awareness, responsibility and practical skills through an integrative approach is of great importance. STEAM education serves to form a tolerant attitude to the environment by combining the fields of science, technology, engineering, art and mathematics.*

Keywords: *Generation Z, future teacher, primary education, environmental competence, STEAM education, innovative approach, interdisciplinary integration, environmental awareness, practical skills, educational technologies.*

Fikr-mulohaza
Yon panellar
Tarix
Saqlab olingan

Kirish. Boshlang‘ich ta’lim sohasidagi kelajakdagi z-avlod o‘qituvchilari ekologik kompetentlikni shakllantirish va global ekologik muammolarni bartaraf etishda strategik ahamiyatga ega sub’ektlar sifatida namoyon bo‘lishi lozim. O‘zbekiston respublikasining 2030-yilgacha bo‘lgan davrda atrof-muhitni muhofaza qilish konsepsiyasining qabul qilinishi [1] ta’lim sohasida ekologik madaniyatni shakllantirish bo‘yicha tizimli yondashuvni talab etmoqda. Mazkur maqsadga erishishda steam ta’lim modeli o‘zining fanlararo integrativ xususiyati bilan pedagogik amaliyotda innovatsion platformalarni yaratish imkoniyatini beradi. Steam ta’limi orqali tabiiy va aniq fanlarning sinergetik uyg‘unligiga erishish, o‘quvchilarda ekologik itoatkorlik, kreativ fikrlash va kompleks muammolarni hal etish qobiliyatlarini rivojlantirishga xizmat qiladi. Shu asosda, ekologik kompetentlikni shakllantirishda steam yondashuvning metodologik bazisi zamonaviy ta’limni modernizatsiya qilishning samarali vositasi sifatida ko‘riladi. Tadqiqotning maqsadi - boshlang‘ich ta’limda mazkur konsepsiyani samarali joriy etish imkoniyatlarini tahlil qilish, hamda yosh pedagoglarni ekologik tahdidlarga nisbatan tizimli bilim va amaliy ko‘nikmalar bilan ta’minlashdan iborat.

Natijalar tadqiqot natijalari shuni ko‘rsatdiki, steam ta’limi asosida ekologik kompetentlikni rivojlantirish, boshlang‘ich ta’limda o‘qituvchilarning ekologik savodxonligini oshirishda muhim omil bo‘lib xizmat qiladi. O‘quvchilarning ekologik masalalarga bo‘lgan munosabatlari va ularning hayotga ekologik taassurotlar bilan yondashish qobiliyatlari shakllantiriladi. Ekologik kompetentlikni rivojlantirishga qaratilgan integrativ dasturlar, ekologik tafakkurni, ijodiy va tanqidiy fikrlashni kuchaytirishga imkon yaratadi. Steamning metodologik asoslari ekosistemalarning biofizik va antropogen tuzilmalarini o‘rganishga yo‘naltirilgan o‘quv va tadqiqot ishlarida ko‘p tomonlama bilimlarning muvofiqlashuviga yordam beradi. Ekologik savodxonlikni oshirishda fanlar va texnologik bilimlarni o‘zaro integratsiyalashtirish, o‘quvchilarning muammolarni yechishdagi jarayonlarni boshqarish qobiliyatlarini takomillashtiradi. Ushbu natijalar, steam ta’limi asosida ekologik kompetentlikni rivojlantirishning samarali va zamonaviy usullarini o‘qituvchilarning malakasini oshirishda hamda ularni jamiyatda ekologik muammolarga nisbatan javobgarlik va hamkorlikka undashda muhim vazifa sifatida ko‘rsatadi.

Adabiyotlar tahlili va metodologiya. Bo‘lajak boshlang‘ich ta’lim zet-avlod o‘qituvchilarining ekologik kompetentligini rivojlantirishda steam ta’limi tizimining metodologik imkoniyatlari haqidagi tadqiqotlar bir necha asosiy yo‘nalishlarga yo‘naltirilgan. A.y.kuchkinov [2] o‘zining ekologik ta’limga oid tadqiqotlarida ekologik savodxonlik va ijodiy fikrlashning muhimligini ta’kidlagan, bu esa steamning integrativ yondashuviga asoslanadi. Shuningdek, ye.ya.arshanskiy [3] ekosistema va texnologik innovatsiyalar o‘rtasidagi aloqaning o‘quvchilarning ekologik bilishini rivojlantirishda muhim rol o‘ynaganini ko‘rsatdi. I.tadjibaev, n.otojanova, ya.golovko, n.beketov, q.mambetaliev, a.kuchkinov, t.sultonov [4] metafizalogik metodologiyasining fanlar va texnologiyalarni birlashtirish orqali ekologik fikrlash va muammolarni hal qilish qobiliyatlarini shakllantirishda muhim ahamiyatga ega ekanligini bildirgan.

Metodologik jihatdan, tadqiqotlar ekosistema tahlillari va ekologik savodxonlikka yo‘naltirilgan ko‘psonli ta’lim modellariga asoslangan. Steam ta’limi, integrativ va ko‘pfaoliyatli o‘qitishni ta’minlash orqali ekologik kompetentlikni rivojlantirishda samarali yo‘nalish hisoblanadi. Ushbu metodologiya pedagogika, ekologiya va texnologik ta’limni o‘zaro muvozanatli tarzda integratsiyalashtirishga asoslanadi, shuningdek, o‘quvchilarning ekologik muammolarga bo‘lgan yondashuvlarini tahlil qilish va ularni yechishga qaratilgan innovatsion ko‘nikmalarni shakllantirishga imkon beradi.

Muhokama. Bo‘lajak boshlang‘ich ta’lim zet-avlod o‘qituvchilari ekologik kompetentlikni rivojlantirishda steam ta’limi imkoniyatlarini o‘zining integrativ yondashuvi orqali mukammallashtiradi. Steam ta’limi, fanlar va texnologiyalarni uyg‘unlashtirish orqali ekologik masalalarni hal qilishga qaratilgan tafakkurni shakllantirishda muhim ahamiyatga ega. Tadqiqot natijalari, steam usullari orqali ekologik kompetentlikni rivojlantirishning samaradorligini tasdiqlaydi, shuningdek, ekologik savodxonlik va ijodiy fikrlashni rivojlantirishga katta e’tibor qaratiladi.

Ammo, shuningdek, bu metodologiyani to‘liq amalga oshirishda bir qator muammolar ham mavjud. Birinchi navbatda, steam ta’limiga moslashtirilgan pedagogik modellarning soni va sifatini yaxshilash kerak. Shunday qilib, ekologik kompetentlikni rivojlantirishda steamning ishga solish imkoniyatlari kengaytiriladi, ammo ushbu ta’lim tizimini to‘liq tarzda joriy etish uchun qo‘shimcha resurslar va mavjud pedagogik kadrlarning malakasini oshirish zarur.

Bundan tashqari, milliy ta’lim standartlari va xalqaro tajribalarning o‘zaro hamkorligi, ekologik ta’limning samaradorligini oshirishga yordam beradi. Shu sababli, steam asosida ekologik kompetentlikni rivojlantirishning zamonaviy, integrativ yondashuvi asosida ta’limning samaradorligini ta’minlash uchun yanada kengroq tadqiqot va amaliy ishlarni olib borish talab etiladi.

Xulosa. Bo‘lajak boshlang‘ich ta’lim zet-avlod o‘qituvchilarining ekologik kompetentligini rivojlantirishda steam ta’limi zamonaviy pedagogik metodologiya sifatida muhim ahamiyatga ega. Ushbu ta’lim modeli, fanlar, texnologiya va ijodiy fikrlashni integratsiyalashtirish orqali ekologik savodxonlikni oshirishga yordam beradi. Tadqiqot natijalari ko‘rsatganidek, steam metodologiyasining pedagogik samaradorligi ekologik kompetentlikni rivojlantirishda tizimli va integrativ yondashuvni ta’minlaydi. Shu bilan birga, bu tizimni to‘liq tatbiq etish uchun pedagogik kadrlarning malakasini oshirish va ta’lim standartlarini takomillashtirish talab etiladi.

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INNOVATIVE APPROACHES TO TEACHING HIGHER MATHEMATICS TO STUDENTS OF TECHNICAL DIRECTIONS

Abstract: *This article discusses innovative approaches to teaching higher mathematics to students in technical fields. It analyzes the implementation of interactive methods, digital platforms, and practice-oriented tasks to increase students' engagement and develop their professional competencies. Four solved problems are included to illustrate the effectiveness of these innovative methods.*

Keywords: *higher mathematics, innovative approach, technical education, interactive method, engineering problems.*

Introduction

Today, the transition to modern forms and methods of teaching in the higher education system is becoming increasingly important. Teaching higher mathematics on a practical and interactive basis, especially to students studying in technical fields, has a direct impact on their professional training. Traditional approaches rely only on the student's theoretical knowledge, which may not be sufficient to solve real problems. Therefore, there is a need to update the educational process through innovative approaches.

Main part

1. The concept of an innovative approach and its role in the educational process

An innovative approach is a method of simplifying students' knowledge acquisition, developing their independent thinking and problem-solving skills through new pedagogical technologies, information media and interactive methods in the educational process.

The following innovative approaches are widely used in teaching higher mathematics to students in technical fields:

- ✓ Simulation and mathematical modeling;
- ✓ Software tools such as geogebra, desmos, maple;
- ✓ Problem-based learning methodology;
- ✓ Task-based learning;
- ✓ Distance learning platforms (moodle, hemis, zoom, telegram).

2. Examples solved based on a practical approach

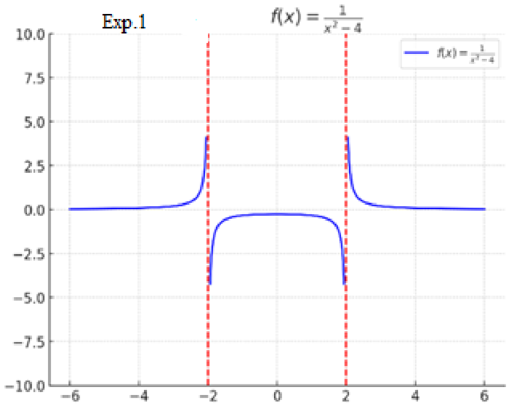
Example 1. (domain and graph of a graphed function)

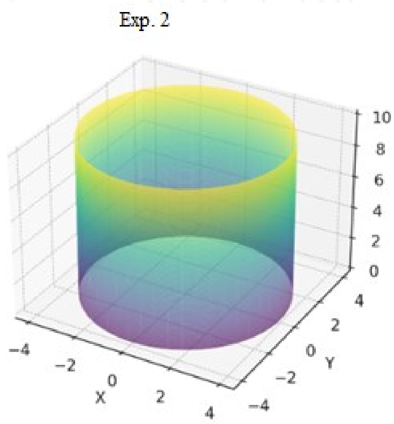
Given: $f(x)=\dfrac{1}{x^2-4}$ determine the domain and graph of the function.

Solution: the domain of the function: the denominator of the fraction must be non-zero: $x^2-4\neq 0 \;\Rightarrow\; x\neq \pm 2$. If we write this in interval form:

$D(f)=(-\infty,-2)\cup(-2,2)\cup(2,+\infty)$

Below we draw the graph of this function.





Example 2. If the radius of a cylinder is $r=4$ cm and the height is $h=10$ cm, find its total surface area.

Solution: for this we need the $S=2\pi r(r+h)$ formula. We calculate by putting the values of the parameters in this formula:

$S=2\pi\cdot 4\cdot(4+10)=8\pi\cdot 14=112\pi\ cm^2$

So, the surface area of the given cylinder is equal to 112π cm^2.

Now let's draw the graphs of the functions in examples 1 and 2:

Example 3. (using the determinant in solving problems)

There is a door in a wall 5.15 m wide and 2.78 m high. The door is 2.05 m high and 0.8 m wide. How many pieces of wallpaper without flowers are needed for this wall?

To solve this problem, we will use the second determinant:

Solution:

This wall requires $\begin{vmatrix} 5.15 & 2.05 \\ 0.8 & 2.78 \end{vmatrix} = 5.15\cdot 2.78 - 2.05\cdot 0.8 = 14.317 - 1.64 = 12.677$ square footage of wallpaper.

Example 4. How much earthwork is done when digging a pit 3 m deep, 12.5 m wide, and 25 m long?

Solution: we solve the problem using a third-order determinant. Earthwork in the $\begin{vmatrix} 3 & 0 & 0 \\ 0 & 12.5 & 0 \\ 0 & 0 & 25 \end{vmatrix} = 3\cdot 12.5\cdot 25 = 937.5$ volume unit (in this example) is done.

So, 937.5 m of soil was excavated when digging the pit.

Example 5. (finding the derivative using the problem method)

Function: $y=x^3\cdot\sin x$. Find the derivative (using leibniz's rule).

Solution: $y' = \frac{d}{dx}(x^3) \cdot \sin x + x^3 \cdot \frac{d}{dx}(\sin x) \Rightarrow y' = 3x^2 \sin x + x^3 \cos x$

Result

Based on the analyses and examples conducted in this article, the theoretical and practical importance of higher mathematics, as well as its role in the development of students' thinking, was thoroughly covered. Each problem presented proved how important various sections of higher mathematics (functions and asymptotes, geometry, integral calculus and probability theory) are not only theoretically, but also practically.

In particular, the following results were achieved:

1. By analyzing asymptotic functions, students learn to build mathematical models and understand the behavior of functions at limiting points.

2. Calculating the surfaces of geometric shapes (for example, the surface area of a cylinder) develops spatial thinking skills necessary for specialists in technical fields.

3. Determining the mass worked through integral calculus - this strengthens integration with physics and mechanics and serves to form practical knowledge.

4. Through the application of probability theory and combinatorics, students will be prepared to make accurate decisions on statistical thinking, selection and planning.

Each branch of mathematics is useful in solving real-life problems. This helps students develop mathematical literacy and the skills to systematically solve problem situations. Higher mathematics is not only a source of theoretical knowledge, but also an important foundation for preparing for modern professions.

Conclusion

In conclusion, higher mathematics plays a special role in deepening the theoretical knowledge of students of any professional field, developing analytical thinking, and forming innovative approaches to solving problems.

The following are highlighted as the main conclusions:

• in teaching higher mathematics, it is possible to prepare students for real-life situations based on a competency-based approach.

• by enriching each mathematical topic with practical examples, the topics are explained in more depth and student mastery is improved.

• when multidisciplinary integration - that is, when areas such as mathematics and economics, mathematics and mechanics, mathematics and physics are taught together, the importance and necessity of the subject becomes even more evident.

• higher mathematics is the most convenient and necessary tool for developing independent research, experimentation, and numerical analysis skills in students.

Thus, higher mathematics teaches not only theory, but also the scientific analysis and effective solution of life problems. This is one of the most important factors in training competitive personnel today.

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COMMON FEATURES OF THE DRAMA GENRE AND SIMILARITIES AND DIFFERENCES BETWEEN ENGLISH AND UZBEK DRAMA IN TWO CULTURES

Abstract:*This article offers a comparative analysis of English and Uzbek drama. It focuses on the genre-specific characteristics of drama, its societal functions, and typology of characters, conflict structures, and language features. Special attention is paid to the cultural codes reflected in dramatic works from both nations. The analysis is based on classical and contemporary examples of drama, including works by William Shakespeare and Richard Sheridan on the one hand, and Erkin Vakhidov and Uygun on the other. The study identifies universal elements of the genre as well as culture-specific features.*

Keywords: *drama, English literature, Uzbek literature, genre characteristics, cultural comparison, theater, conflict, character*

1. Introduction

Drama is one of the oldest and, at the same time, most dynamically developing genres of literature. From its origins in ancient Greek culture to the contemporary post dramatic theater, drama has not only reflected the realities of the surrounding world but has also actively participated in shaping public consciousness, moral values, and the cultural identity of nations. A key feature of drama lies in its synthetic nature: it combines elements of literature, stage art, philosophy, rhetoric, and psychology.

In every culture, drama evolves under the influence of specific historical, social, and religious factors, giving it a unique national character. At the same time, the genre nature of drama presupposes a set of universal features, such as conflict, dialogicity, performativity, and the desire to expose human emotions and the inner world of individuals. Therefore, a comparative study of the dramatic traditions of two different cultures—English and Uzbek—is of particular scholarly significance.

English drama, from William Shakespeare to contemporary postmodern plays, is known for its deep philosophical content, refined psychological insight, and social engagement. It developed within the context of the European Christian tradition, the Enlightenment, and an individualistic model of personality. In contrast, Uzbek drama, which emerged in the early 20th century on the basis of oral folklore and Eastern poetic traditions, is oriented toward collectivist values, national ethics, patriotism, and spirituality.

The aim of this article is to identify both the common and distinctive features of the drama genre in English and Uzbek literary traditions, to determine which cultural codes are embedded in dramatic texts, and how these reflect a people's worldview. The analysis is based on classical and modern plays from both cultures, which makes it possible to trace not only typological similarities but also the unique features of national drama.

In the context of globalization and expanding intercultural dialogue, comparing dramatic models of different cultures acquires special relevance: it contributes to a deeper understanding of what is universal and what is culturally specific in the artistic consciousness of nations, broadens the scope of literary studies, and opens new perspectives for the development of theatrical art.

2. Common features of the drama genre.

Drama has a number of universal traits that appear regardless of cultural context:

- **Conflict-based structure** – Every drama centers on a conflict, whether internal, interpersonal, or societal.
- **Dialogic form** – Drama relies on dialogue as its primary mode of narration.
- **Staging orientation** – Written to be performed on stage.
- **Character typification** – Characters often embody social roles or psychological types.
- **Unity of time, place, and action** – Classical dramatic structure often adheres to these principles.

These traits can be observed in both English and Uzbek drama, though they manifest differently due to cultural context.

3. English Drama: From Shakespeare to the modern age.

English drama boasts a long and rich tradition dating back to the Middle Ages and reaching its peak during the Elizabethan era. Key features include:

- **Multilayered conflict** – In Shakespeare's works, personal, political, and philosophical conflicts intertwine.
- **Psychological depth of characters** – Hamlet, Macbeth, King Lear are prime examples.
- **Verse structure** – Iambic pentameter, rhetorical figures, and rich metaphors.
- **Open endings** – Often leave the moral lesson ambiguous or debatable.

For example, in *Othello*, the dramatic tension arises from the collision of love, jealousy, and betrayal, with a profound philosophical subtext on the nature of human weakness.

Modern English drama (e.g., Harold Pinter, Tom Stoppard) emphasizes social criticism, existential themes, and minimalist dialogue.

4. Uzbek Drama: National motifs and cultural depth.

Uzbek drama began to actively develop in the 20th century, drawing from a deep tradition of oral poetry, folk theater (maskharaboz), and Islamic ethics. Key features include:

- **Moral conflict** – Often between personal desires and collective duty, or tradition and modernity.

- **Cultural and religious archetypes** – Respect for elders, family values, national identity.
- **Poetic and rhetorical language** – Emphasis on artistic expression and traditional Eastern eloquence.
- **Folk elements** – Proverbs, myths, and historical references enrich the text.

For example, Erkin Vakhidov's plays often include patriotic and philosophical themes, exploring the spiritual and national responsibility of the individual.

5. Similarities and differences.

Criterion	English Drama	Uzbek Drama
Central Conflict	Existential, political	Moral, societal
Characters	Individualized, psychologically complex	Symbolic, socially typical
Form	Structured verse, rhetorical devices	Poetic, with folklore integration
Core Values	Freedom, honor, individual choice	Family, respect, tradition
Source of Dramatic Tension	Internal psychological struggle	Conflict with social norms or authority
Ending	Often tragic or philosophically unresolved	Often didactic or open-ended

6. Conclusion

Drama as a genre unites cultures despite differences in their historical and cultural trajectories. English drama, beginning with Shakespeare, emphasizes individual psychology and philosophical reflection. Uzbek drama, in contrast, tends to preserve collective memory, moral guidance, and social cohesion through theatrical forms.

A comparative analysis of these traditions reveals that drama is not only a reflection of reality but also a participant in shaping cultural identity. It speaks the universal language of human emotion—fear, love, duty, guilt—but interprets it uniquely in each culture. These differences must be taken into account in translation, theatrical adaptation, educational settings, and intercultural dialogue.

Thus, the study of English and Uzbek drama deepens our understanding of how art reveals the human condition and national spirit.

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GOALS AND OBJECTIVES OF IMPROVING THE QUALIFICATION OF FUTURE TEACHERS USING TIPS(THEORY OF INVENTIVE PROBLEM SOLVING) TECHNOLOGIES

Annotation*. Modern socio-economic conditions impose new requirements for the training of competitive specialists, the comprehensive development of the individual, which can be considered the highest result in any pedagogical technology. This article provides information on the goals and objectives of using TIPS technology to improve the professional skills of teachers.*

Keywords*: TIPS (Theory of inventive problem solving), inventive tasks, professional skills, competence, competence, creative abilities.*

The main goal of modern education is to ensure its high quality, taking into account the constantly changing needs of the population. In this regard, higher education is faced with the task of preparing a specialist who has a number of qualities that will allow him to adapt to a rapidly changing world after graduating from an educational institution, who will be able to independently develop and acquire the necessary knowledge, skills, abilities and qualifications.

The main vector determining the development of a specialist is his intellectual courage in mastering the methods of "assimilation" of knowledge, creativity in thinking, and the ability to independently and thoroughly assimilate knowledge in the learning process. TIPS is becoming an important approach to qualitatively improving the effectiveness of education, developing the ability to analyze, creative thinking, and identifying emerging contradictions.

Creativity - appears in various situations of activity. Interest, inspiration, aspiration, etc. include the process from the emergence of creativity in the human mind to its highest manifestation. The need for creative activity of a person implies a desire for new, previously unattained creative goals in activity. Today, the problem of introducing preschool children to TIPS technology is especially relevant, since the decline in interest in reading in children cannot be overemphasized. Therefore, it is recommended to tie the child to books, to conduct reading in preschool age in accordance with federal state educational standards, otherwise it will be difficult to educate the student in the future, which will negatively affect not only the development of a particular child, but also the spiritual and moral potential of society as a whole.

Pedagogical, psychologist, and linguist scientists such as K.D. Ushinsky, E.I. Tikheyeva, E.A. Flerina, L.S. Vygotsky, S.L. Rubinshtein, A.V. Zaporozhets, A.A. Leontiev, F.A. Sokhin, who have studied this issue, emphasize the importance of introducing children to the beauty of their native language and developing TIPS technology.

Through teaching TIPS technology, the child learns to analyze the past, present and future of the world. In order to experience TIPS technology, emotions and various TIPS games, the child needs systematic influence from others and adults in order to develop his mental abilities.

Theory of Inventive Problem Solving (TIPS) - created by Soviet inventor Heinrich Altshuller and his followers to improve the creative process of scientists

G. S. Altshuller studied over 40,000 patents and copyrights between 1946 and 1971, classified solutions into 5 levels of inventiveness, and identified 40 standard techniques used by inventors. Together with the Algorithm for Solving Inventive Problems (ARIZ), this became the core of TIPS.

Advantages of using TIPS elements:

• a universal set of tools that can be used in mandatory classes, game activities and regular moments;

• allows you to reveal the individuality of each child;

• stimulates the exchange of original ideas;

• helps you feel the taste of success in achieving your goals;

• stimulates creative, active, independent thinking;

• develops children's imagination, embodied in play, practical and artistic activities; helps to form a person who can offer non-standard solutions, find a way out of a difficult situation, help others look at the problem from a different perspective.

The starting point of the TIPS concept in relation to preschool children is the principle of natural learning. When teaching a child, the teacher should proceed from his own nature. Also, L.S. Vygotsky noted that a preschool child perceives the curriculum to the extent that it is unique to him.

The purpose of using TIPS technology in kindergarten is, on the one hand, to develop such qualities of thinking as flexibility, mobility, systematicity, dialecticism, and, on the other hand, to develop search activity, a desire for innovation, speech and creative imagination.

TIPS for preschoolers:

- this is a system of collective games and activities aimed not at changing the main program, but at increasing its effectiveness.

- according to the founder of this theory, G.S. Altshuller, "a controlled process of creating new things, combining precise calculation, logic and intuition."

The use of TIPS in teaching preschoolers allows children to grow up to be real inventors, becoming creators and generators of new ideas in adulthood.

TIPS technology also develops such moral qualities as the ability to rejoice in the successes of others, the desire to help, and the desire to find a way out of a difficult situation.

The main difference between TIPS technology and the classical approach to preschool development is that it allows children to independently find answers to questions, solve problems, analyze, and not repeat what adults say.

TIPS is a scientific technology of creativity aimed at consciously controlling certain processes. And like any science working at the frontier of knowledge, it combines rigorous scientific approaches and a certain art.

TIPS is a technology that can be used as a universal tool in almost all types of activities (both in education and in games and in ordinary moments). It allows you to form a single, harmonious, scientifically based model of the world in the mind of a preschooler. A successful situation is created, the results of the solution are exchanged, the solution of one child activates the mind of another child, expands the scope of imagination, stimulates its development. Technology gives each child the opportunity to express their individuality and teaches preschoolers to think outside the box.

Training using TIPS methods is conducted as a search for truth and essence, leading the child to a problem and a joint search for its solution.

The Address sent by the President of the Republic of Uzbekistan to the Oliy Majlis (Parliament) specifically recognized that our people, knowing the essence and value of education, have always strived for knowledge and enlightenment, and that only enlightenment can lead a person to perfection and a nation to development. It was emphasized that in developed countries, great attention is paid to investing in the full cycle of education, that is, investing in the upbringing of a child from 3 to 22 years old, and that this investment brings 15-17 times the benefit to society, therefore, education should continue from childhood throughout life.

The task of deepening knowledge in the field of TIPS technology is as follows

1. Introduction to innovative technologies.
2. Collection of materials for work in pedagogical activities using TIPS technology.
3. Selection and highlighting of more effective methods and game activities that will help children in independent activity. Use of the TIPS approach in everyday communication with children.
4. Use of TIPS technology for preschool children
5. Development of a long-term plan for working with children.
6. Conducting consultations for teachers and parents
7. Additionally: collection of presentations for teachers

Preschool education is considered the primary link in the continuous education system, which is of great importance in raising a healthy and well-rounded child and preparing him for school.

The cognitive process in preschool children occurs as a result of creative activity. In order for the child to search for and manifest his creative activity in the process of completing a given task, there is a need for purposeful, planned, self-aware activities with norms and criteria. This requires the child to master the objects of the environment and knowledge about them, as well as to create educational effectiveness, relying on previous types of activity.

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EFFECTIVE METHODS IN FORMING NATIONAL ETHICAL SKILLS IN PRIMARY STUDENTS OF SPECIAL SCHOOLS

Abstract*:This article presents information about the methods that are effective in forming national etiquette skills in primary school students of special schools, the structural structure of research conducted in the field of pedagogy, theoretical research and practical experience.*

Keywords: *method, methodology, special pedagogy, national etiquette, skills, qualifications, technology.*

1. **Exercise method.** This method helps primary school students of special schools, as well as individuals of all ages, to apply the acquired theoretical knowledge about national etiquette in practice and master the skills of adhering to them in everyday life. During the experimental-testing process, exercises were performed with students in a collective, group, and individual manner on adherence to national etiquette. Such exercises include exercises such as “How to behave in public places”, “Hospitality etiquette”, “Attitude to adults and children”, and “Showing affection to parents”.

2. **Method of practical exercises.** This method also helps primary school students of a special institution to strengthen and enrich their knowledge of national etiquette standards, thereby helping them to develop the skills to adhere to them in everyday life. When conducting testing, special attention was paid to the organization of practical exercises in the form of games and competitions to cultivate the skills of adhering to national etiquette standards among primary school students of a special institution. Among such games, we can cite the author's mobile games "Let's revive road signs", "Create new road signs", as well as the board games "Move correctly on city streets". Competitions such as "The most well-mannered young passenger", "The most exemplary spectator", "The most exemplary guest" not only ensured the thorough mastery of national etiquette standards by primary school students of the special institution, but also aroused their interest in the processes of being in public places and traveling in public transport.[1]

3. **Game method.** According to age and psychological characteristics, primary school students of a special institution effectively master the social experience gained by humanity through their activities. That is, they master the skills of adhering to existing national etiquette standards on the basis of practical actions enriched with game elements. In organizing test work, games proposed by various authors, which have incorporated the essence of national etiquette standards into their content, as well as games based on the personal creative approach of the dissertation, were effectively and purposefully used. These include intellectual

communication games such as “Conversation on various topics”, “Let's get acquainted!” and stage games called “Let's eat together”.

4. **Motivational method.** This method is used in primary school students of a special institution to effectively form the skills of strict adherence to national etiquette standards and obedience to existing rules. Compliance with national etiquette standards and respect for them were encouraged or punished through direct and indirect observation and evaluation of students' behavior and daily activities. During the testing period, students' behavior was stimulated by such forms of encouragement as encouragement and encouragement, expressing confidence, expressing gratitude, and rewarding.[2]

5. **Punishment methods.** It is known from educational practice that students do not always unconditionally comply with existing social requirements and rules. At the same time, they cannot always rationally assess the consequences of non-compliance with national etiquette or are indifferent to them. In the daily activities of primary school students of a special institution, such as non-compliance with national etiquette and disrespect for them, the methods of punishment were used, such as reprimanding, scolding, and shaming. Attention was paid to the individual application of punishment methods to students. Consequently, when this approach is taken, the reputation of students who do not comply with existing rules and regulations will not be damaged in the eyes of their peers and classmates, and therefore their negative behavior will not go unpunished.

6. **Question-answer method.** This method was used to analyze and assess the level of effective assimilation of the material presented by students in the process of mastering knowledge about national etiquette. When using the method, special attention was paid to the fact that the questions presented to the students' attention were short, clear, and unambiguous. Two levels of questions were used in the research. Namely, 1) recognition questions; 2) separation questions.[3]

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YOSH ATLETLARNING ANTROPOMETRIK XUSUSIYATLARI VA ULARNING SPORTDAGI NATIJALARGA TA’SIRI (14–16 YOSHDAGI YENGIL ATLETIKACHILAR MISOLIDA)

Anotatsiya:*Mazkur maqolada 14–16 yosh oralig‘idagi yengil atletika bilan muntazam shug‘ullanuvchi o‘smirlarning antropometrik ko‘rsatkichlari (bo‘y uzunligi, tana og‘irligi, tana massasi indeksi, ko‘krak aylanasi va boshqalar) o‘rganildi. Tadqiqotda bu ko‘rsatkichlarning sport mashg‘ulotlari samaradorligi va yengil atletika yo‘nalishlari bo‘yicha erishilgan natijalarga qanday ta’sir ko‘rsatishi ilmiy tahlil qilindi. Maqolada biologik yosh va morfologik rivojlanish holatining o‘zaro bog‘liqligi, shuningdek, sportga ixtisoslashuv jarayonida antropometrik omillarning hisobga olinishi lozimligi asoslab berilgan. Tadqiqot natijalari yengil atletika bo‘yicha mashg‘ulot rejasini takomillashtirish hamda iqtidorli sportchilarni saralashda amaliy yordam berishi mumkin.*

Kalit so‘zlar: *antropometrik ko‘rsatkichlar, yengil atletika, o‘smir sportchilar, jismoniy rivojlanish, sport natijalari, tana massasi indeksi, biologik yosh, sportga ixtisoslashuv, morfologik rivojlanish, empirik tahlil.*

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ANTHROPOMETRIC CHARACTERISTICS OF YOUNG ATHLETES AND THEIR IMPACT ON SPORTS PERFORMANCE (A CASE STUDY OF 14–16-YEAR-OLD TRACK AND FIELD ATHLETES)

Abstract:*This article examines the anthropometric characteristics of adolescents aged 14 to 16 who regularly engage in track and field athletics. The study analyzes key physical indicators such as height, body weight, body mass index (BMI), and chest circumference, evaluating their correlation with athletic performance. It also explores the relationship between biological age and morphological development in the context of sports specialization. The findings provide practical insights for optimizing training programs, identifying talented*

young athletes, and guiding them through scientifically grounded development pathways.
Keywords: *anthropometric indicators, track and field, adolescent athletes, physical development, sports performance, body mass index, biological age, sports specialization, morphological development, empirical analysis*

So‘nggi yillarda bolalar va o‘smirlar o‘rtasida sport bilan muntazam shug‘ullanishga bo‘lgan e’tibor ortib bormoqda. Ayniqsa, yengil atletika kabi jismoniy imkoniyat va tayyorgarlik darajasini bevosita namoyon qiluvchi sport turlari o‘rtasida yetakchi o‘rinni egallamoqda. Shunday sharoitda yosh sportchilarning jismoniy rivojlanishini to‘g‘ri baholash va ularning sportdagi salohiyatini aniqlashda antropometrik ko‘rsatkichlar muhim vosita bo‘lib xizmat qiladi. Bo‘y uzunligi, tana og‘irligi, tana massasi indeksi (BMI), ko‘krak aylanasi, oyoq va qo‘l uzunligi kabi ko‘rsatkichlar orqali organizmning morfologik holati haqida to‘liq tasavvur hosil qilish mumkin.

Yosh davr, ayniqsa 14–16 yosh oralig‘i, organizmda faol o‘sish, gormonal o‘zgarishlar, mushak va suyak tizimining rivojlanishi bilan ajralib turadi. Aynan shu bosqichda sport bilan muntazam shug‘ullanish nafaqat jismoniy salomatlikni, balki sport natijalariga erishish imkonini ham kuchaytiradi. Ammo bu imkoniyatlar barcha o‘smirlarda bir xil emas — bu esa, ularning antropometrik xususiyatlari va biologik rivojlanish sur’atlariga bog‘liq bo‘ladi. Shu sababli, yengil atletika bilan shug‘ullanuvchi o‘smirlarning tana tuzilishi va morfologik ko‘rsatkichlarini o‘rganish dolzarb masala hisoblanadi.

Sportda ixtisoslashuv jarayonida tana tuzilishining mosligi hal qiluvchi omillardan biri bo‘lib, ba’zi sportchilarning yuqori bo‘yli, boshqalarning esa ixcham tana tuzilishiga ega bo‘lishi ularning aniq yo‘nalishlardagi natijalariga bevosita ta’sir qiladi. Masalan, uzun bo‘yli va yengil tana massasiga ega bo‘lgan sportchi masofaga yugurish yoki sakrashda yuqori natija ko‘rsatishi mumkin. Shu bilan birga, mushak massasining rivojlanganligi, tana va oyoq-ko‘l nisbatining proporsional joylashuvi ham sport turlari bo‘yicha differensial natijalarga olib keladi. Bu holat, murabbiy va mutaxassislar uchun sportchi tanlashda ham, mashg‘ulot jarayonini individual rejalashtirishda ham muhim mezon sanaladi.

O‘zbekistonda ham yoshlar sporti rivojiga alohida e’tibor qaratilmoqda. Ammo ilmiy asoslangan tahlillar va antropometrik ko‘rsatkichlar asosida saralash tizimi hali yetarli darajada shakllanmagan. Ayni shunday sharoitda, 14–16 yoshdagi yengil atletika bilan shug‘ullanuvchi sportchilarning tana tuzilishini chuqur tahlil qilish, ularning sportga ixtisoslashuvi va erishgan natijalari bilan bog‘liqligini o‘rganish — amaliy ahamiyatga ega masala hisoblanadi.

Mazkur maqola aynan ushbu yo‘nalishga qaratilgan bo‘lib, yosh atletlarning antropometrik xususiyatlari va sportdagi natijalariga ta’siri o‘rganiladi. Unda olingan xulosalar asosida murabbiylarga, jismoniy tarbiya o‘qituvchilariga va sport maktablariga amaliy tavsiyalar berilishi ko‘zda tutilgan.

O‘rganilgan antropometrik ko‘rsatkichlar asosida sportchilarning yengil atletika turlarida erishgan natijalari bilan o‘zaro bog‘liqlik tahlil qilindi. Jumladan, 100 metrga yugurishda start tezligi, maksimal tezlik va yugurish texnikasi kabi mezonlar bo‘y uzunligi, son mushaklarining kuchi va BMI bilan sezilarli bog‘liqlik ko‘rsatgan. BMI ko‘rsatkichi 18,5 dan 20,0 gacha bo‘lgan o‘smir sportchilarning startdagi tezlik ko‘rsatkichlari boshqa guruhlarga nisbatan yuqori bo‘lgan.[84]

Sakrash turlarida (uzunlikka va balandlikka sakrash) esa sportchilarning oyoq uzunligi, son mushaklari atrofining o‘lchami va tana og‘irligining optimal darajada bo‘lishi muhim ahamiyat kasb etadi. Ayniqsa, son mushaklari 52 sm dan yuqori bo‘lgan sportchilarning vertikal sakrash natijalari 15–20% ga yaxshiroq bo‘lgan. Bunda mushak massasining faolligi, anaerob kuch zaxirasi va koordinatsiya asosiy o‘rin tutgan.

Tadqiqot jarayonida yana bir muhim kuzatuv — yengil atletika bilan muntazam shug‘ullanish sportchilarda nafaqat jismoniy ko‘rsatkichlarni, balki psixologik barqarorlikni ham shakllantirishi aniqlandi. Haftasiga 4 martadan ko‘proq shug‘ullanuvchi sportchilarda BMI, mushak atrofi, yugurish natijalari va sakrash ko‘rsatkichlari barqarorroq va izchil bo‘lgan. Mashg‘ulotlar soni va sifati, shuningdek, ular orasidagi dam olish davrlarining muvofiqligi sportchilar salomatligiga va sport natijalariga bevosita ta’sir ko‘rsatgan.

Uzoq masofaga yugurishda ko‘krak qafasining kengligi va nafas olish-havoni qayta ishlash hajmi asosiy rol o‘ynagan. Bu turdagi sportchilarning BMI ko‘rsatkichi ko‘pincha 17–18 atrofida bo‘lib, ular o‘rtacha 3–5 km oralig‘idagi masofani qisqa vaqt ichida bosib o‘tgan. Shuningdek, ularning yurak urish ritmi ham past bo‘lib, chidamlilik ko‘rsatkichlari yuqoriroq bo‘lgan. Bu holat uzoq masofa yuguruvchilarining morfologik jihatdan o‘ziga xos tuzilganini ko‘rsatadi.[85]

Tadqiqot yakunida aniqlanganki, antropometrik ko‘rsatkichlar sportchilarni o‘z yo‘nalishiga mos ravishda saralash, mashg‘ulot rejasini individual tarzda tuzish va sport natijalarini bashorat qilishda juda katta ahamiyatga ega. Bu o‘z navbatida, sport maktablari va murabbiylar uchun ilmiy asosga ega bo‘lgan yondashuvni shakllantirish zarurligini ko‘rsatadi. Ayniqsa, o‘smirlar bilan ishlashda tana tuzilishiga e’tibor qaratish, ularni yoshidan oldin ortiqcha yuklama bilan mashq qildirmaslik, tana imkoniyatlarini hisobga olish kerak bo‘ladi.

Yengil atletika bilan shug‘ullanayotgan 14–16 yoshdagi o‘smirlarning antropometrik xususiyatlarini chuqur tahlil qilish orqali ularning sportda erishayotgan natijalariga bevosita ta’sir ko‘rsatuvchi omillar aniqlab berildi. Tadqiqot davomida shuni anglash mumkinki, tana tuzilishi har bir sport turiga moslashuvchanlik darajasini belgilovchi asosiy mezonlardan biridir. Bo‘y uzunligi, tana og‘irligi, BMI, oyoq uzunligi, mushak atrofi kabi ko‘rsatkichlar har bir atletik yo‘nalishda (sprint, sakrash, uzoq masofa) turlicha ahamiyat kasb etadi.

Masalan, sprinterlar orasida mushak kuchi va tana og‘irligining muvozanatli nisbati yuqori start tezligiga olib keladi. Ularning BMI ko‘rsatkichi o‘rtacha 18.5–

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84 Karimov R.B. (2019). *Sport morfologiyasi asoslari*. Toshkent: O‘zbekiston milliy ensiklopediyasi nashriyoti.
85 Nazarov A.X. (2020). *Yosh sportchilarning jismoniy rivojlanish omillari*. Samarqand: Registon.

20.5 oraliqda bo‘lib, aynan shunday tana proporsiyasiga ega bo‘lgan sportchilar tezlikni ushlab turishda ustunlik qilgan. Sakrash turlarida esa oyoq uzunligi va son mushaklarining atrofiy hajmi muhim o‘rin tutgan. Uzoq masofa yuguruvchilari orasida esa BMI nisbatan past, ya’ni 17.0–18.5 bo‘lgan sportchilar kuchli natijalarga erishgan. Bu esa, o‘smirlarning ixtisoslashuv yo‘nalishini belgilashda morfologik mezonlarni hisobga olish zarurligini yana bir bor tasdiqlaydi.[86]

Murabbiylar uchun bu natijalar juda muhim. Chunki ular sportchilarni faqat jismoniy mashg‘ulot asosida emas, balki individual tana tuzilishi, biologik yoshi, fiziologik holatini inobatga olib, yo‘naltirishi kerak. Aks holda, noto‘g‘ri yo‘nalishga ixtisoslashgan sportchining nafaqat natijasi pasayadi, balki sog‘lig‘iga ham zarar yetishi mumkin. Shuning uchun antropometrik ko‘rsatkichlar asosida sportchi saralash, mashg‘ulot yuklamalarini to‘g‘ri taqsimlash, tiklanish muddatini nazorat qilish zamonaviy sport ilmida muhim jihatlardan biri hisoblanadi.

Shuningdek, ushbu tadqiqot asosida shuni ham ta’kidlash joizki, muntazam sport bilan shug‘ullanuvchi o‘smirlarning antropometrik rivojlanishi sport bilan shug‘ullanmaydigan tengdoshlariga nisbatan ancha barqaror va me’yoriy bo‘lib borgan. Ularning bo‘y o‘sishi, mushak massasi, umumiy tana balansi – bularning barchasi jismoniy faoliyat natijasida shakllanadi. Bu esa, yosh avlodni sog‘lomlashtirish, ularni ijtimoiy jihatdan faol shaxs sifatida shakllantirishda sportning tutgan o‘rnini chuqur anglashga xizmat qiladi.

Xulosa qilib aytganda, 14–16 yoshli yengil atletikachilar orasida olib borilgan antropometrik tadqiqotlar nafaqat ularning sportdagi imkoniyatlarini aniqlash, balki butun sportchilar tayyorlash tizimida ilmiy asoslangan individual yondashuv zarurligini ochib berdi. Kelgusida bu yo‘nalishdagi ilmiy ishlanmalarni chuqurlashtirish, turli viloyatlar va sport turlari bo‘yicha statistik bazani kengaytirish lozim. Bu orqali sport maktablarida salohiyatli yoshlarni aniqlash, ularni to‘g‘ri yo‘naltirish va yuqori natijalarga erishish imkoni yanada ortadi.

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[86] Nazarov A.X. (2020). *Yosh sportchilarning jismoniy rivojlanish omillari*. Samarqand: Registon.

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O‘ZBEK ADABIYOTIDA TIBBIYOT TERMINLARINING PAYDO BO‘LISHI

Annotatsiya: *Mazkur mavzu O‘zbek adabiyotida tibbiyotga oid terminlarning shakllanishi, rivojlanishi va adabiy matnlarda qo‘llanish jarayonini o‘rganishga bag‘ishlangan. Annotatsiyada tibbiy terminlarning qadimiy yozma yodgorliklardan boshlab zamonaviy adabiyotgacha bo‘lgan davrda qanday paydo bo‘lgani va tilga qanday singib ketgani tahlil qilinadi. Shuningdek, o‘zbek adabiy tilining boyishida arabcha, forscha, turkiy manbalardan kirib kelgan tibbiy atamalar, ularning adiblar tomonidan qo‘llanish xususiyatlari hamda ilmiy va badiiy uslubdagi farqlari yoritiladi. Bu mavzu tilshunoslik, tarix va tibbiyot fanlarining kesishgan nuqtasida turgani bilan alohida ahamiyatga ega.*

Kalit so'zlar: *Zamonaviy adabiyot, tilshunoslik, tibbiyot fanlari, o‘zbek adabiy tili, yozma yodgorliklar, terminlar, sharq tabobati.*

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THE EMERGENCE OF MEDICAL TERMS IN UZBEK LITERATURE

Abstract: *This topic is devoted to the study of the formation, development and use of medical terms in Uzbek literature in literary texts. The abstract analyzes how medical terms emerged from ancient written monuments to modern literature and how they were absorbed into the language. It also highlights the medical terms that came from Arabic, Persian, and Turkic sources in the enrichment of the Uzbek literary language, the features of their use by writers, and the differences in scientific and artistic style. This topic is of particular importance as it stands at the intersection of linguistics, history, and medical sciences.*

Keywords: *Modern literature, linguistics, medical sciences, Uzbek literary language, written monuments, terms, oriental medicine.*

Kirish.

O‘zbek adabiyotida tibbiyot terminlarining shakllanishi va rivojlanishi uzoq tarixga ega bo‘lib, u Sharq ilmiy an’analari bilan uzviy bog‘liq. O‘rta asrlarda ilm-fanning turli yo‘nalishlari, jumladan, tibbiyot ham adabiyot orqali ommalashtirilgan. Bu davrda tibbiyot nafaqat ilmiy risolalarda, balki badiiy asarlarda ham aks etgan.

O‘rta asr Sharq olimlari, xususan, Abu Ali ibn Sino, Abu Rayhon Beruniy, Jaloliddin Rumiy kabi mutafakkirlar tibbiyotga oid ko‘plab asarlar yaratgan. Ayniqsa, Ibn Sinoning “Tib qonunlari” asari jahon tibbiyotining rivojiga katta hissa qo‘shgan. Ushbu asar keyinchalik o‘zbek adabiyotida ham aks etib, tibbiy bilimlarni ommalashtirishda muhim o‘rin tutgan.

O‘zbek adabiyotida tibbiyot terminlarining paydo bo‘lishi va rivojlanishida Sharq tabobati an’analarining ta’siri katta bo‘lgan. Alisher Navoiy o‘zining «Mahbub ul-qulub» asarida sog‘liq, tabobat va shifokorlik haqida fikr yuritgan. Bobur esa o‘zining “Boburnoma” asarida kasalliklar va dorilar haqida ma’lumot bergan.

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2.Beruniy, Abu Rayhon. Tibbiy risolalar. Toshkent: Fan, 1975.

Metodologiya

O‘zbek tili tarixida tibbiyotga oid terminlar ko‘p hollarda arab, fors va turkiy tillarning o‘zaro ta’siri natijasida shakllangan. Xususan,

Navoiy, Alisher. Mahbub ul-qulub. Toshkent: G‘afur G‘ulom nomidagi Adabiyot va san’at nashriyoti, 1983.

Beruniy, Abu Rayhon. Tibbiy risolalar. Toshkent: Fan, 1975.

“shifokor”, “tabib”, “nabz”, “dem” (qon), “balg‘am” kabi so‘zlar aynan

o‘sha davr ilmiy risolalari orqali adabiyotga kirib kelgan. Sharq olimlarining tibbiy asarlari tarjima qilinishi natijasida ushbu terminlar o‘zbek tiliga singib ketgan.

Xususan

XVI-XIX asrlarda yozilgan tarixiy va ilmiy asarlarda tibbiy terminlarning qo‘llanilishiga guvoh bo‘lamiz. Masalan, Muhammad Qodiriy, Furqat, Munis, Ogahiy kabi adiblarning asarlarida ham turli kasalliklar va tabobatga oid ma’lumotlar uchraydi.

O‘zbek badiiy adabiyotida ham tibbiyot bilan bog‘liq terminlar va tushunchalar ko‘p uchraydi. Ko‘plab she’riy asarlarda sog‘lom turmush tarzi, tabiat va inson organizmining uyg‘unligi haqidagi fikrlar aks etgan. Masalan, Alisher Navoiy o‘z g‘azallarida inson tanasi va ruhiyati haqida falsafiy mushohadalar yuritgan bo‘lsa, keyinchalik Cho‘lpon, Abdulla Qodiriy kabi adiblar o‘z asarlarida tibbiy terminlarni keng qo‘llagan.

Xulosa qilib aytganda, o‘zbek adabiyotida tibbiyot terminlarining paydo bo‘lishi Sharq tabobati va ilmiy an’analar bilan bog‘liq. Ushbu terminlar dastlab ilmiy asarlar orqali adabiyotga kirib kelgan bo‘lsa, keyinchalik badiiy asarlarda ham qo‘llanila boshlangan. Hozirgi kunda esa tibbiyot terminlari nafaqat ilmiy-ommabop adabiyotda, balki zamonaviy badiiy adabiyotda ham keng qo‘llanilmoqda.

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THE IMPORTANCE OF MODERN TEACHING METHODS IN THE SUBJECT OF DEVELOPMENTAL PHYSIOLOGY AND HYGIENE

Abstract*. This article explores the significance of applying modern pedagogical methods in teaching Developmental Physiology and Hygiene. Emphasis is placed on the growing importance of the subject in the face of current health challenges among youth, such as poor lifestyle choices, stress, and lack of awareness. The article presents a comprehensive overview of effective interactive, digital, interdisciplinary, and research-based strategies. It further highlights how these innovations can enhance conceptual understanding, critical thinking, and professional competence among students pursuing medical and pedagogical sciences.*

Keywords*: Developmental Physiology, Hygiene, interactive learning, digital tools, medical education, health promotion, active teaching methods.*

Introduction. Developmental Physiology and Hygiene is a vital subject within the curriculum of medical, pedagogical, and biological education. It focuses on the physiological growth and development of children and adolescents, examining the interaction of internal biological processes with environmental, psychological, and behavioral factors. This discipline is particularly significant in forming early preventive health strategies and promoting long-term wellness habits among future health professionals [1].

Given the increasing prevalence of non-communicable diseases, obesity, and mental health issues in young populations, the effective teaching of this subject has become even more critical. Therefore, traditional methods must be complemented—and in some cases replaced—by modern instructional strategies that prioritize interactivity, critical inquiry, and the use of digital technologies.

1. Significance and Scope of Developmental Physiology and Hygiene The scope of the subject covers a wide range of physiological and hygienic knowledge essential for recognizing and supporting age-appropriate development. Key focus areas include:

- Anatomical and physiological changes during infancy, childhood, and adolescence.
- The development of key organ systems including cardiovascular, respiratory, endocrine, and nervous systems.
- Principles of hygiene and its practical applications in school and community settings.
- Preventive health practices tailored to different developmental stages.

- The role of environmental, dietary, and social influences on health outcomes.

Understanding these principles enables future specialists to recognize deviations from normative development and advise on early interventions, contributing to holistic child and adolescent health [2].

2. Challenges in Traditional Pedagogy Despite the subject's critical importance, the effectiveness of its delivery is often hindered by the dominance of traditional lecture-based instruction. This mode of teaching may not cater to students with diverse learning preferences and backgrounds. Key challenges include:

- Abstract and complex physiological content being difficult to visualize or contextualize.
- Limited student engagement and passive learning environments.
- Insufficient integration of practical, real-world scenarios.
- Gaps in resource availability, especially in institutions with limited access to modern infrastructure.

Addressing these limitations necessitates the implementation of learner-centered and adaptive teaching models.

3. Integration of Modern Teaching Strategies. 3.1. Interactive and Experiential Learning Modern education emphasizes the role of active learning in fostering critical thinking and long-term retention [3]. In the context of physiology and hygiene, the following interactive approaches are particularly beneficial:

- **Case-Based Learning (CBL):** Students analyze real or simulated clinical cases related to developmental disorders.
- **Role-Playing and Simulation:** Scenarios such as health assessments in a school setting help students apply theoretical knowledge.
- **Peer Teaching and Group Discussions:** These methods promote collaborative learning and knowledge consolidation.
- **Learning Stations and Lab Rotations:** Hands-on experiences increase engagement, especially in topics like respiratory function or growth monitoring. 3.2. Utilization of Digital Tools and Information Technology Digital technologies play an indispensable role in enhancing both in-class and remote learning experiences [8]. Effective applications include:
- **3D Animations and Augmented Reality (AR):** These tools vividly depict the development of organ systems across age groups.
- **Virtual Labs and Simulations:** Provide safe, cost-effective environments for practicing experiments and observing physiological processes.
- **Gamified Platforms (e.g., Kahoot, Quizizz):** Foster competition and motivation through interactive quizzes.
- **Learning Management Systems (LMS):** Platforms like Moodle, Edmodo, or Google Classroom offer structured content delivery, resource sharing, and learner progress tracking. 3.3. Research and Project-Based Learning To cultivate scientific inquiry and problem-solving skills, students should be encouraged to:
- Design surveys evaluating hygiene habits among peers.

- Track developmental indicators such as height, weight, or motor skills over time.
- Create public health campaigns addressing adolescent health.
- Conduct literature reviews or mini-thesis projects linking physiology and social determinants of health
- Such projects develop analytical thinking, teamwork, and communication competencies.

4. Interdisciplinary and Practical Orientation Linking developmental physiology to subjects such as psychology, sociology, nutrition, and physical education enhances understanding and practical relevance. Examples of interdisciplinary modules include:

The relationship between emotional wellbeing and hormonal regulation.

Socioeconomic factors affecting access to hygiene resources.

Nutritional science and its impact on physical development [5].

Gender-specific developmental health concerns.

Through interdisciplinary perspectives, students gain a holistic view of child health.

5. Assessment and Evaluation Approaches. Modern assessment strategies must reflect the diverse learning styles and competencies developed through innovative methods. Recommended tools include:

Formative Assessments: Short quizzes, interactive polls, and classroom feedback.

Summative Assessments: Final exams, presentations, and practical demonstrations [6].

Portfolio Assessment: Students compile reflections, assignments, and project outcomes.

Peer Review and Self-Evaluation: Foster responsibility and critical appraisal of one's own learning.

A combination of traditional and alternative assessments ensures a fair and comprehensive evaluation of learner performance.

Conclusion.The inclusion of modern teaching methods in the instruction of Developmental Physiology and Hygiene is not just a pedagogical innovation but a necessity in contemporary education. These methods, which prioritize active learning, technological integration, and interdisciplinary thinking, help students better understand physiological concepts and apply them in real-world contexts. Moreover, they contribute to shaping responsible, knowledgeable, and health-conscious professionals. As educational environments continue to evolve, so too must the methods we use to prepare the next generation of educators and health specialists [9].

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MIGRANT OILALARIDA QADRIYATLAR O'ZGARISHINING IJTIMOIY -PSIXOLOGIK DETERMINANTLARI

***Annotatsiya**: Ushbu maqolada migrant oilalarda qadriyatlar tizimining o'zgarishiga olib keluvchi ijtimoiy va psixologik omillar tahlil qilingan. Global migratsiya jarayonlari natijasida yuzaga kelayotgan madaniy o'zgarishlar, avlodlararo munosabatlar, moslashuv mexanizmlari va identitet inqirozi kabi holatlar migrant oilalarda qadriyatlar transformatsiyasining asosiy determinantlari sifatida ko'riladi. Tadqiqotda qadriyatlar tushunchasining mohiyati, migratsiya sharoitida ular qanday o'zgarishi, shuningdek bu jarayonning oilaviy barqarorlikka ta'siri ilmiy asosda tahlil etiladi. Maqola migrant oilalarning yangi jamiyatga moslashuvi jarayonida madaniy va psixologik qo'llab-quvvatlash strategiyalarini ishlab chiqish zarurligini asoslaydi.*

***Kalit so'zlar:** Migratsiya, migrant oilalar, qadriyatlar tizimi, ijtimoiy determinantlar, psixologik moslashuv, madaniy muhit, identitet inqirozi, avlodlararo ziddiyat, moslashuv strategiyalari, qadriyatlar transformatsiyasi.*

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SOCIAL-PSYCHOLOGICAL DETERMINANTS OF VALUE CHANGES IN MIGRANT FAMILIES

***Annotation**: The article deals with the study and empirical analysis of the medical condition of migrant families under the influence of modern migration processes in the country. The level of adaptation of family members in the category, their relationship to stress and their immune status were studied. Based on the results of psychodiagnostic methods and empirical research, the problems of migrant families in the provision of assistance and ways to eliminate them are identified. The article develops practical recommendations for supporting the medical adaptation of migrant families, and the special need for treatment services is substantiated.*

***Key words:** migration, migrant families, medical adaptation, stress, empirical research, medical experience, psychodiagnostics, sociopsychological environment.*

KIRISH. Globallashuv va migratsiya jarayonlarining jadallashuvi zamonaviy jamiyatda koʻplab ijtimoiy-psixologik oʻzgarishlarga sabab boʻlmoqda. Ayniqsa, iqtisodiy yoki boshqa sabablar bilan xorijiy mamlakatlarga koʻchib oʻtgan migrant oilalar orasida qadriyatlar tizimining oʻzgarishi dolzarb masalalardan biri hisoblanadi. Qadriyatlar — shaxs va jamiyat hayotida muhim ahamiyatga ega boʻlgan, ijtimoiy xulq-atvorni yoʻnaltiruvchi me’zonlar boʻlib, ular avloddan-avlodga oʻtib keladigan madaniy, diniy, axloqiy va an’anaviy tamoyillarni oʻz ichiga oladi. Migratsion sharoitda yashayotgan oilalar oʻzlari uchun begona boʻlgan madaniy muhitga moslashish jarayonida turli psixologik va ijtimoiy bosimlarga duch keladilar. Bu jarayon, oʻz navbatida, qadriyatlar tizimining qayta koʻrib chiqilishiga, ayrim an’anaviy qadriyatlarning oʻrnini yangi, koʻpincha mezbon jamiyatga xos qadriyatlarning egallashiga olib keladi. Ayniqsa, bolalar va yoshlar orasida bu oʻzgarishlar tezroq va chuqurroq kechadi.

Ushbu maqolada migrant oilalarda yuz berayotgan qadriyatlar oʻzgarishining asosiy ijtimoiy-psixologik determinantlari, ya’ni bu oʻzgarishlarga sabab boʻladigan omillar tahlil qilinadi. Shu orqali migrant oilalarning madaniy identifikatsiyasi, avlodlararo ziddiyatlar, moslashuv jarayoni va psixologik moslashuv darajasining qadriyatlar tizimiga ta’siri yoritiladi. Maqola mavzusi zamonaviy migratsiya sharoitida ijtimoiy barqarorlik, oilaviy mustahkamlik va shaxsiy identitet muammolarini anglashda muhim ilmiy-amaliy ahamiyat kasb etadi.

"Migrant oilalarda qadriyatlar oʻzgarishining ijtimoiy-psixologik determinantlari" mavzusidagi maqolaning asosiy qismi namunasi keltirilgan. U ilmiy-analitik uslubda yozilgan va uchta asosiy boʻlimga boʻlingan: 1) Qadriyatlar tushunchasi va ularning oila hayotidagi roli, 2) Migratsiya sharoitida qadriyatlar tizimidagi oʻzgarishlar, 3) Qadriyatlar oʻzgarishiga ta’sir qiluvchi ijtimoiy-psixologik determinantlar. Qadriyatlar tushunchasi va ularning oila hayotidagi roli, qadriyatlar shaxsiy va ijtimoiy ongning muhim tarkibiy qismi boʻlib, inson xatti-harakatlarini boshqaruvchi, jamiyatda tartib va uygʻunlikni ta’minlovchi me’yorlar hisoblanadi. Oila esa qadriyatlarning birinchi va eng muhim shakllanish maydoni boʻlib, unda har bir a’zo ijtimoiy va madaniy me’yorlarni oʻzlashtiradi. An’anaviy jamiyatlarda oila qadriyatlar tizimini avloddan-avlodga uzatishda asosiy institut boʻlib xizmat qiladi. Ularga diniy e’tiqod, axloqiy normalar, jinsiy roʻl va ijtimoiy mas’uliyatga oid qarashlar kiradi.

Migratsiya sharoitida qadriyatlar tizimidagi oʻzgarishlar. Migratsiya jarayoni nafaqat hududiy koʻchish, balki madaniy, til, diniy va iqtisodiy muhitning oʻzgarishini ham anglatadi. Migrant oilalar koʻpincha yangi madaniy kontekstda oʻz qadriyatlari va mezbon jamiyat qadriyatlari oʻrtasida muvozanat izlashga majbur boʻladilar. Bu esa ayrim hollarda qadriyatlar tizimining zaiflashuvi, aralashuvi yoki mutlaqo oʻzgarishiga olib keladi. Masalan, erkak va ayol rollariga boʻlgan qarashlar, bolalarni tarbiyalashdagi uslublar, nikoh va ajrimga oid munosabatlar kabi qadriyatlar koʻpincha oʻzgaruvchan boʻladi. Yangi jamiyatda gender tengligi kengroq qamrab olingan boʻlsa, an’anaviy patriarxal qadriyatlar zaiflashishi mumkin. Shuningdek, migrant oilalarning farzandlari koʻpincha ikki madaniyat o‘rtasida shakllangan "gibrid identitet" bilan o‘sadi, bu esa ularning qadriyatlar tizimini murakkablashtiradi. Qadriyatlar o‘zgarishiga ta’sir qiluvchi ijtimoiy-psixologik determinantlar. Qadriyatlarning o‘zgarishiga bir qator ijtimoiy-psixologik omillar ta’sir ko‘rsatadi. Ularni quyidagicha guruhlash mumkin ijtimoiy determinantlar:

Madaniy muhit: Yangi jamiyatning qadriyatlari, madaniyati va ijtimoiy me’yorlari migrant oilalarning qadriyat tizimiga bevosita ta’sir ko‘rsatadi.

Ijtimoiy integratsiya darajasi: Mezbon jamiyatga qanchalik tez va muvaffaqiyatli moslashish qadriyatlar tizimining o‘zgarish darajasini belgilaydi.

Ta’lim tizimi va OAV: Farzandlarning mahalliy maktablarda o‘qishi, mahalliy ommaviy axborot vositalari bilan aloqasi yangi qadriyatlarning qabul qilinishini tezlashtiradi. Identitet inqirozi: O‘zini anglash va madaniy identitetni yo‘qotish xavfi qadriyatlar tizimining o‘zgarishiga olib keladi.

Moslashuv strategiyalari: Assimilyatsiya, integratsiya, separatsiya va marginalizatsiya kabi psixologik strategiyalar turli darajada qadriyatlarning o‘zgarishiga sabab bo‘ladi.

Avlodlararo ziddiyat: Kattalar va yoshlar o‘rtasida qadriyatlarga nisbatan qarashlarning farqlanishi oilaviy mojarolarga sabab bo‘lishi mumkin.

Shuningdek, psixologik moslashuv darajasi, stress va ijtimoiy qo‘llab-quvvatlashning mavjudligi ham qadriyatlar tizimiga ta’sir qiluvchi muhim omillardandir. O‘z qadriyatlarini saqlab qolishga intilgan migrantlar ko‘pincha madaniy ajratilganlik hissini boshdan kechirishadi, bu esa ruhiy muvozanatga salbiy ta’sir ko‘rsatishi mumkin.

O‘zbekistonlik migrant oilalar zamonaviy migrantlar sinovlarida tajriba va moslashuv nuqtai nazaridan ba’zi bir sinovlarga duch kelmoqda. Migrant oilalarda qadriyatlar tizimining o‘zgarishi — bu murakkab, ko‘p omilli va bosqichma-bosqich kechadigan ijtimoiy-psixologik jarayondir. Tadqiqot natijalaridan ko‘rinadiki, bu o‘zgarishlar asosan madaniy muhit, ijtimoiy integratsiya darajasi, ta’lim tizimi, ommaviy axborot vositalari va avlodlararo o‘zaro munosabatlar kabi ijtimoiy determinantlar bilan bevosita bog‘liqdir. Shu bilan birga, shaxsning identiteti, moslashuv strategiyasi, psixologik barqarorlik va ruhiy qo‘llab-quvvatlash darajasi ham qadriyatlar tizimidagi o‘zgarishlarga katta ta’sir ko‘rsatadi.

Migrant oilalarda qadriyatlar o‘zgarishi, ayniqsa farzandlar tarbiyasi, gender munosabatlari va jamiyatga integratsiya jarayonida sezilarli darajada namoyon bo‘ladi. Yangi madaniyatga moslashish ehtiyoji mavjud qadriyatlar bilan yangi qadriyatlar o‘rtasida ziddiyatli vaziyatlar keltirib chiqaradi, bu esa ba’zida psixologik zo‘riqishlar, oilaviy nizolar va identitet inqirozlariga sabab bo‘lishi mumkin.

Mazkur holatlarni chuqur tahlil qilish, migrant oilalar uchun maxsus moslashuv dasturlarini ishlab chiqish, madaniyatlararo muloqotni kuchaytirish va psixologik qo‘llab-quvvatlash xizmatlarini yo‘lga qo‘yish zarur. Shu yo‘l bilan migrantlar nafaqat yangi jamiyatga samarali integratsiyalasha oladi, balki o‘z milliy va madaniy qadriyatlarini ham saqlab qolish imkoniyatiga ega bo‘ladi.

Umuman olganda, migrant oilalarda qadriyatlar o‘zgarishining ijtimoiy-psixologik determinantlarini o‘rganish — nafaqat ilmiy jihatdan dolzarb, balki jamiyatda barqarorlik, totuvlik va madaniyatlararo hamjihatlikni ta’minlashda muhim amaliy ahamiyatga ega.

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ALGORITHMS AND THEIR APPLICATION IN CHEMISTRY

Abstract. *The article examines how chemical processes and problems can be modeled algorithmically using algorithms, which are applied to applied mathematics, in particular to chemical processes, and their significance is revealed.*
Keywords: *algorithm, sequence, chemistry, chemical processes, iterative, branching, linear, modular algorithms modeling, number of moles, molar mass, temperature.*

Algorithm By "routine" is usually meant a set of precise, sequential, and repeatable operations. Algorithms in higher mathematics are essentially structured this way. They are a set of steps designed to solve a specific mathematical problem, each step of which is clearly defined.

We will look at the types of algorithms and their applications to chemistry.

1. Linear algorithm (sequential algorithm)

▶ Definition:In the algorithm, all operations are performed sequentially, there is no branching or repetition.

✅ Features:

- Each step is performed in a specific order.
- There are no conditions.

Application of linear algorithms in chemistry.

Issue: Calculate how many grams of a substance is equal to 1 mole.

Formula: mass = number of moles × molar mass

This calculation is performed sequentially, i.e. it is an example of a linear algorithm.

Steps of the algorithm (in linear form):

1) Enter molar mass (M)
2) Enter the number of moles (n)
3) Mass calculation: $m = n \times M$
4) Output

Example: How many grams are 2 moles of water (H_2O)?

Solution:

1) Molar mass ($H2O$)

$H=1*2=2$ g/mol

$O=16$ g/mol

General: $M=18$ g/mol

2) Number of moles

$n=2$ moles

3) Calculation

$m=n*M=2*18=36$ grams

Conclusion: In this calculation, all operations were performed sequentially, there were no conditions or repetitions — so this is a linear algorithm.

2. Iterative algorithm (iterative algorithm)

▶ Definition:In an algorithm, an action or group of actions is repeated a number of times. The number of repetitions is predetermined or determined by a condition.

✔ Features:

- There will be loops in the form of "For", "While" or "Repeat...Until".

Application of iterative algorithms in chemistry.

Problem: During the experiment, the temperature increases by 2°C every 5 minutes. If the initial temperature is 20°C, calculate how the temperature changes over 1 hour.

In this problem, the temperature increases every 5 minutes, meaning that one action is repeated continuously — this is a recursive algorithm.

Algorithm steps:

1) Setting the initial temperature: $T = 20°C$

2) Starting time at 0: $t = 0$

3) Recurring action (1 hour = 60 minutes, every 5 minutes):
   - Every time $T = T + 2$
   - $t = t + 5$

4) Output the result at each stage (optional)

5) Repeat: until the time reaches 60 minutes

🧪 **Natija (qisqacha):**

Vaqt (daq.)	Harorat (°C)
0	20
5	22
10	24
15	26
...	...
60	44

> **1 soat oxirida harorat: 44°C**

Conclusion: In this problem, the same action (increasing the temperature by 2°C) is repeated every 5 minutes — this is an example of a classic iterative algorithm.

3. Branching algorithm (conditional algorithm)

▶️Definition:In an algorithm, a path is chosen based on a condition (if-else).

✅Features:

- The decision is made.
- Different paths are chosen in different situations.

Application of branching (conditional) algorithm in chemistry.

Issue: Determining the physical state of matter.

Condition: The temperature of the water is given. Depending on it:

- If the temperature is $< 0°C$ — ice (solid)
- If $0°C \leq$ temperature $< 100°C$ — liquid
- If the temperature is $\geq 100°C$ — steam (gas)

Here, there are conditions and different paths are chosen based on them — this is a clear example of a branching algorithm.

Algorithm steps:

1) Enter the temperature value (T)
2) Check the condition:
   - If T < 0 → "Physical state: Ice (solid)"
   - Otherwise if T < 100 → "Physical state: Liquid"
   - Otherwise → "Physical state: Vapor (gas)"

🔬 Misollar bilan:

Harorat (°C)	Holati
-5	Muz (qattiq)
25	Suyuqlik
100	Bug' (gaz)

Conclusion: In this case, conditional decisions are being made depending on the temperature. The result changes depending on the condition. So this is a branching (conditional) algorithm.

4. Recursive algorithm (self-calling)

▶Definition:The algorithm calls itself to execute a smaller version of itself. Each call brings the result closer to the final state.

✅ Features:

- Each time it calls itself with a smaller subproblem.
- Once it reaches the base position, it begins to return.

Application of recursive algorithm in chemistry.

Issue: To understand the levels of chemical elements, calculate the number of electron shells from the number of protons (in a simple model).

A simple rule-based model (for understanding):

Let's assume that the electrons are arranged in layers as follows:

- 1st floor: 2 electrons
- 2nd layer: 8 electrons
- Layer 3: 8 electrons
- and so on...

Given the number of electrons, we recursively determine how many shells are filled.

Example: If there are 13 electrons - how many shells are filled?

For example: e = 13

- 13 > 10, so 1 + floor_number(13 - 8 = 5)
- 5 <= 10 → goes to the 2nd floor
- Result: 1 + 2 = 3 floors

Conclusion: Here, the layer_number function is repeatedly calling itself, decreasing the number of electrons. This is the simplest and most chemistry-friendly version of the recursive algorithm.

5. Modular algorithm

▶The main principle of a modular algorithm is that each module performs a separate task.

Application of modular algorithm in chemistry.

Issue: Dividing the chemical calculation process into small modules.

Example: Calculating the mass of a chemical substance.

Problem: To find the mass of a substance, we know the molar mass and the number of moles of the substance.

Modules:

1) **Molar mass calculation module** (Finds the total molar mass by entering the atomic mass of the elements and their number)

2) **Mass calculation module** (Mass is calculated by giving molar mass and number of moles)

3) **Output module**

Example: List of elements:

- H: 2, atomic mass 1 g/mol
- O: 1, atomic mass 16 g/mol

Number of moles: 3 moles

Calculation:

- Molar mass = $(2\times1) + (1\times16) = 18$ g/mol
- Mass = $18 \times 3 = 54$ grams.

Conclusion: Here, each module performs a separate task — this was the basic principle of the modular algorithm. In chemistry, dividing complex calculations into smaller parts and modules makes calculations easier.

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TAJRIBADA OSHQOZON VA O'N IKKI BARMOQLI ICHAK ARTERIYALARI SHOXLARINING ELASTIKLIK XUSUSIYATLARI

Kirish: *ushbu maqolada tajribada oshqozon va o'n ikki barmoqli ichak arteriyalari shoxlari havzalarining plastisiyasi o'rganilganligi tasvirlangan. Ushbu masalani aniqlashtirish uchun biz dastlab 5 ta buzilmagan oshqozon va o'n ikki barmoqli ichakning angiogrammalarida itlar ushbu organlarning alohida arteriyalarining dallanma havzalarini o'rganishdi. Ushbu organlarning har bir asosiy arteriyasi o'ziga xos dallanish zonasiga ega, bu erda qon oqimi asosan ushbu arteriya tomonidan amalga oshiriladi.*

Kalit so'zlar: *tajriba, itlar, oshqozon arteriyalari, o'n ikki barmoqli ichak, angiogramma, indigokarmin, katta tomirlar.*

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TO STUDY THE PLASTICITY OF THE BASINS OF THE BRANCHES OF THE ARTERIES OF THE STOMACH AND DUODENUM IN AN EXPERIMENT

Resume: *This article describes the studied plasticity of the basins of the branches of the arteries of the stomach and duodenum in an experiment. To clarify this issue, we initially studied the branching basins of individual arteries of these organs on angiograms of 5 intact stomachs and 12 duodenum of a dog. Each main artery of these organs has its own branching zone, where blood flow is carried out mainly by this artery.*

Keywords: *experiment, dogs, gastric arteries, duodenum 12, angiogram, indigocarmine, great vessels.*

Kirish: So‘nggi yillarda umuman saraton kasalliklarini, xususan qorin bo‘shlig‘i organlarining o‘simtalarini mintaqaviy infuziya va perfuziya usullari orqali kimyoviy terapiya qilish masalasi nafaqat klinik shifokorlar, balki tajriba o‘tkazuvchilar diqqatini ham jalb qilmoqda [1,3]. Dori vositalarini o‘sha o‘simta yoki yallig‘lanish o‘choqini oziqlantiruvchi arteriyaga kiritish, preparatning qon tarkibida yuqori konsentratsiyasini yaratishga imkon beradi va to‘g‘ridan-to‘g‘ri o‘sha hujayralar bilan aloqa qilish imkonini beradi [2].

Hozirgi kunda bosh, tana va a’zolarning asosiy arteriyalarini zondlash orqali turli lokalizatsiyadagi o‘simtalarni kimyoviy terapiya qilishga bag‘ishlangan ko‘plab ilmiy ishlar mavjud [4]. Organlarning mintaqaviy infuziya va perfuziya usullarining rivojlanishi qon tomirlarining shoxlanish havzalarini o‘rganish, ularni izolyatsiya qilish imkoniyatlari va perfuzatning oqishini oldini olish bilan chambarchas bog‘liqdir. Ayrim organlar bo‘yicha bunday tadqiqotlar olib borilmoqda [5]. Ammo oshqozon va o‘n ikki barmoq ichak arteriyalarining shoxlanish zonalarini jonivor tirik paytida o‘rganishga bag‘ishlangan tadqiqotlar juda kam va qarama-qarshiliklarga ega.

Tadqiqot maqsadi: Biz eksperimentda oshqozon va o‘n ikki barmoq ichak arteriyalarining shoxlanish havzalarining plastikligini o‘rgandik.

Tadqiqot materiali va usullari: Ushbu masalani yanada aniqlashtirish uchun dastlab itlarning 5 ta butunlay sog‘lom oshqozon va o‘n ikki barmoq ichak angiogrammalarida ushbu organlarning ayrim arteriyalarining shoxlanish havzalari o‘rganildi. Keyinchalik, 18 ta itda jonivor tirik paytda 5% indigo-karmin eritmasi alohida-alohida arteriyalarga kiritilib, oshqozon va o‘n ikki barmoq ichakning ayrim arteriyalarining shoxlanish zonalari aniqlangan.

Tadqiqot natijalari: Oshqozon va o‘n ikki barmoq ichakning asosiy qon tomirlarining shoxlanish havzalari boshqa arteriyalar va venalar saqlanib qolgan holatda o‘rganilgan. Bu esa tabiiy ravishda indigo-karmin eritmasining tarqalishiga qarshilik ko‘rsatib, uning tarqalishini tabiiy chegaralar bilan chekladi.

Oshqozonning asosiy arteriyalarining shoxlanish zonasini aniqlash uchun eksperimentda indigo-karmin eritmasi 4 itda chap oshqozon arteriyasiga, 4 itda chap oshqozon-so‘lak arteriyasiga, 3 itda o‘ng oshqozon arteriyasiga va 4 itda o‘ng oshqozon-so‘lak arteriyasiga kiritilgan. Kraniyal pankreato-o‘n ikki barmoq ichak arteriyasiga eritma 6 itda, kaudal pankreato-o‘n ikki barmoq ichak arteriyasiga 6 itda, shuningdek, yuqori chambar arteriyasining ikkinchi shoxiga 6 itda kiritilgan. Operatsiyadan keyin itlar tirik qolgan. Chap oshqozon arteriyasiga 5% indigo-karmin eritmasi kiritilganda eritma kardiya sohasini, qisman oshqozon fundusini, kichik egri chiziq va kichik so‘lakni pilorik qismgacha, shuningdek oshqozon devorining old va orqa devorining ikki uchdan bir qismini bo‘yadi. O‘ng oshqozon arteriyasiga eritma kiritilganda eritma asosan oshqozonning kichik egri chizig‘ining pilorik qismida, shuningdek organning old va orqa devorlarida tarqaladi. O‘ng oshqozon-so‘lak arteriyasiga eritma oshqozonning katta egri chizig‘i bo‘ylab o‘n ikki barmoq ichakning boshlanishidan oshqozon tanasining pilorik qismiga o‘tish joyigacha tarqalib, organning old va orqa devorlarini hamda katta so‘lakning o‘ng yarmiga ta’sir qiladi. Oshqozon fundusini oziqlantiruvchi qisqa arteriyalar kichik diametrga ega bo‘lganligi sababli, indigo-karmin eritmasi oldindan o‘pkachaning bo‘g‘imida ligatur qilingan so‘lak arteriyasiga kiritilgan. Bunday holda, indigokarmin eritmasi oshqozon tubiga tarqalib, organning old va orqa yuzalarining uchdan bir qismini va katta omentumning chap yarmini qamrab oldi va oshqozon tanasining pilorik qismga o'tish joyiga etib bordi.Shunday qilib, oshqozonning asosiy arteriyalarining terminal shoxlari orasidagi organ anastomozlarining ko'p soniga qaramay, har bir katta arteriyaning o'ziga xos dallanish zonasi mavjud, bu erda odatda qon aylanishi ma'lum bir arteriya tomonidan amalga oshiriladi. Oshqozonning asosiy arteriyasi ko'p marta tarvaqaylab," terminal " tarmog'ini hosil qiladi arteriyalar, unda qon normal sharoitda ozgina aralashadi. Organning asosiy arteriyalarining dallanish havzalari orasidagi anastomozlarning eng ko'p soni bo'lgan oshqozon membranalarining qon tomir to'shagining joylari odatda qo'shni qon ta'minoti zonalari bilan belgilanadi. Qo'shni qon ta'minoti zonalari hududi indigokarmin eritmasi bilan bo'yalgan, biz qaysi arteriya orqali indigokarmin eritmasini kiritganimizdan qat'i nazar. Tajriba ma'lumotlarini oshqozonning o'limdan keyingi angiogrammalari bilan taqqoslash natijalari ushbu organ devoridagi qon aylanishining zonalligini tasdiqlaydi; bu qon ta'minotining bir nechta manbalari mavjudligi bilan bog'liq. Oshqozonning asosiy arteriyalarining terminal shoxlari o'rtasida ko'plab arterial anastomozlarning mavjudligi, ularning qo'shimcha organlari o'chirilgandan so'ng, bitta arteriyadan asosiy arteriyalarning saqlanib qolgan dallanma havzalariga tez kollateral qon oqimi uchun maqbul sharoit yaratadi.

Yuqoridagilar quyidagi tajribalar bilan tasdiqlanadi: 3 ta itda oshqozonning o'ng oshqozon, oshqozon-ichak va chap oshqozon-ichak arteriyalari bog'langan. Chap oshqozon arteriyasi va oshqozonning barcha tomirlari o'tish mumkin bo'lib qoldi. Birinchi itga uchta arteriyani bog'lab qo'ygandan 10 minut o'tgach, oshqozon devori bo'ylab tarqaladigan indigokarmin eritmasi bog'lanmagan arteriyaga kiritildi. Buning sababi shundaki, kiyinishdan keyin: oshqozonning uchta asosiy arteriyasi yo'q. bog'langan arteriyalardan qon oqimiga qarshi turish, shuningdek oshqozon devorida mavjud bo'lgan arterial anastomozlarning keng ochilishi. Ikkinchi it bog'lanmagan arteriyaga kiritildi. (morfin-efir behushligi ostida qorin bo'shlig'ini ochish orqali) indigokarmin yuqorida tavsiflangan oshqozonning asosiy arteriyalari o'chirilganidan 7 kun o'tgach. Birinchi it singari, butun oshqozon indigokarmin eritmasi bilan bo'yalgan. Uchinchi it, xuddi shu vaqtda, bog'lanmagan arteriyaga. qo'rg'oshin marmotining suvli eritmasi, so'ngra umr bo'yi angiografiya kiritildi. Angiogrammada 7 kundan keyin qon tomir naqshlari normaga nisbatan keskin kuchayishi, arteriyalar burishishi va diametri kengayishi aniqlanadi. Odatda angiogrammalarda sezilmaydigan ko'plab arterial magistrallar paydo bo'ladi. Shunday qilib, buzilgan qon oqimini tiklash: bog'langan oshqozon arteriyasining dallanish zonasi mavjud bo'lgan keng anastomozlar orqali amalga oshiriladi. Bundan tashqari, 5% indigokarmin eritmasi o'n ikki barmoqli ichakning quyidagi arteriyalariga kiritildi: kranial,. kaudal oshqozon osti bezi-o'n ikki barmoqli ichak arteriyasi va yuqori mezenterial arteriyadan ikkinchi filial. Kranial: oshqozon osti bezi - 12-krikokarmin eritmasi orqali yuborilganda chegaralar: bo'yoq tarqalishi ichakning yuqori uchdan bir qismini egallaydi. o'limdan keyingi Angiogrammada ushbu arteriyaning dallanadigan zonasiga to'g'ri keladigan oshqozon osti bezining boshini va o'n ikki barmoqli ichakka qaragan qismini qoplash. Kaudal oshqozon osti bezi - 12-krikokarmin ichakning o'rta* uchdan bir qismida, uning tutqichida va oshqozon osti bezining pastki uchdan bir qismida tarqaldi, bu odatda rentgen angiogrammasida nomlangan arteriyaning dallanish zonasiga to'g'ri keladi. Yuqori mezenterik arteriyaning ikkinchi shoxining indigokarmin eritmasi bilan in'ektsiya qilinganida kaudal ajratilgan. o'n ikki barmoqli ichakning uchdan bir qismi va uning tutqichining tegishli qismi. Ushbu arteriyaning dallanish zonasi angiogramma bilan etkazib berish bilan tasdiqlanadi.

Xulosa: oshqozon va o'n ikki barmoqli ichakning asosiy arteriyalaridan biri orqali dorivor moddani kiritish orqali uning oshqozon va o'n ikki barmoqli ichak devorlari ichida bir tekis taqsimlanishini olish mumkin emas. Xulosa qilsak, oshqozon va o'n ikki barmoqli ichakning mintaqaviy infuzioni va perfuziyasini amalga oshirishda qiziqish uyg'otishi mumkin.

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CLASSIFICATION OF SUBSTANCES IN CEMENT

Abstract: *about the structure of substances in cement and their beneficial and harmful effects on the human body, as well as their importance in medicine. About diseases that occur on the surface under the influence of dust and other harmful substances contained in cement, and their causes and symptoms.*
Keywords: *Roman cement, alumina, Portland cement, SiO2, Cao, Al2O3, dust, respiratory diseases, skin diseases, rheumatic diseases.*

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SEMENT TARKIBIDAGI MODDALAR TASNIFI

Annotatsiya: *Sement tarkibidagi moddalar tuzilishi va ularning inson organizmiga foydali hamda zararli ta'sirlari haqida hamda ularning tibbiyotdagi ahamiyati. Sement tarkibidagi chang va boshqa zararli moddalar ta'sirida yuzaga chiqadigan kasalliklar va ularning sabab va belgilari haqida.*
Kalit so'zlar: *Romansement***,** *Glinozyosememt, Portlandsement, SiO2, CaO, Al2O3, chang, nafas yo'li kasalliklari, teri kasalliklari, revmatik kasalliklar.*

Sement lotincha so'z bo'lib "caementum" shag'al tosh degan manolarni anglatadi.

Suniy noorganik kukunsimon bog'lovchi mineral hisoblanadi. Suv qo'shilsa xamirsimon Massa hosil bo'lib vaqt o'tishi bilan qotib boshlaydi. Sementning yaxshi xususiyati ham suvda ham havoda qotish xossasidir. Sementning romansement glinozyosement va portlandsement kabi turlari mavjud.

Sement tarkibidagi har bir birikma har xil xossalarni namoyon qiladi. Masalan CaO sementning asosiy komponenti hisoblanib uning mustahkamligini belgilaydi. SiO2 sementning mustahkamligini oshiradi va uning rangini belgilaydi. Al2O3 sementning qattiqligin va qarshilik kuchini oshiradi. Fe2O3 sement rangi va mustahkamligiga tasir korsatadi va fizik xossalarini ham o'zgartiradi.

Romansement ohaktoshni 900 °C da kuydirish orqali olinib mustahkamligi past hisoblanadi. Uning 25-100 markali turlari mavjud.U sement turi XX asrgacha keng qo'llanilgan hozirda bu sement o'rnini portlandsement egallagan.

Portlandsement Portland ya'ni Birlashgan Qirollik yarim oroli nomidan oling an bo'lib suvga chidamli bog'lovchi modda hisoblanadi. Asosiy tarkibiy qismi Kalsiy silikatlardan iborat. Bu sementning eng ko'p tarqalgan turi hisoblanadi. Tarkibi, qo'llanilishi va xossalariga ko'ra portlandsement oddiy tez qotuvchan gidrofob sulfatga bardoshli hisoblanadi.300-600 markali turlari mavjud.

Glinozyosement (glinozyom ya'ni aluminiyga boy bo'lgan) sement hisoblanadi. Boksit va ohaktosh aralashmasini kuydiriah orqali olinadi. Kimyoviy tarkibiga ko'ra 40 % CaO 40 %Al2O3 6 - 8 % SiO2 dan iborat. Tez qotishi, mustahkamligining yuqoriligi va minerallashgan suvlarga turg'unligi bilan ajralib turadi. Glinozyosement katta mustahkamlikni talab etadigan dengiz va minerallashgan suv inshotlarida yo'l qurulish ishlarida va qish sharoitida betonlanadigan sement turi hisoblanadi.

Sement tarkibidagi chang zarralarining inson va atrof-muhitga ta'siri. Tsementni qayta ishlash jarayonida asosiy xavf- chang. O'tmishda 26 dan 114 mg / m gacha bo'lgan chang darajasi karerlarda va sement zavodlarida qayd etilgan. Alohida jarayonlarda quyidagi chang darajalari qayd etilgan: gil ekstraktsiyasi - 41.4 mg/m3; xom ashyoni maydalash va maydalash-79.8 mg/m3; elakdan o'tkazish -384 mg/m3; klinkerni maydalash -140 mg/ m3; tsement qadoqlash -256.6 mg/m3; va yuklash va boshqalar-179 mg/m3. Ho'l jarayondan foydalanadigan zamonaviy fabrikalarda 15 dan 20 mg gacha chang/ m3 havo vaqti-vaqti bilan yuqori qisqa vaqt qiymatlari hisoblanadi. Sement zavodlari yaqinidagi havo ifloslanishi, xususan, elektrostatik filtrlarning keng qo'llanilishi tufayli eski qiymatlarning 5 dan 10% gacha. Chang tarkibidagi erkin kremniy dioksidi odatda xom ashyo darajasi (gil tarkibida mayda zarracha kvarts bo'lishi mumkin va qum qo'shilishi mumkin) va klinker yoki tsement darajasi o'rtasida o'zgarib turadi, bu esa odatda barcha erkin kremniyni yo'q qiladi.Havoda uchib yurgan chang aerozol deb, yuzaga cho'kkani esa aerogel deb ham ataladi.

Chang aerodinamik siste'ma bo'lib, dispersion muhitni havo, dispers fazani esa qattiq zarrachalar tashkil etadi. Chang inson organizmida doim ta'sir etib turuvchi omillar turkumiga kiradi va ma'lum sharoitlarda organizmga ta'sir ko'rsatadi.

Chang odam organizmga ta'siri bo'yicha quyidagicha tasniflanadi:

1) fibrogen
2) zaharli
3) allergenli
4) kantserrogen
5) qichituvchi
6) ionlantiruvchi

Kelib chiqish turiga ko'ra:

Organik - o'simlik, hayvon va boshqa trik organizmlardan ajralib chiqadigan;

Noorganik – turli qattiq moddalar (tuproq), minerallar va metallardan ajralib chiqaradigan.

Chang orqali hosil bo'ladigan kasalliklar. Changlarning dispersligi ularning havodagi turg'unligi, nafas yo'llariga kirish va qancha chuqurlikka kirib borish imkoniyatini belgilaydi. Changlarning o'lchami qancha kichik bo'lsa, ular nafas yo'llariga shuncha chuqur kirib boradi, o'pkada shuncha ko'p ushlanib qoladi va fibrogenlik hususiyatini oshiradi. Nafas olganda alveolalarga asosan 5 mkm gacha kattalikdagi zarrachalari kiradi. Fibrogenlik hususiyati bo'yicha 1-2 mkm bo'lgan changlar juda havfli hisoblanadi.

Changning ko'rish organlariga ta'sir qilishi, yallig'lanishni (kon'yunktivit), professional kataraktani keltirib chiqarishi va ko'zning shilliq qavati va shox pardasiga kuchli sezuvchanlik ta'sirini ko'rsatishi mumkin. Terining ifloslanishi, har xil tarkibdagi chang har xil turdagi dermatit va ekzemalarni keltirib chiqaradi.

Changning organizmga ta'sirining har xil ko'rinishda bo'lishini ularning kimyoviy tarkibi belgilaydi.

Changning asosiy ta'siri eng avvalo nafas olganda vujudga keladi. Changli havo bilan nafas olish asosan nafas organlarining zararlanishi: bronxit, pnevmokonioz yoki umumiy zararlanish rivojlanishini vujudga keltirishi mumkin. Ba'zi bir changlar qo'shimcha kasalliklarni keltirib chiqarishi xususiyatiga ega. Bularga yuqori nafas yo'llari, ko'zning shilliq qavati, teri qoplami kasalliklari kiradi. Changning o'pka yo'liga kirishi pnevmoniya, sil, o'pka rakining kelib chiqishiga sharoit yaratishi mumkin

Tsement sanoati ishchilarida uchraydigan boshqa xavfli sharoitlar nafas olish tizimi kasalliklari, ovqat hazm qilish kasalliklari, teri kasalliklari, revmatik va asab kasalliklari, eshitish va ko'rish kasalliklarini o'z ichiga oladi.

Nafas olish yo'llari kasalliklari Nafas olish yo'llarining buzilishi tsement sanoatida kasbiy kasalliklarning eng muhim guruhi bo'lib, havodagi changning nafas olishi va ish joyidagi makroiqlim va mikroiqlim sharoitlarining ta'siri natijasidir. Ko'pincha amfizem bilan bog'liq bo'lgan surunkali bronxit eng tez-tez uchraydigan respirator kasallik sifatida qayd etilgan.

Sement sanoatida gastroduodenal yaralarning yuqori darajada ko'rinishiga e'tibor qaratildi. 269 nafar sement zavodi ishchilarini ko'rikdan o'tkazishda 13 ta me'da -duodenal yara kasalligi (4.8%) aniqlangan. Keyinchalik, gvineya cho'chqalarida ham, tsement changi bilan oziqlangan itda ham oshqozon yarasi paydo bo'ldi. Biroq, tsement zavodida o'tkazilgan tadqiqot shuni ko'rsatdiki, gastroduodenal yaralar tufayli kasallikning yo'qligi 1.48 dan 2.69% gacha. Yaralar yiliga bir necha marta o'tkir bosqichdan o'tishi mumkinligi sababli, bu ko'rsatkichlar boshqa kasblar bilan solishtirganda ortiqcha emas.

Chang orqali yuzaga chiqadigan teri kasalliklari odatda allergik reaktsiyalar, infektsiyalar yoki terining tirnash xususiyati bilan bog‘liq bo‘ladi. Quyida eng keng tarqalganlari haqida ma’lumot:

1. Kontakt dermatitis Sababi: Chang tarkibidagi allergenlar yoki kimyoviy moddalar (masalan, tsement, metall, chang zarralari).

Belgilari:Qizarish va qichishishTo‘shmalar yoki pufakchalarTeri qurishi va qattiqlashishi

2. Chang allergiyasi natijasida yuzaga keladigan ekzema Sababi: Uy changi kanalariga yoki boshqa allergen changlarga sezuvchanlik.Belgilari:Qattiq qichishishTeri yorilishiYallig‘lanish va suyuqlik ajralishi

3. Qo‘ng‘ir temiratki (tinea corporis)Sababi: Chang orqali tarqaladigan zamburug‘ infektsiyalari Belgilari:Dumaloq, qizg‘ish dog‘larParchalangan yoki qichishuvchi terYoyilib boruvchi zararlangan joylar

4. Chang bilan bog‘liq bakterial infektsiyalari Changdagi bakteriyalar (masalan, Staphylococcus aureus) teri shikastlangan joylarga tushsa, infektsiyalar yuzaga kelishi mumkin Belgilari:Yiringli yaralar Shish va qizarish Og‘riq va isitma (og‘ir hollarda)

5. Sil chang dermatitis Sababi: Sil kasalligi bilan kasallangan chang (tuberkulyoz mikrobakteriyalari) bilan uzoq vaqt aloqa qilish.Belgilari:Doimiy qichishish Teri ustida qattiq tugunlar Yaralar yoki quruq toshmalar.

Chang tarkibidagi moddalar ta'sirida ayrim revmatik kasalliklar ham paydo bo'lishi mumkin. Bulardan biri Pnevmokonioz bilan bog'liq revmatik artrit

Sababi: Chang tarkibidagi zararli moddalar (masalan, ko'mir, kremniy dioksidi, asbest) uzoq muddat davomida nafas yo'llariga tushib, immun tizimini qo'zg'atishi mumkin. Bu esa revmatik artrit kabi kasalliklarga olib kelishi ehtimoli bor.

Silikoartrit (silikoz bilan bog'liq artrit). Sababi: Silikoz - kremniy changi inhalatsiyasi natijasida o'pka kasalligi. Bu kasallik rivojlangan odamlarda autoimmun kasalliklar, shu jumladan, revmatoid artrit ham paydo bolishi mumkin.

Bundan tashqari sement tarkibida uchraydigan asbest changi nafaqat o'pka balki bog'imlarda ham turli xil og'riqlar hosil qilishi mumkin.

Mavzu yuzasidan xulosalar: Sement tarkibidagi moddalar xalq xo'jaligida keng qo'llaniladigan bog'lovchi material hisoblanadi. Uning tarkibidagi CaO, Al2O3 va SiO2 lar uning xossalarini belgilab beradi. Shu bilan birga sement va uning tarkibidagi har xil qo'shimchalardan ajraladigan ko'pgina chang zarrachalari atrof - muhitga ta'sir qilib havoning ifloslanishiga sabab bo'lib kelmoqda. Bu esa tirik organizmning mana shu ifloslanish orqasidan ko'pgina kasalliklar jumladan nafas olish, ovqat hazm qilish, teri, revmatik va bir qator kasalliklarning vujudga kelishiga sabab bo'lmoqda. Bularning oldini olish uchun esa sement ishlab chiqaruvchi korxonlar aholi manzilgohlaridan olis masofalarda qurish va ishlayotgan ishchilar gigiyena qoidalariga rioya qilgan holda ish olib borishi zarur. Shundagina yuqorida sanab o'tilgan noxush hodislarning oldini olishimiz mumkin bo'ladi. Bundan tashqari atrof-muhitning ifloslanishi nafaqat insonlar uchun balki tirik tabiati va undagi barcha tirik organizmlar uchun xususan o'simliklar va hayvonlar uchun ham katta zarar hisoblanadi

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MAKTABGACHA TA'LIM PEDAGOGLARIDA KASBIY MAHORATINI RIVOJLANTIRISHDA AXBOROT TEXNOLOGIYALARINING AHAMIYATI

Annotatsiya. *Ta'lim strategiyasi maktabgacha yoshdagi xodimlarni yangi kasbiy malakalarni rivojlantirishga yo'naltiradi, shuning uchun tarbiyachilarning kasbiy mahorat darajasini doimiy ravishda oshirish pedagogik kadrlar bilan ishlashning strategik yo'nalishiga aylanishi kerak.*

Kalit so'zi: *ta'lim, pedagogik, standart, kadr, jarayon, mahorat, texnologiya, bolalar.*

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THE IMPORTANCE OF INFORMATION TECHNOLOGY IN THE DEVELOPMENT OF PROFESSIONAL SKILLS IN PRESCHOOL EDUCATION EDUCATORS

Annotation*. The strategy of education focuses preschoolers on the development of new professional skills, therefore, the constant improvement of the level of professional competence of educators should become a strategic direction of work with teaching staff.*

Keywords: *educational, pedagogical, standard, personnel, process, skill, technological, children's.*

Ta'lim – tarbiya ishlarining muvaffaqiyati baribir tarbiyachining bilimiga, uning kasbiy mahoratiga bog'liq. Shu nuqtai - nazardan O'zbekiston Respublikasining birinchi prezidenti I.A.Karimov *"Tarbiyachilarning o'ziga zamonaviy bilim berish, ularning ma'lumotini, malakasini oshirish kabi paysalga solib bo'lmaydigan dolzarb masalaga duch kelmoqdamiz. Mening fikrimcha,t a 'lim - tarbiya tizimini o'zgartirishdagi asosiy muammo shu yerda. O'qituvchi o'quvchilarimizga zamonaviy bilim bersin, deb talab qilamiz. Ammo zamonaviy bilim berish uchun, awalo, murabbiyning o'zi ana shunday bilimga ega bo 'lishi kerak"*[6] - deb ta 'kidlaydi. Xo'sh pedagogik mahoratning o'zi nima? Unga hozirgi zamon fani nuqtai nazaridan quyidagicha ta'rif beriladi: Pedagogik mahorat-tarbiyachilarning shaxsiy (bolajonligi, xayrixohligi, insonparvarligi, mehribonligi va h.k.) va kasbiy (bilimdonligi, zukkoligi, fidoyiligi, ijodkorligi, qobiliyati va hokazo.) fazilatlarini belgilovchi xususiyat bo'lib, tarbiyachilarning ta 'lim-tarbiyaviy faoliyatida yuqori darajaga erishishini, kasbiy mahoratini doimiy takomillashtirib borish imkoniyatini ta’minlovchi faoliyatdir. U o'z fanini mukammal bilgan, pedagogik psixologik va metodik tayyorgarlikka ega bo'lgan, o'quvchilarni o 'qitish, tarbiyalash va rivojlantirishning optimal yo‘llarini izlab topish uchun, amaliy faoliyat olib boradigan har bir tarbiyachining kasbiy faoliyatida namoyon bo 'ladi. Pedagogik mahorat egasi bo'lish uchun tarbiyachi o'z o'quv predmetini davr talablari asosida bilishi pedagogik va psixologik bilimlarga ega bo'lishi, hamda insoniylik, izlanuvchanlik va fidoyilikni o'zida tarkib toptirishi lozim. I.P. Rachenko pedagogik mahoratni pedagogik san’atning bir qismi sifatida ta’riflab, shunday yozadi: Pedagogik mahorat deganda, tarbiyachining pedagogik-psixologik bilimlarni, kasbiy malaka va ko'nikmalami mukammal egallashi, o‘z kasbiga qiziqishi rivojlangan pedagogik fikrlashi va intuitsiyasi, hayotga axloqiy-estetik munosabatda bo'lishi, o'z fikr-mulohazasiga ishonchi va qat’iy irodasi tushuniladi”.Tadqiqotchilaming fikriga ko'ra, quyidagi to‘rtta komponent pedagogik mahoratning asosiy tashkil etuvchilari hisoblanadi:

- tarbiyachilik kasbiga sadoqat;
- o 'z fanining o'qitish metodikasini mukammal bilishi;
- pedagogik qobiliyatlarini namoyish eta olishi;
- pedagogik texnikani o‘z o'nida qo'llay bilishi.

Shuni alohida qayd etib o'tish zarurki, tarbiyachilik kasbi murakkab va mas’uliyatli jarayondan iborat. Ushbu kasbning sharafliligi va murakkabligi shu bilan belgilanadiki, tarbiyachi doimo ongning yagona sohibi bo'lmish insonning ta’lim-tarbiyasi bilan shug‘ullanib, u bilan muloqot olib boradi. Ongli va tirik jonzot esa aqliy, ruhiy hamda jismoniy jihatdan doimo rivojlanishda bo‘ladi. Shu sababli, bolajak tarbiyachilar tarbiyalanuvchi bilan doimiy muloqotda bo'lishi, unga ta’sir ko'rsatishi uchun muntazam ravishda psixologiya va tarbiya nazariyasini mukammal o'rganib, o'z kasbiy faoliyatini muttasil rivojlantirib borishi kerak. Tarbiyachilarning shaxsiy fazilatlari sirasiga iymon-e’tiqodi, dunyoqarashining kengligi, faolligi, odob-axloqi, fuqarolik burchini his qilishi, ma’naviyati, dilkashligi, talabchanligi, qat’iyligi va o'z maqsadlariga intilishi, insonparvarligi, huquqiy bilimdonligi mamlakatimizning ijtimoiy-siyosiy talablariga o'z fikr-mulohazasi bilan faol ishtirok etishi kiradi.

"Muallimning yuksak sifati uning aqli, ilmi, fikri, so ‘zi, axloqi va odobidadir.Tarbiyachining yuz qarashlari ham, gapirishlari ham, qalbi ham, ko'rinishi ham, yurish-turishi ham, kiyinishi ham chiroyli va ibrat namunasi bo'lsin. Ayniqsa, uning nutqi tushunarli, ravon, ta’sirli bo‘lishi darkor. U muloqotda bamisoli so ‘z zargari ekanligini ko’rsata olishi muhimdir”.[7]

Darhaqiqat, tarbiyachilarning obro'-e’tiborini ta’minlaydigan ilk vosita uning tarbiyalanganlik darajasidir. Birinchidan, tarbiyachi ma’naviy jihatdan sog'lom va keng fikrlay oladigan bo'lishi, o'z milliy qadriyatlari, urf-odatlari va millatimizning buyuk siymolari ijodiy merosini teran bilishlari kerak. Binobarin, o'zi tanlagan mutaxassislik va fan sohasida izlanishlar olib borgan, allomalaming hayoti va ijodini yaxshi bilishi hamda mantiqiy tafakkurga ega bo'lishi lozim Bu tarbiyachi pedagogic mahoratining shakllanib borishida muhim ahamiyat kasb etadi. Ayniqsa, milliy an’analarimiz, urf-odatlarimiz, qadriyatlarimiz asosida davlatimizning buyuk kelajagi bolmish yosh avlodga chuqur bilim berish tarbiyachilardan yuksak qobiliyatni va ishchanlikni talab qiladi. Pedagog faoliyatda vositalar, maqsadlar va natijalarning nisbatani doimo tahlil qilib borishi zarur hisoblanadi. Ular uzviy birlikni tashkil etadi, bir-biriga bog‘liq bo‘ladi va alohida tarzda amalga oshirilmaydi. Maqsadni amalga oshirish usuli va yo‘li bu - bo‘lajak natijadir. Natija yangi vositalarni tanlash yangi maqsadlarni qo‘yish uchun amaliy asos hisoblanadi. Tajribada ma’lum darajada qo‘llanilgan har qanday vosita natija beradi, hatto biror sababga ko‘ra maqsad aniq ifodalanmagan bo‘lsa ham natija beraveradi. Lekin maqsadi aniq ifodalangan pedagogik vositagina samaralidir. Bolalarga tarbiyaviy ta’sir ko‘rsatishning har bir aniq holatda umuman tarbiyada biz nimaga erishmoqchi ekanligimizni aniq bilib olmasak, samarali pedagogik vositalarni tanlash muvaffaqiyatli bo‘lishini tasavvur qilish qiyin.Mohir tarbiyachi - bu yuqori madaniyatli, o‘z sohasini chuqur biluvchi, turdosh fan va san’at saholaridan xabardor, umumiy va xususan bolalar psixologiyasini yaxshi o‘zlashtirgan, ta’lim –tarbiya metodikasini to‘liq egallagan mutaxassisdir”. Tarbiyachilik qobiliyatini egallash uchun ko‘p o‘qish va bilish zarur. Tarbiyachi qonun va qoidalarini aniq bilish kerak. Bundan tashqari ta’lim-tarbiya samaradorligini oshiruvchi texnologiyalarni to‘liq egallagan bo‘lishi, ularning har biridan aniq vaziyatlarda o‘rinli foydalana bilish, tashxis qo‘ya bilish zarur. “Bizning pedagogik mehnatimizda hamma narsani deydi professor Y.P.Ikara “Qobiliyat hal qiladi” ammo tarbiyachilar uchun qobiliyatga yo‘l odatda qanchalar murakkab va qanchalar uzoq”. Bugungi kunda barkamol avlodni tarbiyalashda yoshlarni intelektual salohiyatini ro’yobga chiqarish va ularning har tomonlama rivojlangan shaxs etib voyaga yetkazish – davlatimiz siyosatini ustivor yo’nalishga aylangan. Chunki jismoniy sog’lom ma’naviy yetuk shaxslargina buyuk kelajakni yaratadi.Mamlakatimizda Maktabgacha ta’lim tizimini yanada takomillashtirish, moddiy-texnika bazasini mustahkamlash, maktabgacha ta’lim muassasalari tarmog’ini kengaytirish, malakali pedagog kadrlar bilan ta’minlash, bolalarni maktab ta’limiga tayyorlash darajasini tubdan yaxshilash, ta’lim-tarbiya jarayoniga zamonaviy ta’lim dasturlari va texnologiyalarini tatbiq etish, bolalarni har tomonlama intellektual, axloqiy, estetik va jismoniy rivojlantirish uchun shart-sharoitlar yaratish maqsadida kompyuter o’yinlari tarbiyalanuvchilarning ushbu qiziquvchanlik xususiyatini oshiradi. Multimedia vositalarini tayyorlash va bolalarning kompyuter savodxonligini shakllantirish metodikasi shaxsiy kompyuterlar multimedia texnologiyasining asosiy texnik vositasi hisoblanadi. Masalan, tarbiyachi A harfini an’anaviy usulda o’rgatish mobaynida, bolaga uning qog’ozdan yoki kartondan yasalgan shaklini ko’rsatadi (statik vosita). Mutimedia vositasida ko’rsatilganda A harfi kompyuter (monitor) ekranida tebranib, bolalarning diqqatini o’ziga jalb etadi (dinamik vosita). Hozirgi kunda turli xil multimediali ta’lim vositalarini ishlab chiqish va ularni ta’lim-tarbiya jarayoniga tatbiq etish jadal rivojlanayapti. MTTlari ta’lim- tarbiya jarayonida ulardan foydalanish metodikasi ishlab chiqilmagani uchun tarbiyachi-pedagoglar multimedia vositalarini multimedia texnologiyasi sifatida qabul qilmoqdalar. Kezi kelganda shuni ham ta’kidlab o’tish kerakki, multimedia vositalarini ishlab chiqaruvchi maxsus muassasadan tashqari, har bir MTT tarbiyachilarining o’zlari tayyorlashi mumkin bo’lgan dasturli va rolli multimedia vositalarini (DVD-disk) qo’llash mumkin. DVD video diski multimedianing texnik vositasi sifatida bir necha afzalliklarga ega. Tarbiyachilik kasbining shakllanishi davomida uning pedagogik mahorati takomillashib boradi. U har xil psixologik xususiyatlarga ega bo‘lgan o'quvchilar bilan ta’lim-tarbiyaviy faoliyat olib boradi. Turli ziddiyatlarga duch keladi. Bu o‘z navbatida uni tinimsiz ijod qilishga, tarbiyaning har xil vosita va usullarini topib, mohirona qo‘llashga majbur etadi. Tarbiya natijasida belgilangan maqsadga erishish uchun tarbiyachilar yillar davomida yig‘ilgan tajriba va malakalariga tayanib ishlaydilar.

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JANUB RENESSANSI HAQIDA MULOHAZALAR

Annotatsiya. *Ushbu maqolada XX asr Amerika adabiyotining yorqin vakili, Janub Renessansi davri adabiy va madaniy harakatining namoyondasi Uilyam Folkner ijodi haqida so‘z boradi. Janub Renessansi davri AQShning janubidagi birinchi muhim adabiy harakat bo‘lib, mintaqaning intellektual va madaniy turg‘unligi haqidagi tanqidlarga javob bergan.*
Kalit so‘zlar: *Amerika adabiyoti, Janub renessansi, Uilyam Folkner, harakat, adabiyot, madaniyat, tarix, an’ana.*

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REFLECTIONS ON THE SOUTHERN RENESSANCE

Abstract. *This article discusses the work of William Faulkner, a prominent figure of the 20th-century American literature and a representative of the Southern Renaissance literary and cultural movement. The Southern Renaissance was the first significant literary movement in the southern United States, responding to criticisms of the region's intellectual and cultural stagnation.*
Key words: *American literature, Southern Renaissance, William Faulkner, movement, literature, culture, history, tradition.*

Amerikaning taniqli yozuvchisi Uilyam Folkner (1897-1962) XX asrning birinchi yarmida Amerika janubida gullab-yashnagan Janub Renessansi davri adabiy va madaniy harakatining asosiy figuralaridan biridir. U o‘z romanlari va qissalari orqali janub tarixi, an’analari va muammolarini chuqur o‘rganib chiqdi, uni ushbu harakatning eng ta’sirli va taniqli ovozlaridan biriga aylantirdi.

Folknerning asarlari va uslubi Amerika adabiyoti rivojiga sezilarli ta'sir ko'rsatdi. U o‘z asarlari orqali Janub madaniyatini, uning tarixi va an’analarini saqlab qolishga yordam bergan. Uning adabiyotga qo‘shgan ulkan hissasini e’tirof etib, 1949-yilda adabiyot bo‘yicha Nobel mukofoti bilan taqdirlandi.

Uilyam Folknerning yozuvchilik iste’dodi juda erta namoyon bo‘lgan. Biroq uning yozuvchi sifatida tan olinishi, o‘z yo‘lini tanlab olishi oson kechmagan. Uilyam turli nashriyotlarga she’rlari va nasriy mashqlarini jo‘natib, o‘z kuchini sinab ko‘rmoqchi bo‘ladi, lekin hamma joydan bir xilda muloyim rad javobini oladi. Shundan so‘ng Folkner Nyu-Yorkda o‘z kuchini sinab ko‘rmoqchi bo‘ladi. Uning bu yirik shahardagi hayoti kitob magazinida sotuvchilikdan boshlanadi. Folkner unchalik yaxshi sotuvchi boʻlmasa-da, ajoyib kitobsevar edi.

Nyu-York Folkner uchun ajoyib hayot va ijod maktabi vazifasini oʻtaydi, u bu yerda Servantes, Dostoyevskiy, Tolstoy, Balzak, Dikkens, Flober kabi daholar ijodi bilan tanishadi. Biroq koʻp oʻtmay yana Missisipisiga qaytadi va turli kasblarda oʻzini sinab koʻradi. Bank xizmatchisi, boʻyoqchi, xat tashuvchi boʻlib ishlaydi. Biroq bu sohalarning hech birida uzoq ishlolmaydi.

Folkner 1924-yilda mashhur yozuvchi Shervurd Anderson bilan tanishadi. Keyinchalik “yangi adabiy avlodning otasi” deb nom olgan bu yozuvchi bilan tanishuvi yangi Orleanning fransuz kvartali chorrahasida roʻy beradi va bu voqea yosh, havasmand ijodkor hayotida oʻchmas iz qoldiradi. Anderson yoʻl izlayotgan, hali hech kimga tanilmagan Folknerda oʻziga ishonch tuygʻusini uygʻotadi.

Folkner 1925-yilda keyinchalik unga ilk shuhratni keltirgan “Soldat sharafi” nomli romanini yozishga kirishadi. Yozuvchi bu asarida urushning tub mohiyatini koʻrsatadi, urushning “vatanparvarlik”, “qahramonlik”, “muqaddas qurbonlar”, “harbiy shon-shuhrat” kabi chiroyli niqoblarini olib tashlaydi. Urush mohiyat e’tibori bilan “Chikago mushtlashuvlaridan farq qilmaydi, birgina farqi goʻshtni bu yerda yerga koʻmadilar”. Mana shu fikr urushdan keyingi butun bir avlodning hayotiy xulosasiga aylanadi.

Yozuvchi asarlarining syujeti gʻoyatda rang-barang va xilma-xil, biroq oʻzining ta’kidlashicha: “mohiyat-e’tibori bilan umrim davomida faqat bir voqeani yozdim – dunyo va oʻzim haqidagi voqea” va shu orqali: “hayotning oʻzida ma’no bormi?” – degan savolga javob axtardi.

Folkner adabiyot olamiga oʻzi yaratgan xayoliy dunyoni olib kirdi va uni “Yoknapatofa” deb atadi. Hatto bu mamlakatning xaritasini chizib berdi, bu xarita “Avessalom, Avessalom!” romanining muqovasida aks etdi, oʻsha kezlarda millionlab nusxalarda tarqaldi. Folkner asarlarining qahramonlari shu mamlakatda hayot kechirganlar.

Folkner millatni ulugʻlash yoʻlini emas, shafqatsizlarcha oʻz-oʻzini tanqid qilish yoʻlini tanladi. Uning tanqidi millatga nisbatan chuqur va ulkan muhabbat bilan yoʻgʻrilgan. Folkner oʻsha kezlarda adabiyotda urf boʻlgan oson yoʻldan bormadi. Uning aybnomasi barcha ijtimoiy va iqtisodiy qatlamlarga, badavlat sinfga, boylarga ham va johil omi oq tanli kambagʻallar uchun xos boʻlgan insoniy zaifliklarga ham qarshi yoʻnaltirilgan edi. U irqiy kamsitishning fojeasini ochib beradi, irqiy oʻz-oʻzini yuqori qoʻyish nazariyasini ehtiros bilan fosh qiladi, huquqiy va davlat idoralarining munofiqliklarini koʻrsatadi, diniy mutaassiblikning besamarligini aks ettiradi. Folkner asarlaridagi eng asosiy mavzu alam va iztirob tasviridan iborat. U inson qalbining eng tuban tuygʻularini ochib tashlaydi. Uning asarlarida jinoyat, shafqatsiz qonxoʻrlik tasvirini koʻp uchratish mumkin. Yozuvchi ehtiroslarini oʻzgalardan pinhon tutib, qat’iy nazorat ostidan oʻtkazib yuzaga chiqarmaydi, ularni oxiriga qadar, toʻlaligicha otilib chiqishlariga yoʻl qoʻyib beradi. Koʻp hollarda qahramon oʻlimi oldidan, soʻnggi daqiqalarda achchiq hayot tajribasidan umrini besamar yashab oʻtganligini anglab yetadi.

Folkner o‘ylab chiqargan xayoliy mamlakat Yoknapatofani shimoliy Missisipining eski xaritasidan topib oldi, Yoknapatofa yerli hindularning Chikeso qabilasi tilida “voha bo‘ylab tinch oqayotgan suv” ma’nosini anglatadi. Bu boshi va oxiri bo‘lmagan hayot daryosi timsolidir.

Zamondoshlari tomonidan Folkner ijodi turlicha baholangan, qizg‘in bahs-munozaralarga sabab bo‘lgan. Ko‘plab adabiyotshunos-tanqidchilar Folkner amerikaliklarga olijanob, sog‘lom fikrli va nihoyat darajada jo‘n, zerikarli provinsializmning biqiq muhitini yorib chiqishlarida ko‘maklashadi, deb hisoblaydilar. Yana boshqa tanqidchilar, uni hayotni qora rangda tasvirlashda aybladilar, o‘zlarini yozuvchi asarlari ko‘zgusida ko‘rishni istamadilar. Ko‘plarga uning ijodiy uslubi va falsafiy xulosalari yoqmas edi. Kafedra minbarlari va matbuot orqali yillar davomida uning ijodini qoralaganlar. Qadrdon shtatida uzoq davrlar uning san’ati va siyosiy qarashlarini anglab yetmaganlar.

Folkner ijodi atrofidagi bahs-munozaralar barchaning diqqat markazida turgan, uning har bir yangi asari tanqidchilar nazaridan chetda qolmagan. Uning nomi Yevropa va Amerikada keng shuhrat qozona boshlagan. Biroq Folkner moddiy muhtojlikda yashar, asarlari uchun olgan qalam haqi oldingi qarzlarini uzish uchun bazo‘r yetardi. Shunday vaziyatda Folknerga Gollivudning nazari tushdi. Folkner uchun Gollivud cheksiz imkoniyatlar, shon-shuhrat kaliti edi. Biroq, yozuvchi Gollivudga kelgach, unga turlicha shartlar qo‘yadilar va Folkner o‘zi qadrlagan erkinlikni yo‘qota boshlaydi.

Yozuvchi oldida darhol to‘siqlar paydo bo‘ladi. U asarining ssenariysini o‘z rejasi bo‘yicha emas, balki talablar ko‘ra yozishi kerak bo‘ladi. Folknerda shartnomani yirtib tashlab, Gollivuddan bosh olib ketish istagi paydo bo‘ladi, biroq pul juda zarur edi: otasi vafot etgani bois butun oilani boqish uning zimmasida edi. Folkner ma’lum muddat o‘z ijodiy faoliyatini jilovlashga majbur bo‘ladi. Folkner bunday vaziyatga uzoq chidab tura olmaydi va oilasi bilan yana qadrdon Missisipiga qaytadi.

Folknerning shuhrati kun sayin ortib boradi. Fransiya uni Hurmat legioni ordeni bilan taqdirlaydi, vatanida ham uni qadrlay boshlaydilar. San’at va adabiyot instituti va Adabiyot akademiyasi uni a’zolikka qabul qiladi. Keyinroq esa eng yaxshi adabiy asar uchun Milliy Mukofot bilan taqdirlandi. Ijodkor 1950-yilda “Zamonaviy amerika romanini rivojlantirish yo‘lidagi buyuk va o‘ziga xos ijodiy hissasi uchun” Nobel mukofotiga sazovor bo‘ladi. So‘ngra Folknerning mashhur nutqi tinglanadi. Aytishlaricha, yozuvchining ovozini zo‘rg‘a eshitganlar. Lekin ertasiga ro‘znomalarda e’lon qilingan bu nutq barchada juda kuchli taassurot qoldirgan.

Zabardast yozuvchi 1962-yilning 7-iyulida bu olamni tark etadi. Ijodkor o‘limidan keyingi shon-shuhratiga beparvo qarar, hatto bu haqida o‘ylamas edi. Biroq Folkner o‘zidan keyin chuqur va o‘chmas iz qoldirib ketdi.

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QURILISH MUHANDISLIGIDA KONSTRUKTIV TAHLIL VA LOYIHALASHDA DIFFERENTSIAL TENGLAMALARNING AHAMIYATI

Annotatsiya: *Differentsial tenglamalar qurilish muhandisligi sohasida, xususan, strukturaviy tahlil va dizaynda hal qiluvchi rol o'ynaydi. Ushbu tadqiqot murakkab tizimlarni modellashtirishda ularning ahamiyati, ko'p qirraliligi va aniqligiga e'tibor qaratgan holda tuzilmalarni tahlil qilish va loyihalashda differentsial tenglamalarning turli xil qo'llanilishini o'rganadi. Differensial tenglamalarni qo'llash orqali muhandislar turli xil yuk va chegara sharoitida turli konstruktiv elementlarning harakatlarini bashorat qilishlari mumkin, bu esa konstruktsiyalarning xavfsizligi va barqarorligini ta'minlaydi.*

Kalit so'zlar: *Differensial tenglamalar, Strukturaviy tahlil, Qurilish muhandisligi, Dizayn optimallashtirish, Matematik modellashtirish.*

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IMPORTANCE OF DIFFERENTIAL EQUATIONS IN STRUCTURAL ANALYSIS AND DESIGN IN CIVIL ENGINEERING

Annotation. *Differential equations play a decisive role in civil construction, especially in structural analysis and design. V etom issledovanii izuchayutsya razlichnye application of differential equations pri analysis i proektirovanii construction, udelyaya osoboe vnimanie ix vajnosti, universalnosti i tochnosti pri modelirovanii slojnyx system. Primenyaya differential equations, engineering can predict the behavior of different structural elements under different loads and boundary conditions, which ensures safety and structural stability.*

Keywords: *Differential Equations, Structural Analysis, Civil Engineering, Design Optimization, Mathematical Modeling.*

Kirish

Strukturaviy tahlil va dizayn qurilish muhandisligining asosiy jihatlari bo'lib, materiallar va komponentlarning tashqi kuchlarga qanday ta'sir qilishini chuqur tushunishni talab qiladi. Differentsial tenglamalar tuzilmalarning xatti-harakatlarini modellashtirish va turli sharoitlarda ularning ishlashini bashorat qilish uchun kuchli matematik vositadir. Ushbu tadqiqot differensial tenglamalarni qurilish muhandisligining turli jihatlarida qo'llashni o'rganish, ularning strukturaviy barqarorlikni tahlil qilish, dizaynlarni optimallashtirish, binolar va infratuzilma xavfsizligini ta'minlashdagi rolini ko'rsatishga qaratilgan.

Asosiy qism

Oldingi tadqiqotlar differensial tenglamalardan strukturani tahlil qilish va loyihalashda foydalanishni keng o'rganib chiqdi. Turli xil tadqiqotlar turli xil tuzilmalarda stress taqsimoti, deformatsiya naqshlari va buzilish usullarini bashorat qilishda differentsial tenglamalarning samaradorligini ko'rsatdi. Materiallar va strukturaviy elementlarning xatti-harakatlarini tartibga soluvchi differensial tenglamalarni echish orqali muhandislar binolar va infratuzilmaning ishlashini to'g'ri baholashi mumkin, bu esa yaxshi dizayn qarorlari va umumiy xavfsizlikni yaxshilashga olib keladi.

Ushbu tadqiqot qurilish muhandisligida differentsial tenglamalarni qo'llashni ko'rsatish uchun matematik modellar va tenglamalardan foydalangan holda nazariy yondashuvni qo'llaydi. Differensial tenglamalar strukturaviy tizimlarni tahlil qilish, muhim parametrlarni aniqlash va yaxshilangan ishlash va chidamlilik uchun dizaynlarni optimallashtirish uchun qanday ishlatilishini ko'rsatish uchun misollar va misollar keltirilgan. Metodologiya real stsenariylarni simulyatsiya qilish va turli yuklash sharoitlarida tuzilmalarning javobini bashorat qilish uchun analitik va raqamli usullar orqali differentsial tenglamalarni echishni o'z ichiga oladi.

Natijalar va muhokama:

Ushbu tadqiqot natijalari differensial tenglamalarning strukturaviy tahlil va loyihalashdagi ahamiyatini ko'rsatib, ularning qurilish muhandisligidagi murakkab tizimlarning xatti-harakatlarini to'g'ri taxmin qilish qobiliyatini namoyish etadi. Differensial tenglamalarni yechish orqali muhandislar stress taqsimoti, burilish va barqarorlik kabi muhim omillarni aniqlashlari mumkin, bu ularga material tanlash, strukturaviy konfiguratsiya va yuk ko'tarish qobiliyati bo'yicha asosli qarorlar qabul qilish imkonini beradi. Muhokama inshootlarning xavfsizligi, samaradorligi va barqarorligini ta'minlash uchun dizayn jarayoniga differentsial tenglamalarni kiritish muhimligini ta'kidlaydi. Qurilish muhandisligida strukturaviy tahlil ko'pincha materiallar va komponentlarning yuklar, tebranishlar va atrof-muhit sharoitlari kabi tashqi kuchlarga munosabatini bashorat qilishni o'z ichiga oladi. Differentsial tenglamalar struktura ichidagi kuchlar, siljishlar va deformatsiyalar o'rtasidagi munosabatlarni matematik tavsiflash uchun asos yaratish orqali ushbu tahlillar uchun asos bo'lib xizmat qiladi. Muayyan strukturaviy tizimlarga moslashtirilgan differentsial tenglamalarni shakllantirish va yechish orqali muhandislar materiallarning xatti-harakati, kuchlanish taqsimoti va buzilish mexanizmlari haqida bebaho tushunchalarga ega bo'lib, ularga xavfsiz va mustahkam tuzilmalarni loyihalash imkonini beradi.

Strukturaviy tahlildan tashqari, differentsial tenglamalarni qo'llash qurilish muhandisligida dizaynni optimallashtirish sohasiga ham taalluqlidir. Turli strukturaviy konfiguratsiyalarning ishlashini modellashtirish uchun differensial tenglamalardan foydalangan holda, muhandislar dizayn imkoniyatlarining keng doirasini o'rganishlari, dizayn tanlovlarining struktura barqarorligiga ta'sirini bashorat qilishlari va strukturaviy samaradorlikni oshirish bilan birga materiallardan foydalanishni minimallashtiradigan optimal echimlarni aniqlashlari mumkin. Differensial tenglamalar asosida boshqariladigan ushbu optimallashtirish jarayoni nafaqat tuzilmalarning ishlashi va uzoq umr ko'rishini oshiradi, balki arxitektura dizayni va qurilish amaliyotida innovatsiyalarni qo'llab-quvvatlaydi.

Xavfsizlik va ishonchlilik qurilish muhandisligida munozarali bo'lmagan omillardir va differentsial tenglamalarni qo'llash tuzilmalarning qat'iy xavfsizlik standartlariga javob berishini ta'minlashda hal qiluvchi rol o'ynaydi. Differensial tenglamalarni tahlil qilish orqali muhandislar potentsial nosozlik nuqtalarini aniqlashlari, yuklarga bardosh berish uchun struktura imkoniyatlarini baholashlari va binolar va infratuzilmalarning xavfsizlik chegaralarini oshirish choralarini ko'rishlari mumkin. Differensial tenglamalardan olingan matematik modellar bilan ta'minlangan ushbu proaktiv yondashuv muhandislarga tizimli zaifliklarni oldini olish va xavflarni kamaytirish, natijada hayot va mulkni himoya qilish imkonini beradi.

Barqarorlik dolzarb masala bo'lgan davrda qurilish muhandisligida differentsial tenglamalarni qo'llash ekologik toza amaliyotlarni rivojlantirishga yordam beradi. Differensial tenglamalarga asoslangan matematik modellarni qo'llash orqali muhandislar materiallar isrofgarligini kamaytirish, energiya samaradorligini oshirish va qurilish loyihalarining atrof-muhit izini minimallashtirish uchun strukturaviy dizaynlarni optimallashtirishlari mumkin. Barqarorlikka asoslangan ushbu differensial tenglamalarning aniqligi va bashorat qilish kuchiga asoslangan tashabbuslar yanada barqaror va bardoshli qurilgan muhitni shakllantirishda matematikaning muhim rolini ta'kidlaydi.

Xulosa

Xulosa qilib aytganda, qurilish muhandisligida differentsial tenglamalarni qo'llash tuzilmalarning xavfsizligi va ishonchliligini ta'minlash uchun ajralmas hisoblanadi. Matematik modellashtirish kuchidan foydalangan holda muhandislar binolar va infratuzilmani aniqlik va aniqlik bilan tahlil qilishi va loyihalashi, ish faoliyatini optimallashtirishi va xavflarni minimallashtirishi mumkin. Differentsial tenglamalar konstruktiv tizimlarning murakkab xatti-harakatlarini tushunish uchun tizimli yondashuvni ta'minlaydi, muhandislarga konstruksiyalarning sifati va mustahkamligini oshiradigan asosli qarorlar qabul qilish imkonini beradi. Oldinga siljish, ushbu sohadagi keyingi tadqiqotlar va ishlanmalar qurilish muhandisligi sohasini rivojlantirish, innovatsiyalar, tarkibiy tahlil va dizayn amaliyotida mukammallikni rivojlantirishni davom ettiradi.

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OLIY TA'LIMDA TALABALAR MATEMATIK QOBILIYATINI RIVOJLANTIRISHDA INTERFAOL METODLARDAN FOYDALANISH

Annotatsiya. *Mazkur maqolada oliy ta'lim muassasalarida talabalarning matematik qobiliyatini rivojlantirishda interfaol usullarning ahamiyati ko'rib chiqiladi. Matematika fani talabalarning mantiqiy fikrlash va muammolarni hal qilish qobiliyatlarini rivojlantirishda asosiy rol o'ynaydi, bu esa kelajakdagi kasbiy muvaffaqiyat uchun muhimdir. An'anaviy o'qitish usullaridan farqli o'laroq, interfaol usullar talabalarning dars jarayonida faol ishtirokini ta'minlaydi, ularni mustaqil fikrlashga, ijodiy yondashishga va jamoaviy ishga jalb qiladi. Maqolada interfaol usullarning mohiyati, afzalliklari va ularni qo'llashdagi qiyinchiliklar tahlil qilinadi.*

Kalit so'zlar: *Oliy ta'lim, Matematik qobiliyat, Interfaol usullar, Mantiqiy fikrlash, Muammolarni hal qilish, Ta'lim metodikalari, Faol o'qitish, Matematika darslari, Talabalarning rivojlanishi, Innovatsion ta'lim.*

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USING INTERACTIVE METHODS TO DEVELOP STUDENTS' MATHEMATICAL ABILITIES IN HIGHER EDUCATION INSTITUTIONS

Annotation. *This article examines the importance of interactive methods in the development of students' mathematical ability in higher education institutions. Mathematics plays a key role in developing students' logical thinking and problem-solving skills, which are important for future professional success. Unlike traditional teaching methods, interactive methods ensure active participation of students in the lesson process, involve them in independent thinking, creative approach and teamwork. The article analyzes the essence, advantages and difficulties of using interactive methods.*

Keywords: *Higher Education, Mathematical Skills, Interactive Methods, Logical Thinking, Problem Solving, Teaching Methods, Active Learning, Math Lessons, Student Development, Innovative Learning*

Kirish.

Oliy ta'lim tizimida matematika fani alohida o'rin tutadi, chunki u nafaqat muayyan kasbiy sohalarda zarur bilim va ko'nikmalarni shakllantiradi, balki talabalar mantiqiy fikrlash qobiliyatini rivojlantirishda ham muhim rol o'ynaydi. Matematika fani orqali talabalar murakkab muammolarni hal qilish, tahlil qilish va yondashuvlarni ishlab chiqish qobiliyatini o'zlashtiradi. Bu esa nafaqat texnika va tabiiy fanlar sohasida, balki ijtimoiy fanlar, iqtisodiyot va boshqa ko'plab yo'nalishlarda ham zarur hisoblanadi. Matematikaning ahamiyati shundaki, u boshqa fanlar uchun asosiy poydevor bo'lib xizmat qiladi. Ko'plab fanlar, xususan, fizika, kimyo, informatika, iqtisodiyot va muhandislik kabi sohalar matematikani asosiy vosita sifatida qo'llaydi. Matematika talabalarni tartibli va aniq fikrlashga, shuningdek, har qanday vaziyatni tahlil qilish va oqilona yechim topishga o'rgatadi. Shu sababli, oliy ta'limda matematika fani nafaqat bilim berish, balki keng ko'lamli muammolarni hal etishga qodir mutaxassislarni tayyorlashda muhim ahamiyatga ega. Matematika fani talabalarning mantiqiy fikrlash va muammolarni hal qilish qobiliyatini rivojlantirishda markaziy rol o'ynaydi. Bu fan orqali talabalar turli xil masalalar va muammolarni tahlil qilish, ularning strukturaviy jihatlarini tushunish va aniq yechim topish qobiliyatini rivojlantiradilar. Matematikaning mantiqiy asosi talabalarni har qanday vaziyatni tizimli ravishda ko'rib chiqishga, murakkab muammolarni oddiy qismlarga ajratishga va har bir qismini alohida tahlil qilishga o'rgatadi. Misol uchun, matematik tenglamalar yoki tengsizliklar orqali talabalar bir muammoning yechimini topishda qanday yondashuvlar eng samarali bo'lishini o'rganadilar. Muammolarni hal qilishda matematika fanining o'rgatadigan eng muhim jihatlaridan biri bu talabalarni moslashuvchan va ijodiy fikrlashga undashidir. Bu esa ularga real hayotdagi murakkab vaziyatlarda ham mustaqil qaror qabul qilish va innovatsion yechimlar topish qobiliyatini rivojlantiradi.Shunday qilib, matematika talabalarning mantiqiy fikrlash va muammolarni hal qilish ko'nikmalarini oshirish orqali ularni kelajakda turli kasbiy yo'nalishlarda muvaffaqiyatga erishish uchun zarur bo'lgan bilim va qobiliyatlar bilan qurollantiradi.

Asosiy qism.

Interfaol usullar — bu ta'lim jarayonida o'qituvchi va talabalar o'rtasida faol muloqotni ta'minlaydigan, talabalarning bilim olish jarayonida faol ishtirok etishiga imkon yaratadigan metodikalar to'plamidir. Bu usullar an'anaviy ma'ruzalar yoki darslardan farqli o'laroq, talabalarning o'quv jarayonida passiv ishtirok etish o'rniga, ularni o'quv jarayonining markaziga qo'yadi. Interfaol usullar orqali talabalar o'zlari bilim olish jarayonida faol ishtirok etishlari, yangi bilimlarni o'zlashtirishda mustaqil ravishda harakat qilishlari kerak bo'ladi.

INTERFAOL USULLARNING ASOSIY XUSUSIYATLARI:

1. **Faol muloqot**: Interfaol usullar o'qituvchi va talaba o'rtasidagi muloqotni kuchaytiradi. Bu muloqot ko'pincha ikki tomonlama bo'lib, talabalarning savollari va takliflari dars jarayonining bir qismi sifatida qabul qilinadi.

2. **Talabalarning faolligi**: Talabalar dars jarayonida faqat tinglovchi emas, balki faol ishtirokchi bo'lishadi. Bu jarayon o'z fikrlarini erkin ifoda qilish, savol berish, munozaralarda ishtirok etish va birgalikda yechim topish imkoniyatlarini taqdim etadi.

3. **Hamkorlikda o'qitish**: Interfaol usullar ko'pincha jamoaviy ishni o'z ichiga oladi. Bu talabalar o'rtasidagi hamkorlikni rivojlantiradi va bir-biridan o'rganish imkonini beradi.

4. **Ijodiy yondashuv**: Ushbu usullar talabalarga ijodiy fikrlash va muammolarni hal qilishda innovatsion usullarni qo'llash imkonini beradi. Bu ijodkorlik talabalarning bilimini yanada mustahkamlaydi va ularni yangi yondashuvlar izlashga rag'batlantiradi.

5. **Moslashuvchanlik**: Interfaol usullar dars jarayonini moslashuvchan qiladi. Dars davomida o'qituvchi talabalarning ehtiyojlari va qiziqishlariga qarab, o'qitish usulini o'zgartirishi yoki moslashtirishi mumkin.

6. **Tajriba va amaliyot**: Ko'plab interfaol usullar talabalarni nazariy bilimlarni amalda qo'llashga o'rgatadi. Amaliy mashg'ulotlar, loyihalar va laboratoriya ishlari orqali talabalar o'z bilimlarini mustahkamlaydi va real hayotda qanday qo'llashni o'rganadilar.

Umuman olganda, interfaol usullar talabalarning bilim olish jarayonida faol va samarali ishtirokini ta'minlaydi. Bu usullar yordamida talabalarning o'qishga bo'lgan qiziqishi ortadi, mantiqiy fikrlash qobiliyati rivojlanadi va bilimlar mustahkamlanadi

Xulosa.

Oliy ta'limda talabalarning matematik qobiliyatini rivojlantirishda interfaol usullarni qo'llash muhim ahamiyatga ega ekanligi yaqqol ko'rinadi. Ushbu usullar talabalarning dars jarayonida faol ishtirok etishini ta'minlab, ularni mustaqil va ijodiy fikrlashga o'rgatadi. Interfaol usullar yordamida talabalar matematikaning murakkab masalalarini jamoaviy ishlash, muloqot qilish va amaliy mashg'ulotlar orqali o'rganish imkoniyatiga ega bo'ladilar.Bu usullar nafaqat dars samaradorligini oshiradi, balki talabalarning o'qishga bo'lgan qiziqishini ham kuchaytiradi. An'anaviy o'qitish usullarining cheklovlarini bartaraf etib, interfaol yondashuvlar o'quv jarayonini talabalarga moslashtiradi va ularni bilim olish jarayoniga to'liq jalb qiladi.Shu sababli, oliy ta'lim muassasalarida matematika fanini o'qitishda interfaol usullardan kengroq foydalanish talabalar uchun katta foyda keltiradi. Bu usullar talabalarning matematik qobiliyatini samarali rivojlantirishga xizmat qilib, ularning kelajakdagi muvaffaqiyatlariga poydevor yaratadi. Natijada, matematika faniga bo'lgan qiziqish ortib, talabalarning umumiy ta'lim sifati sezilarli darajada yaxshilanadi.

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14–16 YOSHLI VOLEYBOLCHILARNING YURAK RITMI, MUSHAK KUCHI VA METABOLIK FAOLLIGI BO'YICHA KOMPLEKS TAHLIL

Anotatsiya:*Ushbu maqolada 14–16 yosh oralig'idagi voleybol sport turi bilan muntazam shug'ullanuvchi o'smir sportchilarning fiziologik holati – xususan, yurak ritmi, mushak kuchi va metabolik faolligi bo'yicha kompleks tahlil natijalari bayon etiladi. Tadqiqotda yosh sportchilarning jismoniy yuklamaga bo'lgan moslashuv darajasi, yurak urish chastotasi (puls), tana massasining qay darajada mushak faoliyati bilan uyg'unlashgani va energiya almashinuvi tizimidagi o'zgarishlar kuzatildi. Empirik usullarda olingan ko'rsatkichlar sportchilarning individual rivojlanish xususiyatlarini aniqlashga va mashg'ulot jarayonlarini ilmiy asosda optimallashtirishga xizmat qiladi. Natijalar asosida yosh voleybolchilarning sog'lom fiziologik rivojlanishiga ijobiy ta'sir ko'rsatuvchi mashg'ulot mexanizmlari va sport dasturlarini takomillashtirish bo'yicha amaliy tavsiyalar ishlab chiqilgan.*

Kalit so'zlar: *Voleybol, o'smir sportchilar, yurak ritmi, mushak kuchi, metabolik faollik, fiziologik ko'rsatkichlar, dinamometriya, modda almashinuvi, sport fiziologiyasi, empirik tahlil.*

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COMPREHENSIVE ANALYSIS OF HEART RATE, MUSCULAR STRENGTH, AND METABOLIC ACTIVITY IN 14–16-YEAR-OLD VOLLEYBALL PLAYERS

Abstract: This article presents an analysis of the physiological indicators of adolescent boys aged 14–16 who are regularly engaged in volleyball. The study focuses on key parameters such as heart rate, muscular strength, and metabolic activity, examining how consistent physical training influences the functional capacity of the body. The data were obtained through empirical methods and reflect the adolescents' adaptation to physical exertion, including cardiac efficiency, muscular endurance, and energy metabolism. The results demonstrate positive developmental trends in the physiological systems of young volleyball players and emphasize the role of targeted sports training in promoting healthy physical growth.

Based on the findings, practical recommendations have been proposed to optimize training programs and monitor the individual progress of young athletes.
Keywords: volleyball, adolescent athletes, heart rate, muscular strength, metabolic activity, physiological indicators, empirical research, youth sports training.

Voleybol – o‘smirlarning jismoniy rivojlanishiga ijobiy ta’sir ko‘rsatuvchi ommabop sport turlaridan biridir. Bu sport turi nafaqat harakat koordinatsiyasi va reaksiya tezligini rivojlantiradi, balki yurak-qon tomir, mushak va nafas olish tizimlarining funksional holatiga ham sezilarli ta’sir ko‘rsatadi. Ayniqsa, 14–16 yosh oralig‘i organizmning fiziologik o‘sish va shakllanish jarayoni eng faol kechadigan bosqich bo‘lgani sababli, ushbu davrdagi sport yuklamalarining ta’sirini ilmiy asosda o‘rganish muhimdir.

Tadqiqotlar shuni ko‘rsatadiki, muntazam jismoniy mashg‘ulotlar o‘smir organizmida yurak urish ritmini iqtisodiylashtiradi, mushak kuchini oshiradi, modda almashinuvi jarayonlarini faollashtiradi va umumiy chidamlilikni mustahkamlaydi. Voleybol bilan shug‘ullanuvchi o‘smirlarda ayniqsa yurak ritmi, mushak faoliyati va energiya almashinuvining uyg‘unligi kuzatiladi. Bu esa sportchilarning salomatligi va sport salohiyatini baholashda muhim fiziologik mezonlar hisoblanadi.[87]

Mazkur maqolada aynan 14–16 yoshli voleybolchilar misolida yurak ritmi, mushak kuchi va metabolik faollikning kompleks tahlili amalga oshiriladi. Natijalar asosida yosh sportchilarning individual jismoniy rivojlanish darajasini baholash va sport mashg‘ulotlarini optimallashtirish bo‘yicha ilmiy tavsiyalar shakllantiriladi.

Yurak ritmi va yurak-qon tomir tizimi faoliyati

Yosh sportchilarning yurak ritmi, ayniqsa dam olish holatidagi yurak urish chastotasi (RHR – Resting Heart Rate) sport bilan shug‘ullanadigan va shug‘ullanmaydigan o‘smirlar o‘rtasida sezilarli farq qiladi. Tadqiqot davomida aniqlanishicha, voleybol bilan muntazam shug‘ullanuvchi 14–16 yoshli o‘smirlarda yurak urishi o‘rtacha **58–62 urinish/min** atrofida bo‘lgan bo‘lsa, nazorat guruhidagi o‘smirlar orasida bu ko‘rsatkich **72–76 urinish/min** darajasida bo‘lgan.

Bu farq yurakning “iqtisodiy rejimda” ishlayotganini anglatadi: ya’ni yurak kamroq urish bilan ko‘proq qon haydaydi. A.A. Яшков (2018) qayd etganidek, sportchilarda yurak mushaklari zichlashadi, yurak bo‘shliqlari kengayadi va yurak minut hajmi (HMH) ortadi. Bu esa jismoniy faollikni ko‘tarishga yordam beradi[88].

Shuningdek, voleybolchilar yurak urishining tiklanish tezligida ham ustunlik ko‘rsatganlar. Ular mashqdan keyingi birinchi besh daqiqada yurak urishini o‘rtacha **40–45%** ga tiklay olgan bo‘lsa, bu ko‘rsatkich nazorat guruhida **25–30%** atrofida qolgan. Bu yurakning yuqori darajadagi adaptatsiyasini, barqarorligini va chidamliligini ko‘rsatadi.

[87] А.А. Яшков. *Физиология детей и подростков: Учебное пособие*. — Москва: Академия, 2018. — 304 с.
[88] Яшков А.А. *Физиология детей и подростков: Учебное пособие*. — Москва: Академия, 2018. — 304 с.

Bu o‘zgarishlar voleybolchining mashg‘ulotlarga ko‘nikkanligini, yurak-qon tomir tizimi yuritayotgan stressni bardavom ko‘tara olishini ko‘rsatadi. Bu esa nafaqat sportdagi natijalarni, balki umumiy salomatlik holatini ham mustahkamlaydi.

Mushak kuchi va statik-dinamik tayyorgarlik

Yosh voleybolchilarning mushak kuchi ham aniq ko‘rsatkichlar orqali baholandi. Qo‘l mushak kuchi dinamometrik testlar asosida aniqlangan bo‘lib, sportchilar guruhida o‘rtacha **35–38 kg**, nazorat guruhida esa **28–30 kg** ko‘rsatkichlar qayd etilgan. Oyoq mushaklarining kuch ko‘rsatkichlari esa vertikal sakrash, statik ushlash testlari orqali baholangan bo‘lib, sportchilar ancha ustunlikka ega bo‘lishgan.

Y.V.Krasnikov fikricha, kuch mashqlari o‘smir organizmida mushaklar sonini emas, balki mushak tolalari zichligini oshiradi. Bu esa harakatlanuvchi bo‘g‘imlar faolligini va chidamliligini oshiradi[2]. Ayniqsa, voleybolchilar doimiy tizzadan yuqoriga sakrash, blok qo‘yish, yerga qulab tushish singari harakatlarni bajarganliklari sababli, ularning quyi tanadagi mushaklar rivojlanishi nazorat guruhiga qaraganda sezilarli darajada yuqori bo‘lgan.

Qo‘l va yelka mushaklarining kuch ko‘rsatkichlari esa servis, zarba va to‘siq harakatlari natijasida rivojlangan. Bu mushak guruhlarida sportchilarning kuch ko‘rsatkichlari 15–20% yuqori bo‘lgani kuzatildi. Bundan tashqari, mushaklarning qattiqligi, reaksiyaviyligi va kuchni uzoq muddat ushlab turish qobiliyati ham sportchilar foydasiga farq qilgan.

Mushohada shuni ko‘rsatadiki, voleybolchilar muntazam mashg‘ulotlar orqali faqat mushak kuchini emas, balki mushak reaksiyasi, elastikligi va koordinatsiyasini ham mukammal darajada rivojlantirishgan.

. Metabolik faollik va tana tarkibi

Metabolik faollik o‘smir sportchilarning umumiy energiya sarfi, tana yog‘i foizi va bazal almashinuv darajasi orqali baholandi. Voleybolchilar guruhi o‘rtacha **BMI (Body Mass Index)** – tana massasi indeksi – 18.5–19.8 oralig‘ida bo‘lgan, bu sog‘lom va normal ko‘rsatkich hisoblanadi. Nazorat guruhida bu ko‘rsatkich 20.5–21.3 atrofida bo‘lgan.

Bundan tashqari, voleybolchilar guruhi tana yog‘i foizi bo‘yicha sezilarli farq ko‘rsatgan: o‘rtacha **11–13%**, nazorat guruhida esa **18–20%** atrofida bo‘lgan. Bu voleybolchilarda ortiqcha yog‘ qatlamining yo‘qligini va metabolik tizimning faolligini ko‘rsatadi.

Bazal metabolizm darajasi (ya’ni tana dam holatida sarflaydigan energiya miqdori) sportchilar guruhida o‘rtacha **1700–1900 kcal/kun** bo‘lgan bo‘lsa, nazorat guruhida bu ko‘rsatkich **1400–1600 kcal/kun** atrofida bo‘lgan. Bu voleybolchilarning organizmi ko‘proq energiya sarflayotganini, ya’ni moddalar almashinuvi jarayoni faolroq ekanini ko‘rsatadi.

Y.V.Krasnikov qayd etganidek, sportchilar organizmida glyukoza, kislorod va oqsillar almashinuvi tezroq kechadi, bu esa ularning salomatligi va chidamliligini oshiradi.[89]

Shuningdek, qondagi gemoglobin, qand miqdori va laktat ko‘rsatkichlarida ham voleybolchilar guruhida ijobiy natijalar kuzatildi. Bu ularning tiklanish qobiliyati, kislorod tashish imkoniyati va mashg‘ulotlarga chidam darajasining yuqoriligini tasdiqlaydi.

4. Kompleks tahlil va muvofiqlashtirilgan rivojlanish

Yuqoridagi tahlillar asosida aniqlanishicha, muntazam voleybol mashg‘ulotlari organizmga **kompleks ta’sir ko‘rsatadi**: yurak-qon tomir tizimi barqaror ishlaydi, mushak kuchi ortadi, metabolizm faol bo‘ladi. Bu o‘zgarishlar faqat tashqi rivojlanish emas, balki organizmning ichki zaxiraviy salohiyatini ham oshiradi.

Shuningdek, voleybolchilar tanasining **morfofunksional** ko‘rsatkichlari — ya’ni bo‘y uzunligi, tana massasi, yurak urish chastotasi, mushak reaksiyalari va metabolik ritm — o‘zaro uyg‘un rivojlangan. Bu esa ularning salomatlik holatini baholashda muhim ko‘rsatkichdir.

Voleybol mashg‘ulotlari individual yuklamalarga asoslangan holda olib borilganida, yosh sportchilarning sog‘lom rivojlanishiga sezilarli ta’sir ko‘rsatishi isbotlangan.

Yig‘ilgan ilmiy tahlillar asosida shuni xulosa qilish mumkinki, voleybol sport turi bilan muntazam shug‘ullanuvchi 14–16 yoshli o‘smirlar organizmida bir qator ijobiy fiziologik o‘zgarishlar yuz beradi. Yurak urish ritmining barqarorlashuvi, mushak kuchining oshishi va metabolik faollikning kuchayishi sport mashg‘ulotlarining organizmga chuqur ta’sirini namoyon etadi. Bu o‘zgarishlar o‘smirlarning sog‘lom jismoniy rivojlanishi, psixofiziologik holati va sportga ixtisoslashuv darajasining oshishiga xizmat qiladi.

Ayni paytda, voleybolchilarning yurak-qon tomir tizimi faoliyati sport bilan shug‘ullanmaydigan tengdoshlariga nisbatan iqtisodiy va bardavom ishlashi bilan ajralib turadi. Bu esa ularda yurak-tomir kasalliklarining oldini olish, chidamli va kuchli bo‘lish kabi afzalliklarni ta’minlaydi. Mushak kuchining yuqoriligi va tana tuzilmasidagi uyg‘unlik esa nafaqat sport samaradorligini, balki umumiy jismoniy tayyorgarlik darajasini oshiradi.

Metabolik ko‘rsatkichlarning yuqoriligi voleybolchilarda energetik almashinuv faol ishlayotganini ko‘rsatadi. Bu esa o‘z navbatida ularning bardavomligi, immuniteti va qayta tiklanish tezligiga ijobiy ta’sir ko‘rsatadi. Bunday natijalar sport mashg‘ulotlarini yosh xususiyatlarini hisobga olgan holda ilmiy asosda rejalashtirish zarurligini ko‘rsatadi.[90]

Tadqiqot natijalari asosida quyidagi amaliy xulosalar chiqarildi:

Sport mashg‘ulotlari yoshga, jismoniy holatga va individual imkoniyatlarga moslashtirilgan holda olib borilishi kerak.

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[89] Красников Ю.В. *Спортивная физиология: возрастные особенности подростков*. — Санкт-Петербург: Спорт, 2020. — 276 с.

[90] Яшков А.А. *Физиология детей и подростков*. — Москва: Академия, 2018.

Yurak ritmini kuzatish, mushak kuchi testlari va metabolik baholash usullari mashg‘ulotlar samaradorligini nazorat qilish vositasi sifatida doimiy qo‘llanilishi lozim.

Jismoniy rivojlanishning monitoringi asosida sportchilarning individual yuklama rejasi tuzilishi, salomatlik va sport natijalari muvozanatda bo‘lishi lozim.

Ushbu ilmiy kuzatuvlar o‘smir yoshdagi sportchilar bilan ishlovchi murabbiylar, fiziologlar va jismoniy tarbiya o‘qituvchilari uchun muhim metodik asos bo‘lib xizmat qiladi. Ilmiy yondashuvlar orqali yosh sportchilarning sog‘lom va mukammal rivojlanishiga erishish mumkin.

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HUDUDLARDA TABIIY RESURSLARDAN SAMARALI FOYDALANISHNING ASOSIY MUAMMOLARI VA IMKONIYATLARI

Annotatsiya: *Mazkur maqolada hududlarda tabiiy resurslardan samarali foydalanishning dolzarb muammolari va mavjud imkoniyatlari tahlil qilinadi. O‘zbekistonning geografik va tabiiy resurs salohiyatiga tayangan holda, energiya samaradorligini oshirish, qayta tiklanuvchi energiya manbalarini joriy etish, havo sifati va suvdan oqilona foydalanishni ta’minlash kabi ustuvor yo‘nalishlar ko‘rsatib o‘tilgan.*

Kalit so‘zlar: *tabiiy resurslar, barqaror rivojlanish, yashil iqtisodiyot energiya samaradorligi, ekologik muammolar, qayta tiklanuvchi energiya, hududiy rivojlanish, ekologik xavfsizlik, oqilona foydalanish.*

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MAIN PROBLEMS AND OPPORTUNITIES OF EFFECTIVE USE OF NATURAL RESOURCES IN THE REGIONS

Abstract: *This article analyzes the current problems and existing opportunities for the effective use of natural resources in the regions. Based on the geographical and natural resource potential of Uzbekistan, priority areas such as increasing energy efficiency, introducing renewable energy sources, ensuring air quality and rational use of water are indicated.*

Key words: *natural resources, sustainable development, green economy, energy efficiency, environmental problems, renewable energy, regional development, environmental safety, rational use.*

Kirish. Zamonaviy global dunyo iqtisodiyotda tabiiy resurslardan oqilona foydalanish masalasi barqaror rivojlanish strategiyalarining ajralmas tarkibiy qismi sifatida qaralmoqda. Har bir davlat o‘zining tabiiy-geografik imkoniyatlaridan kelib chiqqan holda, iqtisodiyotda yuqori qo‘shilgan qiymat yaratishga qaratilgan sohalarni rivojlantirish orqali diversifikatsiyalash yo‘lidan bormoqda. Bu esa sanoat, xizmat ko‘rsatish, qishloq xo‘jaligi va energetika va axborot texnologiyalari kabi tarmoqlarning ahamiyatini oshirib, tabiiy resurslardan foydalanuvchi an’anaviy tarmoqlar samaradorligini qayta koʻrib chiqishni talab etmoqda.

Oʻzbekiston Respublikasida ham tabiiy resurslarga tayanadigan sohalarning transformatsiyasi, resurslardan foydalanishda samaradorlik va ekologik barqarorlikni ta’minlash dolzarb muammolar sirasiga kiradi. Ayniqsa, hududlar kesimida mavjud salohiyatdan foydalanish darajasining turlicha ekani, mintaqaviy rivojlanish strategiyalarini ishlab chiqishda muhim oʻrin tutadi.

1-jadval

Energiya samaradorligi boʻyicha davlatlar taqqoslama tahlili

Davlat	**Energiya samaradorligi (koʻrsatkich)**	**Qayta tiklan. energiya ulushi (%)**	**Havo ifloslanishi darajasi (PM2.5)**
Oʻzbekiston	3.0	10	45
Qozogʻiston	1.5	15	30
YeI oʻrtacha	1.0	35	15

Oʻzbekiston Respublikasida resurslardan foydalanish samaradorligi Yevropa Ittifoqi hamda boshqa yuqori oʻrta daromadli davlatlarnikiga nisbatan ancha past. Xususan, suvdan foydalanish darajasi samarasiz boʻlib, yalpi ichki mahsulot birligiga toʻgʻri keladigan energiya sarfi Yevropa Ittifoqi koʻrsatkichidan qariyb uch baravar, qoʻshni Qozogʻistonnikidan esa ikki baravar yuqori boʻlmoqda.

Oʻzbekiston tabiiy resurslarga boy hududlardan biri boʻlib, sanoat, qishloq xoʻjaligi va energetika sohalarida ekologik yondashuvlarni joriy etish uchun katta imkoniyatlarga ega. Biroq mamlakatda yashil iqtisodiyotga oʻtish hali hanuz murakkab va koʻp bosqichli jarayon boʻlib, Oʻzbekistonda resurslardan foydalanish samaradorligi global koʻrsatkichlarga nisbatan ancha past ekani bir qator muammolarga sabab boʻlmoqda:

1. **Energiya samaradorligining pastligi**: YIM birligiga toʻgʻri keladigan energiya sarfi Yevropa va Markaziy Osiyo mintaqasidagi oʻrtacha koʻrsatkichdan qariyb uch baravar, qoʻshni Qozogʻistonnikidan esa ikki baravar yuqori
2. **Suv resurslarining samarasiz boshqaruvi**: Agrar iqtisodiyotga tayanayotgan Oʻzbekiston uchun suv resurslaridan oqilona foydalanish strategik masala hisoblanadi. Ayni paytda suv sarfi ortiqcha boʻlib, ekstensiv sugʻorish tizimlari resurslarni isrof qilmoqda.
3. **Atmosfera havosining ifloslanishi**: Aholi zich yashaydigan hududlarda, ayniqsa sanoat zonalarida havo sifati past boʻlib, shamol orqali tarqaladigan qum va chang zarrachalari salomatlikka tahdid solmoqda.
4. **Yer degradatsiyasi va choʻllanish**: Yomon boshqarilgan dehqonchilik va yaylov tizimlari natijasida yer resurslari degradatsiyaga uchramoqda, bu esa hosildorlikka salbiy ta’sir koʻrsatmoqda.

5. **Mehnat bozori moslashuvchanligining pastligi**: "Yashil" iqtisodiyotda faoliyat yurita oladigan malakali kadrlar sonining yetarli emasligi, ayniqsa hududiy darajada, resurslardan samarali foydalanishga to'siq bo'lmoqda.

Shu bilan birga, O'zbekistonda tabiiy resurslardan foydalanishni optimallashtirish bo'yicha bir qator istiqbolli imkoniyatlar mavjud:

1. O'zbekiston Respublikasi Prezidentining 2019-yil 04-oktabrdagi PQ-4477-sonli "2019-2030-yillar davrida O'zbekiston Respublikasining "yashil" iqtisodiyotga o'tish strategiyasini tasdiqlash to'g'risida"gi qaroriga binoan, tabiiy resurslardan samarali foydalanish, yashil energiya manbalarini joriy etish, ta'lim va ilmiy-tadqiqot faoliyatiga investitsiya kiritish orqali resurslar boshqaruvi sohasida tub o'zgarishlarga erishish rejalashtirilgan[91].

2. O'zbekiston Respublikasi Prezidentining 2025-yil 30-yanvar kunidagi PF-16-sonli "O'zbekiston-2030" strategiyasini "Atrof muhitni asrash va "yashil iqtisodiyot" yilida amalga oshirishga oid davlat dasturi to'g'risida"gi farmonida atrof-muhit muhofazasi, resurslarni tejash va inson salohiyatini ro'yobga chiqarish orqali yashil rivojlanish tamoyillari belgilab berilgan[92].

3. Qashqadaryo viloyatida dehqonchilikning YaIMdagi ulushi yuqoriligicha qolayotgani noyob iqtisodiy hodisa sifatida ko'rilib, agrar sektorning barqaror resursga aylanish salohiyatini ko'rsatmoqda. Shu bilan birga, ekologik turizm, yashil energetika va qayta tiklanuvchi resurslarga asoslangan iqtisodiy modelni joriy etish mumkin.

4. Yashil texnologiyalarni joriy etish: Quyosh, shamol va bioenergiya asosidagi qayta tiklanuvchi manbalarni joriy etish orqali resurslar yukini kamaytirish, ayniqsa elektr energiyasida energiya intensivligini pasaytirishga xizmat qiladi.

5. Hududlardagi universitetlar va tadqiqot institutlari bazasida yashil texnologiyalarni tadqiq qilish, mahalliy sharoitga moslashtirish va ularni ishlab chiqarishga integratsiya qilish imkoniyatlari mavjud.

Xulosa. O'zbekistonda va uning hududlarida tabiiy resurslardan samarali foydalanish nafaqat iqtisodiy barqarorlik, balki ekologik xavfsizlik va ijtimoiy farovonlikning asosiy omillaridan biridir. Mamlakatda yashil iqtisodiyotga o'tish bo'yicha qabul qilingan huquqiy-me'yoriy bazalar, mavjud tabiiy salohiyat va xalqaro tajribadan foydalangan holda quyidagi ustuvor yo'nalishlar bo'yicha harakat qilish zarur:

- Energiya samaradorligini oshirish va resurslarni tejovchi texnologiyalarni joriy etish;
- Qayta tiklanuvchi energiya manbalaridan foydalanish hajmini kengaytirish;
- Iqlim o'zgarishlariga moslashuvchan infratuzilma yaratish;

[91] O'zbekiston Respublikasi Prezidentining "2019-2030-yillar davrida O'zbekiston Respublikasining "yashil" iqtisodiyotga o'tish strategiyasini tasdiqlash to'g'risida"gi 2019-yil 4-oktabr, PQ-4477-son qarori

[92] O'zbekiston Respublikasi Prezidentining 2025-yil 30-yanvar kunidagi PF-16-son "O'zbekiston-2030" strategiyasini "Atrof muhitni asrash va "yashil iqtisodiyot" yilida amalga oshirishga oid davlat dasturi to'g'risida"gi farmoni

- Resurslardan foydalanishda raqamli boshqaruv va monitoring tizimlarini joriy etish;
- Mehnat bozorini yashil iqtisodiyot talablari asosida yangidan shakllantirish.

Tabiiy resurslarni samarali boshqarish orqali nafaqat iqtisodiy oʻsish, balki ekologik va ijtimoiy barqarorlik ham taʼminlanadi. Bu esa, oʻz navbatida, hududiy rivojlanishning yangi, inklyuziv va barqaror modelini shakllantirishga xizmat qiladi.

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QOVOQ VA UNING URUG‘INING FOYDALI XUSUSIYATI

Annotatsiya. *Qovoq urug‘ida yurak-qon tomir tizimi faoliyati uchun foydali bo‘lgan magniy va kaliy bisyor bo‘ladi. Kayfiyatni ko‘taradi, uyquni yaxshilaydi.Qovoq urug‘i triptofanning manbai ekani hisobiga eng yaxshi antidepressantlardan biri sanaladi. Ushbu aminokislota organizmda kayfiyatni ko‘taruvchi “baxt gormoni” — serotoninga aylanadi.Triptofanning yana bir boshqa foydali xususiyati ham bor: u kechasi uyquni me’yorlashtirib, asab tizimini tinchlantiradigan — melatonin ishlab chiqarilishini ta’minlaydi. Immunitetni, tirnoq va sochlarni mustahkamlaydi Qovoq urug‘i miya faoliyatini yaxshilab, suyaklarni mustahkamlaydigan fosforga boy mahsulot sanaladi.Qovoqni undagi ko‘pgina vitaminlar, minerallar va antioksidantlari mavjudligi sabab ham sevib iste’mol qilish kerak. Qovoq ayniqsa quyidagilarda juda foydali hisoblanadi:Nafaqat qovoqning o‘zi, balki uning danakchalari ham juda foydalidir. Uning 100 grammining 50 grammini organik yog‘lar tashkil etadi. Bundan tashqari ularda 20 xil aminokislotalar, B guruh vitamini, marganes va fosfor mavjud.*

Kalit so‘zlari: *Qovoqning urug‘i va yog‘i tibbiyotda qo‘llaniladi. Qovoqda C vitamini mavjud bo‘lib, immunitetni mustahkamlaydi. Qovoq kam kaloriya va yog‘ miqdoriga ega bo‘lib, vazn tashlashga yordam beradi. 100 kg mevasida 12 ozuqa birligi va 1 kg hazm bo‘ladigan protein bor.*

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USEFUL PROPERTIES OF PUMPKIN AND ITS SEEDS

Annotation: *Pumpkin seeds are rich in magnesium and potassium, which are essential for cardiovascular health. They boost mood and improve sleep quality. Pumpkin seeds are considered one of the best natural antidepressants due to their high tryptophan content. This amino acid is converted into serotonin—the "happiness hormone"—in the body.*

Tryptophan also has another beneficial property: it promotes the production of melatonin, which regulates sleep patterns and calms the nervous system. Additionally, pumpkin seeds strengthen immunity, nails, and hair. They are also a great source of phosphorus, which enhances brain function and strengthens bones. Pumpkins (and their seeds) should be consumed regularly due to their abundance of vitamins, minerals, and antioxidants. Pumpkins are particularly beneficial for:

Not only the pumpkin itself but also its seeds are highly nutritious. Organic fats make up 50 grams of every 100 grams of pumpkin seeds. Moreover, they contain 20 different amino acids, B-group vitamins, manganese, and phosphorus.

Key words: Pumpkin seeds and oil are used in medicine. Pumpkin contains vitamin C, which strengthens immunity. Pumpkin is low in calories and fat, aiding in weight loss. In 100 kg of pumpkin, there are 12 feed units and 1 kg of digestible protein.

Kirish. Qovoq – qovoqdoshlarga mansub bir va koʻp yillik poliz ekini. Vatani Shimoliy va Janubiy Amerika. 3 turi – yirik mevali qovoq (kartoshka qovoq), muskat qovoq (oyim qovoq), qalin (qattiq) poʻstli qovoq (oddiy qovoq) koʻp ekiladi.Qovoq – ozmoqchi boʻlganlar uchun ajoyib mahsulot hisoblanadi. Uning kaloriyasi past boʻlib, uning tayyorlash usullari esa juda koʻpdir. Dietologlar parhezga xom va pishirilgan qovoq, qovoq sharbatini qoʻshishni maslahat berishadi. Ammo qovoqni tayyorlashda sariyogʻ va shakar qoʻshish tavsiya qilinmaydi, yaxshisi bunda asaldan foydalaning.Qovoqning kaloriyasi esa barcha ozishni xohlovchilarni xursand qiladi: 100 grammi 26 kKal boʻlib, 1.3 grammini oqsillar, 0.3 grammini yogʻlar va 7.7 grammini uglevodlar tashkil etadi. Bir kunda 600 grammgacha qovoqdan iste’mol qilish mumkin.koʻrish qobilyati: unda A, E, B6, B12 va rux kabi vitaminlar mavjud boʻlib, koʻz uchun tengsiz foydali mahsulot sanaladi. Shuningdek qovoqda karotinoidlar boʻlib, ular koʻz pardasini mustahkamlar ekan, Oshqozon-ichak trakti qovoq oshqozon yarasi ogʻrigʻida yaxshi boʻlib, oshqozon kislotaliligini pasaytiradi, biriktiruvchi toʻqimasi sabab, u butun ovqat hazm qilish tizimini yengil tozalaydi,buyrak: qovoq organizmdagi ortiqcha suyuqlikni chiqarib tashlaydi,ozish: qovoqning kaloriyasi past boʻlib, undagi L-karnitin moddasi organizmdagi zararli xolesterindan tozalab, yogʻlarni parchalab tashlaydi,Goʻzallik: A va E guruh vitaminlari teri, soch va tirnoq sifatini yanada yaxshilaydi, immunitetni koʻtaradi.

Tadqiqot materiallari va metodologiyasi: Qovoq urug’i gijjalarni yo’qotadi.Qovoq urug’idan bolalardagi gijjalarni yo’qotishda foydalanish ajoyib g’oya. Tarkibida kukubritin moddasi parazitlar uchun zaharli bo’lib, inson tanasiga xavf solmaydi. Qonda shakar miqdorini barqarorlashtiradi.Qandli diabetga chalingan bemorlar uchun qovoq urug’ining eng birinchi foydasi − qondagi qand miqdorini nazorat qilish. Qovoq urug’ini har kuni iste’mol qilish insulin ishlab chiqarishni yaxshilashga yordam beradi va kasallikning rivojlanish xavfini kamaytiradi Yurak uchun foydali Qovoq urugʻida yurak-qon tomir tizimi faoliyati uchun foydali boʻlgan magniy va kaliy bisyor boʻladi. Ushbu mahsulot, qon tomirlarda spazm paydo boʻlishi va yurak yetishmovchiligining oldini oladi. Qon bosimini yaxshilab, tomir devorlarini tozalaydi, xolesterinli qatlam hosil bo‘lishining oldini oladi. Kayfiyatni ko‘taradi, uyquni yaxshilaydi,qovoq urug‘i triptofanning manbai ekani hisobiga eng yaxshi antidepressantlardan biri sanaladi.Ushbu aminokislota organizmda kayfiyatni ko‘taruvchi “baxt gormoni” — serotoninga aylanadi. Triptofanning yana bir boshqa foydali xususiyati ham bor: u kechasi uyquni me’yorlashtirib, asab tizimini tinchlantiradigan — melatonin ishlab chiqarilishini ta’minlaydi.Immunitetni, tirnoq va sochlarni mustahkamlaydi.Ushbu mahsulot viruslar bilan kurashib, immunitetni yaxshilaydigan rux moddasining koni sanaladi. Bundan tashqari, ushbu modda A va E vitaminlarini so‘rilishi uchun organizmga yordamlashgani hisobiga teri va soch ahvoli yaxshilanishiga ham ta’sir qilmay qolmaydi. Suyaklarni mustahkamlaydi,qovoq urug‘i miya faoliyatini yaxshilab, suyaklarni mustahkamlaydigan fosforga boy mahsulot sanaladi. Fosfor suyaklar salomatligi uchun kalsiy singari muhim sanaladi. Aynan kalsiy bilan birga ushbu mikroelement suyak to‘qimalarini mustahkamlaydi.Qovoq urug’ining insonlar uchun eng muhim bo’lgan xususiyati shundaki, uning tarkibida magniy va boshqa minerallar mavjud. Shuningdek, qovoq urug’i yog’i marganets, mis, temir va ruhning manbasi hisoblanadi. Magniy yaxshi kayfiyat va mustahkam uyquni ta’minlasa, marganets − kollagen sintezi, biriktiruvchi to’qima va suyaklarning sog’lig’i uchun juda muhimdir. Temir tanada kislorod aylanishini, sink − immunitetni, mis esa energiya ishlab chiqarishda faol ishtirok etadi. Bular qovoq urug’ining organizm uchun foydali xususiyatlarining faqat bir qismidir.Asal bilan qovoq urug’i anchadan buyon bolalar va vazni kam bo’lgan kattalar uchun ozuqaviy qo’shimcha sifatida ishlatiladi. Qovoq urug’ining xususiyatlaridan biri − uning tarkibida foydali yog’larning ko’pligi bilan bog’liq. Ushbu mahsulot omega-3 kislotalarining eng yaxshi manbasi hisoblanadi, shuningdek, alfa-linolenik kislota ham mavjud. Tarkibdagi yog’ kislotalari yurak, qon-tomirlarini yallig’lanish va kasalliklardan himoya qiladi.

Tadqiqot natijalari: Nafaqat qovoqning o‘zi, balki uning urug‘lari ham sog‘liq uchun foydali hisoblanadi. Barcha uchun birdek zarur bo‘lgan qovoq urug‘lari to‘yimli hamda vitamin va minerallarga boydir.Chorak stakan qovoq urug‘ida kamida 15 gramm sog‘lom yog‘lar va 8-10 gramm yuqori sifatli oqsillar mavjud. Shu bilan birga qovoq urug‘i yuqori energiya qiymatiga ega, uning kaloriya miqdori 150 gramm. Mahsulotning tarkibiy boyligi-qovoq urug‘ining insonlar uchun eng muhim bo‘lgan xususiyati shundaki, uning tarkibida magniy va boshqa minerallar mavjud. Shuningdek, qovoq urug‘i yog‘i marganets, mis, temir va ruhning manbasi hisoblanadi. Magniy yaxshi kayfiyat va mustahkam uyquni ta’minlasa, marganets − kollagen sintezi, biriktiruvchi to‘qima va suyaklarning sog‘lig‘i uchun juda muhimdir. Temir tanada kislorod aylanishini, sink − immunitetni, mis esa energiya ishlab chiqarishda faol ishtirok etadi. Bular qovoq urug‘ining organizm uchun foydali xususiyatlarining faqat bir qismidir.

Qonda shakar miqdorini barqarorlashtiradi.Qandli diabetga chalingan bemorlar uchun qovoq urug‘ining eng birinchi foydasi − qondagi qand miqdorini nazorat qilish. Qovoq urug‘ini har kuni iste’mol qilish insulin ishlab chiqarishni yaxshilashga yordam beradi va kasallikning rivojlanish xavfini kamaytiradi. Vazn masalasida jon kuydiradiganlar uchun qovoq urug‘ining yagona zarari yuqori kaloriya bo‘lishi mumkin. Ularga kundalik ravishda 100 grammdan ko‘p bo‘lmagan urug‘ iste’mol qilish tavsiya etiladi. Shuningdek, qovoq urug‘i me’da shirasining yuqori kislotaliligi va boshqa oshqozon-ichak kasalliklari uchun xavfli bo‘lishi mumkin. Shuning uchun ham urug‘ning foyda va zararlarini taqqoslagan holda ularni ratsionga kiritish mumkin.Qovoq urug’idan bolalardagi gijjalarni yo’qotishda foydalanish ajoyib g’oya. Tarkibida kukubritin moddasi parazitlar uchun zaharli bo’lib, inson tanasiga xavf solmaydi.Qandli diabetga chalingan bemorlar uchun qovoq urug’ining eng birinchi foydasi − qondagi qand miqdorini nazorat qilish. Qovoq urug’ini har kuni iste’mol qilish insulin ishlab chiqarishni yaxshilashga yordam beradi va kasallikning rivojlanish xavfini kamaytiradi.

Muhokama: A vitamini organizm uchun muhim moddalar sirasiga kiradi. Tanamiz bu vitaminni mustaqil ravishda ishlab chiqara olmaydi: vitamin organizm tomonidan tayyor holatda yoki karotinoidlar ko‘rinishida qabul qilinadi. Iste’mol qilinayotgan mahsulotlar tarkibida A vitamini miqdori kam bo‘lsa, bu salomatlikka salbiy ta’sir ko‘rsatmasdan qolmaydi: ko‘rish qobiliyati yomonlashadi, immunitet tushib ketadi, tananing turli a’zolari va to‘qimalari – suyaklardan tortib miya faoliyatigacha sekinlashadi. Tarkibida katta miqdorda beta-karotin saqlanadigan mahsulot ehtimoliy gipovitaminozning oldini olishga yordam beradi. Organizm A vitaminining bir kunlik me’yorini qabul qilishi uchun kuniga 300 gr qovoq yeyish kerak bo‘ladi. Uni o‘zingizga yoqqan ko‘rinishda – qirg‘ichdan o‘tkazilgan, qaynatilgan, dimlab pishirilgan, quritilgan yoki boshqa biror usul bilan tayyorlab iste’mol qilishingiz mumkin. Salomatlikka zarar keltiruvchi to‘yingan yog‘lar, xolesterin va natriy (ular odatda yurak, tomirlar, buyraklar, oshqozon va boshqa a’zolarga zarar yetkazadi) qovoq tarkibida deyarli mavjud emas.Qovoq etining 94 foizi suvdan iborat. Bu esa uning kam kaloriyali mahsulot ekanligidan darak beradi: 100 gr qovoqning ozuqaviy qiymati bor-yo‘g‘i 20 kkal ga teng. Ustiga-ustak, kaloriyalarning katta qismi organizmga uglevodlar, jumladan kletchatka ko‘rinishida yetkaziladi. Kletchatka esa foydali xususiyatga ega: u oshqozon-ichak traktiga tushganidan keyin namlikni o‘ziga singdirib oladi, o‘lcham jihatidan kattalashadi va to‘qlik hissini paydo qiladi. Shuning uchun ham qovoq iste’mol qilinayotgan kaloriyalar miqdorini kamaytirish, ortiqcha vazndan xalos bo‘lish va ochlik hissiga qarshi kurashishni istagan insonlar uchun mukammal darajada mos keladi. Antioksidantlar – tana hujayralarining erkin radikallar tomonidan zararlanishiga qarshi kurashuvchi moddalar bo‘lib, ushbu jarayon “Oksidlovchi stress” deb ataladi. Shifokorlar uni tez qarish, surunkali yallig‘lanish holatlarining paydo bo‘lishi, yurak-qontomir, endokrin tizimi va miya faoliyatidagi buzilishlar, ba’zan saraton kasalliklariga olib keluvchi hujayralar mutatsiyasi bilan bog‘lashadi. Qovoq tarkibida antioksidantlardan alfa va beta-karotin, beta-kriptoksantin va boshqalar saqlanadi, ular organizmga oksidlovchi stress hamda uning asoratlariga qarshi kurashish uchun yordam beradi.Qovoq tarkibidagi kaliy, B vitamini, kletchatka, antioksidantlar yurak-qontomir tizimi faoliyatini rag‘batlantiradi. Sanab o‘tilgan moddalar tizim faoliyatida o‘ta muhim o‘rin turadi. Qovoq ko‘zlar salomatligi uchun muhim bo‘lgan A vitaminiga boyligi haqida yuqorida aytib o‘tdik. Bundan tashqari, uning tarkibida ko‘rish qobiliyati uchun zarur bo‘lgan boshqa moddalar ham bor. Qovoq – lyutein va zeaksantinning eng yaxshi manbalaridan biri hisoblanadi. Tadqiqotlarning ko‘rsatishicha, ushbu moddalar katarakta, yosh bilan bog‘liq o‘zgarishlar, jumladan sariq dog‘ paydo bo‘lishi kabi ko‘z kasalliklari xavfini kamaytiradi. Beta-karotin ultrabinafsha nurlari ta’sirida teriga yetkaziladigan zarar miqdorini kamaytiradi. B vitamini esa kollagen ishlab chiqarishga yordam beradi – u terining muhim elementi bo‘lib, teri tarangligini saqlaydi, natijada jarohatlardan keyin terining qayta tiklanishi uchun ko‘p vaqt kerak bo‘lmaydi. A vitamini, lyutein, zeaksantin va boshqa antioksidantlar esa qarish jarayonini sekinlashtiradi.

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QUYONLARNING ORQA OYOQLARIDA VENA OQIMI QIYINLASHTIRILGANDA QAYTA TIKLANISH JARAYONI

Резюме: *Maqolada qon aylanishining pasayishi natijasida quyonning tos oyoqlarining venoz to`rlarining qayta tiklanish jarayoni o'rganilgan. Tajribada quyonlarda orqa oyoqlarida venoz qon aylanishining pasayishi natijasida operatsiya qilingan venoz to'rlarining sezilarli darajada qayta tiklanishi sodir bo'ladi. Bu mushaklardagi aylanma venoz yo'llarining shakllanishida va to'g'ridan-to'g'ri anastomozlarning rivojlanishida namoyon bo'ladi.*

Kalit so'zlar: *quyon, venoz tomir, arterial to'shak, venoz to'shak, son, venografiya, anatomik periprovka.*

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RECONSTRUCTION OF THE VENOUS SYSTEM OF THE RABBIT'S PELVIC LIMBS UNDER CONDITIONS OF REDUCED BLOOD CIRCULATION

Abstract: *The article examines the reconstruction of the venous system of the rabbit's pelvic limbs under conditions of reduced blood circulation. When reduced blood circulation is induced, significant reconstruction of the venous system of the operated limb occurs, manifested by the formation of both collateral muscular pathways and the development of direct anastomoses.*

Keywords: *rabbit, venous vessel, arterial system, venous system, femur, venography, anatomical dissection.*

Kirish. Ko`plab mahalliy va xorijiy ilmiy tadqiqotchilarning ishlari natijalarida ushbu jarrohlik aralashuvi paytida arterial yo`llarning qayta tuzilish dinamikasi o`rganilgan [1,2,3], ammo venoz yo`llarning qayta tuzilishi olimlarning e’tiborini kam jalb qilgan [4,5,6,7]. Shu munosabat bilan, biz kamaytirilgan qon aylanishi sharoitida venoz yo`llarning holatini o`rganishga e’tibor qaratdik.

Tadqiqot maqsadi. Eksperimentda quyonlarning orqa oyoqlarida venoz yo`llarning kamaytirilgan qon aylanishi sharoitida qayta tiklanishni o`rganish.

Tadqiqot materiallari va usullari. Eksperiment 32 ta har ikki jinsdagi, vazni 2–2,5 kg bo`lgan quyonlarda o`tkazildi. Quyonlarning orqa o`ng oyoqlarida son, quymuch va sonning chuqur vena qon tomirlari, shuningdek, son arteriyasi chuqur tarmog`idan yuqorida son arteriyasi bog`landi. Kuzatuv muddati 1 dan 90 kungacha davom etdi. Venoz qon-tomir tizim o`rganish uchun tovon vena tomir ichiga venografiya qilish va anatomik preparatlash usullari yordamida amalga oshirildi.

Tadqiqot natijalari. Olingan ma’lumotlarni tahlil qilish shuni ko`rsatdiki, birinchi hafta davomida operatsiya qilingan a’zoning barcha organlarida kichik venoz tomirlarning zich tarmog`i aniqlandi. Oldingi son venasi kengaydi va uning irmoqlari soni ko`paydi. Kichik venoz tomirlar kesilganda venalarning distal uchlarini son atrofidagi tashqi venalari, dum venasi va sonning chuqur venasining distal qismi bilan bog`landi. Teri va fassiyadagi kichik tomirlar soni ko`paydi va ularning asosiy tomirlari kengaydi. 15–30 kun o`tgach, kichik venalar soni biroz kamaydi, ayrim venalar kengaydi, ular son va quymich venalarning distal qismlarini chuqur son venasining distal qismi, quymich vena dum venasi bilan, son venasi ichki yon vena bilan, chuqur son venasining distal qismi esa son atrofidagi tashqi vena, quymich venaning proksimal qismi va ichki yon vena bilan bog`ladi. Teri va fassiya venalari kengaygan holda qoldi. Keyingi davrda (45–60 kun) kichik venalar soni kamaygan fonda, yuqorida tasvirlangan yo`nalish va topografiyaga mos keluvchi ayrim kengaygan venoz tomirlar aniqlandi. Quymich va chuqur son venalarining rezektsiya qilingan qismlari o`rtasida anastamozlar aniqlandi. Shu bilan birga, teri venalari kengaygan holda kuzatildi. 75–90 kun o`tgach, kollateral va anastamozlarning rivojlanishi kuzatildi, ularning topografiyasini quyidagicha tasvirlash mumkin: son venasining distal qismini chuqur son venasi va ichki yon vena bilan bog`laydigan aylanma yo`llar old va olib keluvchi mushaklar guruhlarida o`tadi. Shunday qilib, kamaytirilgan qon aylanishi sharoitida operatsiya qilingan a’zoning venoz yo`llarida sezilarli qayta tuzilish yuz beradi, bu mushaklar aylanma yo`llarining shakllanishi va to`g`ridan-to`g`ri anastamozlarning rivojlanishi bilan ifodalanadi. Quymich venaning distal qismi orqa va medial mushaklar guruhlarida o`tuvchi kollaterallar orqali chuqur son venasi, dum venasi va ichki yon vena bilan bog`lanadi. Chuqur son venasining distal qismidan qon oqimi old va orqa mushaklar guruhlarida o`tuvchi tomirlar orqali amalga oshiriladi. Birinchisi uni son atrofidagi tashqi vena bilan, ikkinchisi esa quymich venaning proksimal qismi va ichki yon vena bilan bog`laydi. Bundan tashqari, quymich venaning distal va proksimal qismlarini bog`laydigan anastamoz aniqlandi.

Xulosa. Ko`rsatilgan tomirlarning rivojlanishi operatsiyadan keyin 2–3 oy davomida sodir bo`ladi. Kamaytirilgan qon aylanishi sharoitida tomir yo`llarining kompensator qayta tuzilishi, ehtimol, normal gemotsirkulyatsiyani ta’minlaydi, chunki operatsiya qilingan a’zoda hech qanday patologik hodisalar kuzatilmadi.

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OLXO'RI CHECHAK VIRUSINING TURLI SHTAMMLARI VA IZOLYATLARINING BIOINFORMATIK TAHLILI

Annotatsiya: *Hozirda dunyo mamlakatlari orasida fitopatogen viruslarning salbiy ta'siri rivojlanib bormoqda. Bu esa import va eksportning ortishi hamda mamlakatlar rivoji uchun yomon ta'sir ko'rsatmoqda. Shu bilan bir qatorda o'simlik viruslariga o'xshash patogen organizmlar ham bir mintaqadan boshqa mintaqaga o'tib tarqalishi tezlashmoqda. Bu esa ko'plab danak mevali o'simliklarni nobud bo'lishiga olib kelishi tabiiy hodisadir. Ushbu maqolada olxo'ri chechak virusining turli shtammlari bioinformatik tahlil natijalari haqida fikr yuritiladi [1].*

Kalit So'zlar. *Olxo'ri chechagi virusi, izolyat, shtamm, NCBI, Patogen organizmlar, Potyvirus, Prunus jinsi, vegetativ ko'payish, shtamm.*

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BIOINFORMATIC ANALYSIS OF DIFFERENT STRAINS AND ISOLATES OF PLUM POUCH VIRUS

Abstract*: Currently, the negative impact of phytopathogenic viruses is developing among the countries of the world. This has a negative impact on the increase in imports and exports and the development of countries. At the same time, pathogenic organisms similar to plant viruses are also spreading from one region to another. This is a natural phenomenon that leads to the death of many pome fruit plants. This article discusses the results of bioinformatic analysis of different strains of plum pox virus [1].*

Keywords*. Plum pox virus, isolate, strain, NCBI, Pathogenic organisms, Potyvirus, Prunus genus, vegetative propagation, strain.*

Kirish. Olxo'ri chechagi virusi izolyatlarning boshqa izolyatlar bilan qarindoshlik darajasini aniqlash NCBI bazasida mavjud BLASTn dasturi yordamida amalga oshirildi. Natijada Uzb1 (MT038048.1) izolyatiga LT600780.1 (Qozog'iston) 99,23%, MT038050.1 (Uzb2) izolyatiga 99,31%, LT600781.1 izolyatiga 99,16% (Qozog'iston), MT038049.1 izolyatiga 99,14% (Uzb3), LT600782.1 izolyatiga 99.08% (Qozog'iston), GU461890.1 izolyatiga esa 99,00% (Slovakia) gomologiyaga ega ekanligi va bu izolyatlar eng yaqin izolyatlar sifatida aniqlangan bo‘lsa, qolgan MW251495.1 izolyatiga 98,85% (Chexiya) yaqinligi, ushbu izolyatdan boshlab qarindoshlik darajasining boshqa izolyatlar bilan pasayib borishi aniqlandi (https://blast.ncbi.nlm.nih.gov).

Shu o‘rinda olxo‘ri chechak virusining D shtammining bioinformatik tahlili ustida ham ilmiy izlanishlar olib borildi. Ushbu ishlar davomida yuqoridagi izolyatning nukleotidlar ketma-ketligi bo‘yicha O‘zbekistondagi D shtammi va boshqa dunyo mamlakatlaridan aniqlangan turli shtammlari bilan o‘zaro solishtirildi, o‘xshashlik va farqlari o‘rganildi (1-rasm).

```
MT038049_Plum_pox_virus_strain_D_isolate_Uz3_Uzbekistan     ------------------------------------------------GCACCAAGCTGA   12
OK285056_Plum_pox_virus_strain_T_Turkey                     AGCATTTTACAATGATATTGATGATAGCCTTGACTCCAACATTGTTGTACACCAGGCTGA   60
MN734791_Plum_pox_virus_strain_Rec_Russia                   ------------------------------------------------ACACCAGGCTGA   12
MW415808_Plum_pox_virus_strain_M_Turkey                     ------------------------------------------------ACACCAGGCTGA   12
HQ670746_Plum_pox_virus_strain_W_Latvia                     ------------------------------------------------CCAGGCAAACGA   12
MW650874_Plum_pox_virus_strain_C_Russia                     ------------------------------------------------GGCCAAGGAGGG   12
MW650878_Plum_pox_virus_strain_CV_Russia                    ------------------------------------------------GGCGAACGAGGG   12
MG736812_Plum_pox_virus_strain_CR_Russia                    ------------------------------------------------GGCAAATGAAGG   12
                                                                                                                      *

MT038049_Plum_pox_virus_strain_D_isolate_Uz3_Uzbekistan     CGAAAGAGAAGACGAGGAGGAAGTTGATGCAGGCAAGCCAATTGTAGTTACTGCACCGGC   72
OK285056_Plum_pox_virus_strain_T_Turkey                     CGAAAAGGAGGACGATGAAGAAGTTGATGCAGGAAAGCCTATTGTGGTAACTGCACCGGT   120
MN734791_Plum_pox_virus_strain_Rec_Russia                   TGAAAAGGAGGACGATGAAGAAGTTGATGCAGGAAAACCCACTGTAGTAACTGCACCGGC   72
MW415808_Plum_pox_virus_strain_M_Turkey                     TGAAAAGGAGGACGATGAAGAAGTGGATGCAGGAAGACCTACTGTGGTAACTGCACCGGC   72
HQ670746_Plum_pox_virus_strain_W_Latvia                     GGAAGATGACGATTCAACTGTAGTAGATGCAGGCAGGCCAGCTCTTCCAGCGACAACACC   72
MW650874_Plum_pox_virus_strain_C_Russia                     AGATAATGACGACGTAACTCTAGTGGATGCAGGCAAGTCTACTGTCACTACAGCAGCTTC   72
MW650878_Plum_pox_virus_strain_CV_Russia                    GGATGATGATAACGTAACTTTGGTTGATGCAGGTAAATCCACCGTCACCACAGCAGCGTC   72
MG736812_Plum_pox_virus_strain_CR_Russia                    CGGTGACGATGATGTGACGTTAGTGGACGCAGGTAAATCCACTGTCACCACAGCAGCAAC   72
                                                             *     **  *          ** ** ***** *   *     *     *  ** *

MT038049_Plum_pox_virus_strain_D_isolate_Uz3_Uzbekistan     AGCAACTAGCCC---AATACTTCAACCACCTCCAGTCATACAGCCTGCACCCCGGACTAC   129
OK285056_Plum_pox_virus_strain_T_Turkey                     AGCAACTGTGGC---AACAACTCAACCAGCTCCATTGATACAACCTGCACCTCGAACCAC   177
MN734791_Plum_pox_virus_strain_Rec_Russia                   AGCAACTGTGGC---AACAACTCAACCAGCTCCAGTGATACAACCTGCAATTCAAACCAC   129
MW415808_Plum_pox_virus_strain_M_Turkey                     AGCAACTGTGGC---AACAACTCAACCAGCTCCAGTGATACAACCTGCAATTCGAACCAC   129
HQ670746_Plum_pox_virus_strain_W_Latvia                     TCCATCTACTACAACGGCGCTACAGGCAACAGCTACATCGACTCAACCTCTGCAGAGCAC   132
MW650874_Plum_pox_virus_strain_C_Russia                     CACACCTGCAGTAACAAGCTCACAATTTCCACCTCCACCATTCCCAAATCTGCGGAGCAC   132
MW650878_Plum_pox_virus_strain_CV_Russia                    CACACCTGCAACAACAAGCTCGCAATTGCCACCACCACCATTCCCGAGCCTGCAGAATAC   132
MG736812_Plum_pox_virus_strain_CR_Russia                    TACACCAATCACAACAAGCGCACAGCTGCCGCCTCCGGTGTTCCCACAATTGCGAAGCAC   132
                                                              ** *                **     *  *          *        *  *  **

MT038049_Plum_pox_virus_strain_D_isolate_Uz3_Uzbekistan     GGCGCCAATGTTCAACCCCATTTTCACGCCAGCAACAACTCAACCAGCAACAAAACCAGT   189
OK285056_Plum_pox_virus_strain_T_Turkey                     AGCACCAATGTTCAACCCCATTTTCACTCCAGCAACAACTCAGCCTGCGATAAAACCAAT   237
MN734791_Plum_pox_virus_strain_Rec_Russia                   AACACCAATGTTCAACCCCATTTTCACTCCAGCAACAACTCAGCCTGCGATAAGACCAGT   189
MW415808_Plum_pox_virus_strain_M_Turkey                     AGCACCAATGTTCAATCCCATTTTCACTCCAGCAACAACTCAGCCTGCGGTAAGACCAGT   189
HQ670746_Plum_pox_virus_strain_W_Latvia                     AACGTCAATGTTCAACCCCGTCTTTACGCCAGCAACAACTCAACCGAGCTTGAAGCCAGC   192
MW650874_Plum_pox_virus_strain_C_Russia                     GGCACCAATGTTTGATCCCATATTCACTCCAGCAACAACCCAGCCAAATGTGAGACCGAT   192
MW650878_Plum_pox_virus_strain_CV_Russia                    GCCACCAATGTTCGACCCTATTTTTACTCCGGCAACAACTCAGCCAAGTGTGAGACCGAT   192
MG736812_Plum_pox_virus_strain_CR_Russia                    GACACCAATGTTCGAACCCATTTTCACTCCAGCAACCACTCAGCCGACCATAAAACCAGT   192
                                                              *  *******  * **  * ** ** ** ***** ** ** **       *  **
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MT038049_Plum_pox_virus_strain_D_isolate_Uz3_Uzbekistan      TGCCTTTGATTTTTACGAAATGACTTCAACGACACCCGTACGGGCACGTGAAGCTCATAT    849
OK285056_Plum_pox_virus_strain_T_Turkey                      CGCCTTTGATTTTTACGAAATGACTTCAACAACGCCTGTGCGTGCACGTGAAGCTCATAT    897
MN734791_Plum_pox_virus_strain_Rec_Russia                    CGCCTTTGATTTTTACGAAATGACTTCAACAACGCCTGTGCGTGCACGTGAAGCTCACAT    849
MW415808_Plum_pox_virus_strain_M_Turkey                      CGCCTTTGATTTTTACGAAATGACTTCAACAACGCCTGTGCGTGCACGTGAAGCTCATAT    849
HQ670746_Plum_pox_virus_strain_W_Latvia                      TGCCTTTGATTTCTATGAGATGACCTCGACAACACCTGTTAGGGCACGTGAGGCACATAT    849
MW650874_Plum_pox_virus_strain_C_Russia                      TGCCTTTGATTTCTACGAGATGACCTCGACAACGCCTGTGAGGGCTCGTGAGGCACATAT    849
MW650878_Plum_pox_virus_strain_CV_Russia                     TGCCTTTGATTTCTACGAGATGACCTCAACGACACCCGTAAGGGCACGAGAGGCACATAT    849
MG736812_Plum_pox_virus_strain_CR_Russia                     CGCCTTTGATTTTTATGAGATGACCTCGACAACGCCCGTAAGGGCACGAGAGGCACACAT    849
                                                              *********** ** ** ***** ** ** ** ** **  * ** ** ** ** ** **

MT038049_Plum_pox_virus_strain_D_isolate_Uz3_Uzbekistan      CCAGATGAAGGCAGCAGCATTGAGAAATGTTCAAAATCGTTTATTTGGCTTGGATGGAAA    909
OK285056_Plum_pox_virus_strain_T_Turkey                      ACAGATGAAGGCAGCAGCATTGAGAAATGTTCAGAATCCTTTATTTGGCTTGGATGGAAA    957
MN734791_Plum_pox_virus_strain_Rec_Russia                    ACAGATGAAGGCAGCAGCATTGAGAAATGTTCAGAATCGTTTATTTGGCTTGGATGGAAA    909
MW415808_Plum_pox_virus_strain_M_Turkey                      ACAGATGAAGGCAGCAGCATTGAGAAATGTTCAAAATCGTTTATTTGGCTTGGATGGAAA    909
HQ670746_Plum_pox_virus_strain_W_Latvia                      TCAAATGAAGGCAGCAGCATTGAGAAATGTTCAGAATCGTTTATTTGGCTTGGATGGAAA    909
MW650874_Plum_pox_virus_strain_C_Russia                      TCAAATGAAGGCAGCAGCATTGAGAAATGTTCAAAATCGTTTATTTGGCTTGGATGGAAA    909
MW650878_Plum_pox_virus_strain_CV_Russia                     TCAGATGAAGGCAGCAGCATTGAGAAACACTCAGAATCGTTTATTTGGCTTGGATGGAAA    909
MG736812_Plum_pox_virus_strain_CR_Russia                     TCAAATGAAGGCAGCAGCATTGAGAAACACTCAGAATCGTTTATTTGGCTTGGATGGAAA    909
                                                              ** ***********************   *** **** *********************
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1-rasm. Olxo‘ri chechagi virusining turli shtammlarining nuklein kislotalar farqi

Yuqoridagi natijalar shuni ko‘rsatdiki, shtammlar orasida SNP mutatsiyasi hamda o‘xshashliklar kuzatildi. Bu o‘zgarish aminokislotalar orasida ham mutatsiyalar olib kelganligini aniqlash uchun ClustalW online bioinformatik dasturi yordamida tahlil qilindi. Shu bilan bir qatorda OChVning Ozbekiston iqlim sharoitidan aniqlangan izolyatlari hamda unga eng yaqin shtammlarning nukleotidlar tarkibining FASTA dasturi yordamida qiyosiy tahlili ko‘plab mutatsiya nuqtasining mavjudligini ko‘rsatdi, bu esa o‘z navbatida oqsil qobig‘i amninokislota tarkibini o‘rganishni talab etadi [2]. Bu izlanish bir-biridan farq qiluvchi aminokislotalarning qay darajada uchrashi va o‘xshash aminokislotalarning o‘zgarmay saqlanib qolishi natijasida virus shtammlarining o‘zaro qay darajada farq qilishini kuzatishimiz mumkin (2-rasm).

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MT038049_Plum_pox_virus_strain_D_isolate_Uz3_Uzbekistan    APMFNPIFTPATTQPATKPVSQVSGPQLQTFGTHGNEDASPSNSNALVNTNRDRDIDAGS    103
OK285056_Plum_pox_virus_strain_T_Turkey                    APMFNPIFTPATTQPAIKPISSISGATPQSFGVYGNEDASPSTSNTLVNTGRDRDVDAGS    119
MN734791_Plum_pox_virus_strain_Rec_Russia                  TPMFNPIFTPATTQPAIRPVSPISGATPQSFGVYGNEDASPSTSNTLVNTGRDRDVDAGS    103
MW415808_Plum_pox_virus_strain_M_Turkey                    APMFNPIFTPATTQPAVRPVSPISGAKPRSFGVYGNEDASPSTSNTLVNTGRDRDVDAGS    103
HQ670746_Plum_pox_virus_strain_W_Latvia                    TSMFNPVFTPATTQPSLKPATSAT-TNPISFGVVGNESVAPSSSNALANLGRDRDVDAGS    103
MG736812_Plum_pox_virus_strain_CR_Russia                   TPMFEPIFTPATTQPTIKPVTPSM-TSPFSYGVIGNQNVAPSSSNALANTRKERDVDAGT    103
MW650878_Plum_pox_virus_strain_CV_Russia                   PPMFDPIFTPATTQPSVRPIAPTT-TSPFSYGVIGNQNVAPSSLNALANTRKDRDVDAGS    103
MW650874_Plum_pox_virus_strain_C_Russia                    APMFDPIFTPATTQPNVRPIAPVV-TSPFSYGVIGNQNVTPSSSNALVNTRKERDVDAGT    103
                                                             **:*:********  :* :        ::*. **:..:**. *:*.*  ::**:***:

MT038049_Plum_pox_virus_strain_D_isolate_Uz3_Uzbekistan    IGTFTVPRLKAMTSKLSLPKVKGKAIMNLNHLAHYSPAQVDLSNTRAPQSCFQTWYEGVK    163
OK285056_Plum_pox_virus_strain_T_Turkey                    IGTFAVPRLKTMTSKLSLPKVKGKAIMNLNHLAHYSPAQVDLSNTRAPQSCFQTWYEGVK    179
MN734791_Plum_pox_virus_strain_Rec_Russia                  IGTFAVPRLKTMTSKLSLPKVKGKAIMNLSHLAHYSPAQVDLSNTRAPQSCFQTWYEGVK    163
MW415808_Plum_pox_virus_strain_M_Turkey                    IGTFAVPRLKTMTSKLSLPKVKGKTIMNLNHLAHYSPAQVDLSNTRAPQSCFQTWYEGVK    163
HQ670746_Plum_pox_virus_strain_W_Latvia                    IGTFTVPRLKAMTSKLSLPKVRGKAIMNLNHLAHYNPAQVDLSNTRAPQSCFQTWYEGVK    163
MG736812_Plum_pox_virus_strain_CR_Russia                   VGTFSVPRLKAMTSKLSLPKVRGKAIMNLNHLAHYNPAQVDLSNTRAPQSCFQSWYEGVK    163
MW650878_Plum_pox_virus_strain_CV_Russia                   LGTFSVPRLKTMTSKLSLPKVKGKAIMNLNHLARYNPAQVDLSNTRAPQSCFQTWYEGVK    163
MW650874_Plum_pox_virus_strain_C_Russia                    IGTFSVPRLKSMTSKLSLPKVRGKAIMNLNHLAHYNPAQTDLSNTRAPQSCFQTWYEGVK    163
                                                           :***:*****:**********:**:****.***:*.***.*************:******

MT038049_Plum_pox_virus_strain_D_isolate_Uz3_Uzbekistan    RDYDVTDDEMSIILNGLMVWCIENGTSPNINGMWVLMDGETQVEYPIKPLLDHAKPTFRQ    223
OK285056_Plum_pox_virus_strain_T_Turkey                    RDYDVTDEEMSIILNGLMVWCIENGTSPNINGMWVMMDGETQVEYPIKPLLDHAKPTFRQ    239
MN734791_Plum_pox_virus_strain_Rec_Russia                  RDYDVTDEEMSIILNGLMVWCIENGTSPNINGMWVMMDGETQVEYPIKPLLDHAKPTFRQ    223
MW415808_Plum_pox_virus_strain_M_Turkey                    RDYDVTDEEMSIILNGLMVWCIENGTSPNINGMWVMMDGETQVEYPIKPLLDHAKPTFRQ    223
HQ670746_Plum_pox_virus_strain_W_Latvia                    RDYEVTDDEMSIILNGLMVWCIENGTSPNINGMWVMMDGETQVEYPIKPLLDHAKPTFRQ    223
MG736812_Plum_pox_virus_strain_CR_Russia                   RDYDVSDDEMSIILNGLMVWCIENGTSPNINGMWVMMDGETQVEYPIKPLLDHAKPTFRQ    223
MW650878_Plum_pox_virus_strain_CV_Russia                   RDYDVSDDEMSIILNGLMVWCIENGTSPNINGMWIMMDGETQVEYPIKPLLDHAKPTFRQ    223
MW650874_Plum_pox_virus_strain_C_Russia                    RDYDVSDEEMSIILNGLMVWCIENGTSPNINGMWVMMDGETQVEYPIKPLLDHAKPTFRQ    223
                                                           ***:*:*:**************************::************************

MT038049_Plum_pox_virus_strain_D_isolate_Uz3_Uzbekistan    IMAHFSNVAEAYIEKRNYEKAYMPRYGIQRNLTDYSLARYAFDFYEMTSTTPVRAREAHI    283
OK285056_Plum_pox_virus_strain_T_Turkey                    IMAHFSNVAEAYIEKRNYEKAYMPRYGIQRNLTDYSLARYAFDFYEMTSTTPVRAREAHI    299
MN734791_Plum_pox_virus_strain_Rec_Russia                  IMAHFSNVAEAYIEKRNYEKAYMPRYGIQRNLTDYSLARYAFDFYEMTSTTPVRAREAHI    283
MW415808_Plum_pox_virus_strain_M_Turkey                    IMAHFSNVAEAYIEKRNYEKAYMPRYGIQRNLTDYSLARYAFDFYEMTSTTPVRAREAHI    283
HQ670746_Plum_pox_virus_strain_W_Latvia                    IMAHFSNVAEAYIEKRNYEKAYMPRYGIQRNLTDYSLARYAFDFYEMTSTTPVRAREAHI    283
MG736812_Plum_pox_virus_strain_CR_Russia                   IMAHFSNVAEAYIEKRNYEKAYMPRYGIQRNLTDYSLARYAFDFYEMTSTTPVRAREAHI    283
MW650878_Plum_pox_virus_strain_CV_Russia                   IMAHFSNVAEAYIEKRNYEKAYMPRYGIQRNLTDYSLARYAFDFYEMTSTTPVRAREAHI    283
MW650874_Plum_pox_virus_strain_C_Russia                    IMAHFSNVAEAYIEKRNYEKAYMPRYGIQRNLTDYSLARYAFDFYEMTSTTPVRAREAHI    283
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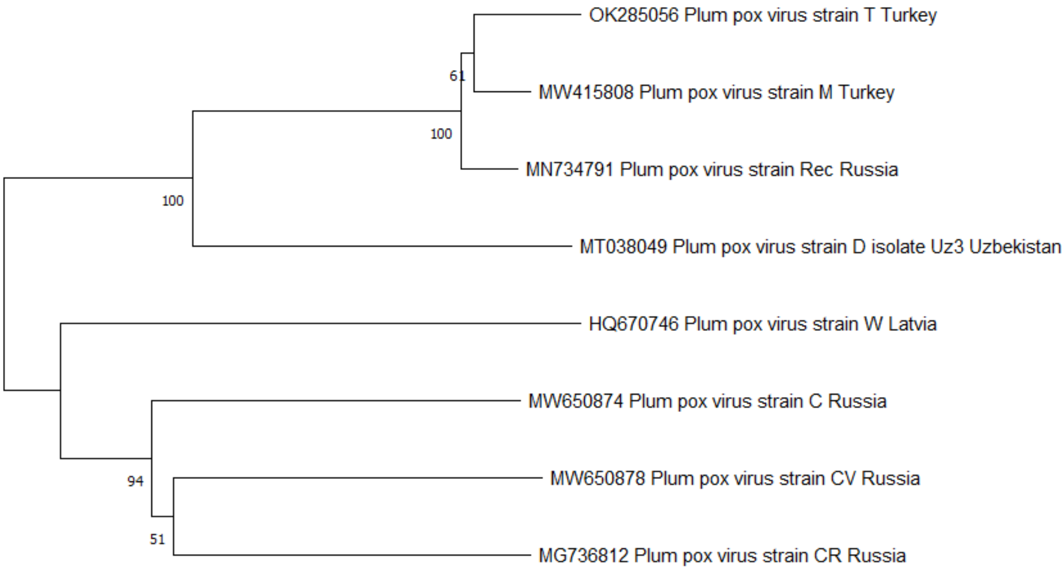
2-rasm. Olxo‘ri chechagi virusining turli shtammlarining aminokislotalar farqi

Yuqoridagi CP genidagi aminokislotalar tahlili natijasi shuni ko‘rsatdiki, olxo‘ri chechagi virusi shtammlarining aminokislotalari tarkibidagi ketma-ketlik genning dastlabki qismida farq juda ham yuqori ko‘rsatkichni ko‘rsatdi. Genning so‘nggi qismida esa farq uncha ko‘p emasligi va aminokislotalarning o‘xshashligi eng yuqori ekanligi bioinformatik tahlil asosida o‘rganildi. Aminokislotalardagi farqlar turli shtammlarda o’zara turli xilda ekanligi har bir shtammning o’ziga xos morfologik va simptomatik belgilarga ega bo‘lishini ta’minlab beradi. Yuqoridagi tahlillar esa shtammlarning o‘zaro qarindoshligi qay darajada ekanligini o‘rganish kerakligini ko‘rsatib berdi. Ushbu shtammlarning CP geni asosida filogenetik shajara tuzildi (3-rasm).



3-rasm. Olxo‘ri chechagi virusi shtamlarining filogenetik shajarasi

Tahlil MEGA 11 dasturida Statistik metod-Neighbor Joining, Filogenetik test-Bootstrap 1000, Kimura2 modeli, K.Tamura metodi orqali bajarildi. Tahlil natijalariga ko‘ra O‘zbekistonning MT038049 shtammi Rossiyaning MN734791 va Turkiyaning OK285056, MW415808 shtamlari bilan bir filogenetik shoxda joylashganligini hamda yaqin qarindoshlikni ko’rsatdi. Undan tashqari Rossiyaning MW650878, MW650874, MG736812 shtammlari va Latviyaning HQ670746 shtammlari esa uzoq qarindoshlikni ko‘rsatdi.

Xulosa: OChV patogeni va u keltirib chiqaradigan kasallik to’g’risida har bir inson o’rganishi hattoki imkoniyati cheklangan insonlarga ham bu haqida ma’lumot berish zarur [3]. Virus haqida to‘liqroq ma’lumotga ega bo’lish uchun turli molekularusullar va tahlil natijalarini bilish kerak. Bu kasallikni oldini olish insonlarning bu patogen haqida tushunchaga ega bo’lishi juda muhim.

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ME'DA RAKI VA YARA KASALLIKLARIDA ORGAN ICHKI QON TOMARLARINI O'ZGARISHI

Annotatsiya: *Maqolada me`dani yomon sifatli o'smalari va yarasi kasalliklarida oshqozonning intraorgan qon tomirlaridagi o'zgarishlarni o'rganilgan. Seroz pardada konturlari aniq bo'lgan zich kapillyarlar tarmog'i aniqlangan. Oshqozon yarasi kasalligida kapillyarlar va mayda tomirlar ko'pincha burmalangan, kengaygan va qon bilan to'ldirilgan, o'rta kattalikdagi tomirlar esa biroz toraygan. O'smalarda tomirlarda barmoq shaklidagi o'simtalar, shilliq osti qatlami bilan chegaradagi venulalarda sferik kengayishlar topilgan.*

Kalit so'zlar: *qon tomirlari, devor, o'simta, oshqozon, oshqozon yarasi, kapillyarlar, tomirlar tarmog'i, tomir konturlari, tomirlar.*

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CHANGES IN THE INTRAORGAN BLOOD VESSELS OF THE STOMACH IN MALIGNANT TUMORS AND PEPTIC ULCER

Abstract: *The article studies changes in the intraorgan blood vessels of the stomach in malignant tumors and peptic ulcer disease. A dense network of capillaries with clear contours was revealed in the serous membrane. In peptic ulcer disease, the capillaries and small vessels were often tortuous, dilated and filled with blood, and medium-sized vessels were somewhat narrowed. In tumors, finger-shaped protrusions were found on the veins, and spherical expansions were found on the venules at the border with the submucosal layer.*

Keywords: *blood vessels, wall, tumor, stomach, peptic ulcer disease, capillaries, vascular network, vessel contours, veins.*

Kirish. Yara kasalligini o'rganish muammosi hozirgi vaqtda ham nazariy, ham amaliy jihatdan dolzarb bo'lib qolmoqda. Ushbu mavzu bo'yicha ko'plab mahalliy va xorijiy ishlar mavjud bo'lsa-da, patogenez, klinik ko'rinishlar va davolashning ko'plab asosiy masalalari munozarali va to'liq aniqlanmagan bo'lib qolmoqda [1,6,7]. So'nggi o'n yilliklar yara kasalligining patogenezi, klinik kechishi, diagnostikasi va davolashning turli jihatlarini o'rganishda sezilarli yutuqlarga erishdi. Xususan, qon tomirlari o‘zgarishlarining patogenetik ahamiyatini tahlil qilishga bag‘ishlangan kompleks tadqiqotlar natijalari o‘z aksini topdi [4,5], shuningdek, jarayonning turli joylashuvi va yurak-qon tomir tizimi kasalliklari bilan birgalikda yara kasalligining klinik ko‘rinishlari o‘rganildi. So‘nggi vaqtgacha yara kasalligidagi kasallik fazalarining ketma-ketligi, oshqozon va o‘n ikki barmoqli ichak devorining shikastlanish chuqurligi, gemodinamika va mikrotsirkulyator holatdagi o‘zgarishlar odatda alohida o‘rganildi; aniqlangan buzilishlarning dinamikasi o‘rganilmadi va shunga ko‘ra, fiziologik asoslangan tegishli tuzatish yo‘llari taklif qilinmadi [2,3].

Tadqiqot maqsadi. Ushbu ishning vazifasi yomon sifatli o‘smalar va yara kasalligi holatlarida oshqozonning ichki organ qon tomirlarini o‘rganishdir.

Tadqiqot materiallari va usullari. Tadqiqot materiali sifatida 28 yoshdan 61 yoshgacha bo‘lgan shaxslar tanlandi. Yara kasalligi (11) va yomon sifatli o‘smalar (14) tufayli rezektsiya qilingan 25 ta oshqozon o‘rganildi. Qon tomirlari bo‘yalgan massalar bilan to‘ldirildi; oshqozon suvli glitserin eritmalarida shaffoflashtirildi. Uning devori qatlamlarga bo‘lindi va qon tomirlari MBS-2 binokulyar mikroskopi ostida o‘rganildi.

Tadqiqot natijalari. O‘smalarda kapillyar tarmoqlar ba’zi joylarda zichroq, boshqa joylarda esa kamroq edi. Ayrim kichik tomirlar o‘ta burilish va notekis, go‘yo yemirilgan konturlarga ega edi; boshqalari to‘g‘ri yo‘nalishda edi. O‘zgarmagan tomirlar ham uchraydi. Arteriyalar venalarga qaraganda kamroq burilishga ega edi. O‘smalarda venalarda barmoqsimon chiqib turishlar, podslizist qavat chegarasida esa venulalarda sharsimon kengayishlar kuzatildi. Mushak qavatida kapillyar tarmoqlar zich edi. Kichik va o‘rta tomirlar, asosan venalar, burilishli yo‘nalishga ega edi. Bir tomir bo‘ylab torayish va kengayishlarning almashinishi tez-tez kuzatildi. Umuman olganda, mushak qavatidagi venalardagi o‘zgarishlar arteriyalarga qaraganda aniqroq edi. Kichik tomirlarda burilish joylarida devorlari qalinlashgan sezilarli kengayishlar kuzatildi. Ko‘pgina tomirlar notekis kalibrga, noaniq, ba’zan yemirilgan konturlarga ega edi, bu ko‘proq saraton holatlarida kuzatildi. Mushak qavatining chuqur qatlamlarida ko‘plab venalar kengaygan edi. O‘smalar atrofidagi tomir tarmog‘idan ularga nozik, notekis kalibrli tomirlar yo‘nalgan edi; keyin ular go‘yo uzilib qolgan va undan keyin aniqlanmadi. Podslizist qavatning tomirlari ayrim hollarda o‘ta burilishli va kengaygan edi. Podslizist qavatning mayda chotki shaklidagi venalari zich tarmoqlarni hosil qildi (odatda o‘smalarda) yoki kam sonli edi. Ular bilan birga nozik to‘g‘ri arteriola va venulalar ham uchraydi. Shilliq qavat tomirlari juda ko‘p o‘zgargan edi. O‘sma bilan chegarada kapillyarlar umuman to‘lmaydi yoki orolchalar shaklida aniqlanar, burilishli, ba’zi joylarda biroz kengaygan yoki aksincha, butun uzunligi yoki qisman toraygan edi. O‘sma zonasi zich tomir tarmog‘i bilan chegaralangan edi. O‘sma periferiyasida tomir tarmoqlarining uzilgan halqalari va go‘yo sindirilgan arteriola va venulalar aniqlandi. Kichik va o‘rta tomirlar klublar, spirallar, halqalar shaklida burilishli edi. Tomirlar bilan kambag‘al shilliq qavat joylari ham uchraydi. Har xil kalibrdagi tomirlarning konturlari ko‘pincha noaniq, yemirilgan edi. Ko‘pincha butun uzunligi bo‘ylab yoki alohida joylarda keskin kengaygan venalar uchraydi.

Ba’zi hollarda tomirlar patologik oʻzgarishlarga toʻliq, boshqalarida esa qisman duchor boʻlgan deb taxmin qilish mumkin. Koʻpincha sezilarli darajada toraygan yoki aksincha, kengaygan venalar kuzatildi. Ularni kuzatib boruvchi arteriyalar kamroq oʻzgargan edi.

Xulosa. Yara kasalligi yoki yomon sifatli oʻsmalarga xos boʻlgan tomir oʻzgarishlari, oʻsma atrofidagi zich tomir tarmogʻi, podslizist qavatning mayda venalarining koʻp sonli sharsimon va shpindelsimon kengayishlari bilan boy tarmoqlari, seroz qavatdagi eng nozik tarmoqlarning notekis aniqlanishi va ularning koʻpincha qon bilan toʻlib, koʻplab ekstravazatlar mavjudligidan tashqari, hozircha aniqlanmadi. Turli etiologik omillar tomirlarda bir xil oʻzgarishlarni keltirib chiqaradi deb taxmin qilish mumkin.

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5-6 YOSHLI BOLALARDA EKOLOGIK MADANIYATNI SHAKLLANTIRISH SHART-SHAROITLARI

Annotatsiya:*5-6 yoshli bolalarda ekologik madaniyatni shakllantirish kelajak avlodlarda ekologik ongli va mas’uliyatli xulq-atvorni tarbiyalashning muhim asosidir. Ushbu maqolada erta bolalik davrida ekologik madaniyatni tarbiyalash uchun zarur bo‘lgan muhim shart-sharoitlar o‘rganilib, oila, ta’lim muassasalari va atrof-muhitning roli ta’kidlangan. Maqolada, shuningdek, qiziquvchanlik, hamdardlik va tabiiy dunyoga nisbatan mas’uliyat hissini uyg‘otadigan qo‘llab-quvvatlovchi va qiziqarli o‘quv muhitini yaratish muhimligi ta’kidlangan.*

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CONDITIONS FOR THE FORMATION OF ECOLOGICAL CULTURE IN CHILDREN 5-6 YEARS OLD

Annotation: *The formation of ecological culture in 5-6 year old children is an important basis for educating environmentally conscious and responsible behavior in future generations. This article examines the important conditions necessary for the upbringing of ecological culture in early childhood, emphasizing the role of the family, educational institutions and the environment. The article also emphasizes the importance of creating a supportive and engaging learning environment that fosters curiosity, empathy and a sense of responsibility for the natural world.*

Erta bolalik davrida ekologik madaniyatni shakllantirish barqaror rivojlanishning muhim jihati hisoblanadi, chunki u butun umr davomida atrof-muhitni muhofaza qilish uchun asos yaratadi. 5-6 yoshli bolalar rivojlanishning muhim bosqichi bo‘lib, bu davrda kognitiv, hissiy va ijtimoiy qobiliyatlar tabiatga munosabat va xatti-harakatlarni shakllantirishga juda mos keladi. UNESCO (2020) ma’lumotlariga ko‘ra, barqarorlik uchun erta bolalik davridagi ta’lim ekologik xabardorlikka sezilarli ta’sir ko‘rsatishi mumkin. Bundan tashqari, Butunjahon yovvoyi tabiat jamg‘armasi (WWF, 2021) tomonidan olib borilgan tadqiqotlar shuni ko‘rsatadiki, yetti yoshga to‘lgunga qadar shakllangan ekologik odatlarning 70 foizi balog‘at yoshiga qadar saqlanib qoladi va bu erta aralashuv muhimligini ta’kidlaydi.

5-6 yoshli bolalarda ekologik madaniyatni rivojlantirish muayyan shart-sharoitlarga, jumladan, ekologik ta’limni o‘quv dasturlariga integratsiyalashuviga, chuqur tabiiy tajribalarni ta’minlashga, tarbiyachilar va o‘qituvchilarning faol ishtirokiga bog‘liq. Chawla va Cushing (2022) tomonidan olib borilgan tadqiqot shuni ko‘rsatdiki, muntazam ravishda ochiq havoda mashg‘ulotlar bilan shug‘ullanadigan bolalar tabiatda cheklangan bolalarga qaraganda 2,5 baravar ko‘proq atrof-muhitga e’tibor berishadi. Bundan tashqari, ota-onalarning modellashtirish rolini oshirib bo‘lmaydi; Ushbu maqola empirik tadqiqotlar, statistik ma’lumotlar va nazariy asoslarga asoslanib, 5-6 yoshli bolalarda ekologik madaniyatni shakllantirish uchun zarur bo‘lgan ko‘p qirrali sharoitlarni o‘rganishga intiladi. Oila va jamiyat ta’sirining roli ham yaxshi hujjatlashtirilgan. Evans va boshqalar tomonidan o‘tkazilgan tadqiqot. (2021) ota-onalari qayta ishlash yoki energiyani tejash kabi barqaror xatti-harakatlarni faol ravishda modellashtiradigan bolalar shunga o‘xshash amaliyotlarni 65% ga ko‘proq qabul qilishlarini aniqladilar. Ushbu tadqiqot 5-6 yoshli bolalarda ekologik madaniyatni shakllantirish uchun zarur bo‘lgan sharoitlarni o‘rganish uchun miqdoriy va sifat tadqiqot usullarini birlashtirgan aralash usullardan foydalanadi. Tadqiqot loyihasi uch bosqichda tuzilgan:

1. Miqdoriy so‘rov: 5-6 yoshli bolalarning 500 nafar ota-onasi va tarbiyachilari o‘rtasida bolalarning atrof-muhit bilan o‘zaro munosabatlarining chastotasi va xarakterini baholash uchun so‘rov o‘tkazildi. So‘rovda ochiq havoda faoliyat yuritish, ekologik ta’lim amaliyoti va ota-onalarning ekologik xatti-harakatlarini modellashtirish bo‘yicha savollar berilgan. **2. Sifatli intervyular:** Ekologik madaniyatni rivojlantirishning samarali strategiyalari haqida chuqurroq tushunchaga ega bo‘lish uchun 30 nafar erta yoshdagi bolalar o‘qituvchilari va atrof-muhit bo‘yicha ekspertlar bilan yarim tizimli suhbatlar o‘tkazildi. **3. Kuzatuv tadqiqoti:** Tabiatga asoslangan ta’lim dasturlarini amalga oshirgan 10 ta maktabgacha ta’lim muassasasida olti oylik kuzatuv tadqiqoti o‘tkazildi. Tadqiqotchilar bolalarning xulq-atvorini, tabiat bilan o‘zaro munosabatini va ekologik faoliyat bilan shug‘ullanishini hujjatlashtirdilar. Ushbu dasturlarning bolalarning ekologik ongi va munosabatlariga ta’sirini baholash uchun ma’lumotlar tahlil qilindi.

Ushbu tadqiqot natijalari 5-6 yoshli bolalarda ekologik madaniyatni shakllantirish uchun zarur bo‘lgan shart-sharoitlarni har tomonlama tushunish imkonini beradi, ishonchli miqdoriy va sifat ma’lumotlari bilan tasdiqlangan. Natijalar uchta asosiy yo‘nalish bo‘yicha tuzilgan: tabiatga asoslangan ta’limning ta’siri, ota-onalar va o‘qituvchilar ta’sirining roli va tuzilgan ekologik ta’lim dasturlari samaradorligi.

1. Tabiatga asoslangan ta’limning ta’siri. Kuzatuv tadqiqoti shuni ko‘rsatdiki, tabiatga asoslangan ta’lim dasturlarida qatnashgan bolalar an’anaviy sinf sharoitlariga qaraganda ekologik bilimlarning 42% ga o‘sishini va atrof-muhitga qarshi xatti-harakatlarning 38% ga yaxshilanganligini ko‘rsatdi. Misol uchun, tabiatga asoslangan dasturlarda bolalarning 78% mahalliy o‘simlik va hayvonlar turlarini aniq aniqlay olgan bo‘lsa, tabiatga asoslangan bo‘lmagan dasturlarda bu

ko‘rsatkich atigi 45% ni tashkil qiladi. Ushbu topilmalarga asoslangan bashoratli modellashtirish shuni ko‘rsatadiki, tabiatga asoslangan ta’limga erta ta’sir qilish kattalarning atrof-muhitni muhofaza qilish tadbirlarida ishtirok etishini 25% ga oshirishi mumkin, masalan, tozalash tashabbuslarida ko‘ngillilik yoki barqaror siyosatni qo‘llab-quvvatlash.

2. Ota-onalar va o‘qituvchilar ta’sirining roli. Miqdoriy so‘rov bolalarning ekologik xulq-atvorini shakllantirishda ota-onalar va o‘qituvchilarning modellashtirish muhim rolini ta’kidladi. Ota-onalari qayta ishlash yoki kompostlash kabi barqaror amaliyotlar bilan tez-tez shug‘ullanadigan bolalar 67% ko‘proq shunga o‘xshash xatti-harakatlarni qabul qilishdi. Shunga o‘xshab, ekologik qadriyatlarni kundalik turmush tarziga kiritgan o‘qituvchilarning 82 foizi o‘quvchilarining atrof-muhitga oid xabardorlik darajasi yuqori ekanligini ta’kidladilar.

3. Strukturaviy ekologik ta’lim dasturlari samaradorligi. Tadqiqot shuni ko‘rsatdiki, tuzilgan ekologik ta’lim dasturlari, ayniqsa amaliy mashg‘ulotlar va hikoyalarni o‘z ichiga olgan dasturlar ekologik madaniyatni rivojlantirishda yuqori samaradorlikka ega. Misol uchun, bog‘dorchilik yoki yovvoyi tabiatni kuzatish kabi interfaol tadbirlarni o‘z ichiga olgan dasturlarda ishtirok etgan bolalarning 88 foizi ekologik tushunchalarni chuqurroq tushunishini namoyish etdi, bu esa faqat nazariy ta’limga asoslangan dasturlarda 54 foizni tashkil etdi.

Bundan tashqari, bashoratli tahlil shuni ko‘rsatadiki, bunday dasturlarda erta ishtirok etish bolalar o‘smirlik yoshiga etgunga qadar atrof-muhitga zararli xatti-harakatlarning, masalan, ortiqcha chiqindilar hosil bo‘lishining 30% ga kamayishiga olib kelishi mumkin.

Asosiy natijalarning qisqacha mazmuni

- Tabiatga asoslangan ta’lim dasturlari 5-6 yoshli bolalarda ekologik bilim va atrof-muhitga qarshi xatti-harakatlarni sezilarli darajada oshiradi.
- Bolalarning ekologik munosabati va amaliyotini shakllantirishda ota-onalar va o‘qituvchilarning modellashtirish muhim rol o‘ynaydi.
- Ekologik ta’lim dasturlari, xususan, amaliy mashg‘ulotlar va hikoyalarni o‘z ichiga olgan dasturlar ekologik madaniyatni yuksaltirishda yuqori samara beradi.

Ushbu tadqiqot natijalari 5-6 yoshli bolalarda ekologik madaniyatni tarbiyalash uchun zarur shart-sharoitlarni, erta bolalar ta’limi va atrof-muhit psixologiyasi sohasidagi mavjud tadqiqotlar bilan uyg‘unlashtirish va kengaytirish uchun ishonchli dalillarni taqdim etadi. Natijalar ekologik madaniyatni shakllantirishning ko‘p qirrali xususiyatini ta’kidlab, tajribaviy o‘rganish, namuna olish va tuzilgan ta’lim tadbirlari o‘rtasidagi o‘zaro bog‘liqlikni ta’kidlaydi. Ushbu munozara kengroq ilmiy adabiyotlardagi topilmalarni kontekstuallashtiradi, ularning oqibatlarini o‘rganadi va ma’lumotlarga asoslangan kelajakdagi natijalar uchun bashoratlarni taklif qiladi.

Tabiatga asoslangan ta’lim dasturlarida ishtirok etayotgan bolalar o‘rtasida ekologik bilimlarning 42% ga o‘sishi va atrof-muhitga qarshi xatti-harakatlarning 38% ga yaxshilanishi tabiat bilan to‘g‘ridan-to‘g‘ri o‘zaro ta’sirning kognitiv va hissiy afzalliklarini ta’kidlaydigan oldingi tadqiqotlarni tasdiqlaydi (Ernst va

Tornabene, 2022; Wells va Lekies, 2023). Bu topilmalar, ayniqsa, bolalar va tabiiy muhit o‘rtasidagi uzilishlar kuchayib borayotganini hisobga olsak, ayniqsa ahamiyatlidir, so‘nggi statistik ma’lumotlarga ko‘ra, bugungi kunda bolalar ekranlar oldida 7 soatdan ko‘proq vaqt o‘tkazish bilan solishtirganda, kuniga o‘rtacha 4-7 daqiqa tizimsiz ochiq o‘yinlarda o‘tkazishadi (Amerika Pediatriya Akademiyasi, 2023).

Xulosa qilib aytganda, erta bolalikda ekologik madaniyatni shakllantirish nafaqat erishish mumkin, balki barqaror kelajakni qurish uchun zarurdir. Tabiatga asoslangan ta’limga ustuvor ahamiyat berish, ijobiy rol modelini rag‘batlantirish va tuzilgan ta’lim tadbirlarini amalga oshirish orqali manfaatdor tomonlar kelajak avlodga atrof-muhitni xabardor qilish, hamdardlik va faol boshqaruvchi bo‘lish imkoniyatini berishi mumkin. Ushbu sa’y-harakatlar nafaqat alohida bolalar uchun foydali bo‘ladi, balki atrof-muhitni muhofaza qilish va global barqarorlikni ta’minlashning kengroq maqsadlariga ham hissa qo‘shadi. Dunyo tobora kuchayib borayotgan ekologik inqirozlarga duch kelayotgan ekan, yosh bolalarning ekologik ta’limiga sarmoya kiritish kelajak avlodlar uchun yanada sog‘lom, bardoshli sayyorani ta’minlash yo‘lidagi muhim qadamdir.

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ILOHIY IJODNING UYG'UNLIGI. FAN VA DIN O'RTASIDAGI ALOQALAR

Annotatsiya: *Ilm-fan bilan shug'ullanadigan odamlar, ruhoniylar suruv bilan suhbatlashish uchun, ma'naviy ta'lim muassasalari o'qituvchilari va talabalari va e'tiqod va ilm-fan o'rtasidagi xayoliy qarama-qarshilikdan xavotirda bo'lgan barcha imonlilar uchun foydali bo'ladi.Shu ilohiy ijodning uyg'unligi. fan va din o'rtasidagi o'zaro bahsli munasabatlar falsafiy metodologik tahlili bugungi kunda o'ta dolzarb hisoblanadi.*

Kalit so'zlar: *Ilm, ma'naviyat, ilohiyot, e'tiqod, falsafa, evolyutsiya, ongi, din, datura, inson.*

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HARMONY OF DIVINE CREATION. RELATIONS BETWEEN SCIENCE AND RELIGION

Abstract: *It will be useful for people engaged in science, clergy for conversation with the flock, teachers and students of spiritual educational institutions and all believers who are concerned about the imaginary contradiction between faith and science. This harmony of divine creation. Philosophical methodological analysis of the controversial relations between science and religion is extremely relevant today.*

Keywords: *Science, spirituality, theology, faith, philosophy, evolution, consciousness, religion, datura, man.*

"Ilm va din" - nima uchun buni o'rganishimiz kerak? Albatta, Masihning nuri hamma joyda kirib boradi va inson faoliyatining barcha turlariga diniy yondashuv zarur, ammo biz "asalarichilik va din" yoki "Pazandachilik va din"kurslarini o'qimaymiz. Ilm-fan va din o'rtasidagi "munosabatlarni aniqlash" zarurati shundan kelib chiqadiki, fan va din inson dunyo va o'zi haqida bilim olishning yagona manbai bo'lib, bu o'z navbatida inson o'z o'rnini tushunishi uchun zarurdir, dunyoda, uning mavjudligining maqsadi va ma'nosi. E'tibor bering, uchinchi manba ham bor – sehr-jodu, ruhlar va musofirlar bilan aloqa va boshqalarni o'z ichiga olgan okkultizm biroq, insoniyat tarixining ba'zi nuqtalarida, masalan, bugungi kunda okkultizmning mashhurligi juda yuqori bo'lishiga qaramay, bu ishonchli emas, balki bilim yolg'on manbadir.

Shunday qilib, fan va din ishonchli bilimlarning ikkita manbaidir. Ular bir-birini takrorlaydimi yoki ilovaning turli sohalariga egami? Ular har doim bir xil savollarga bir xil javob berishadimi? Bularning barchasi "fan va din"kursida ko'rib chiqiladi. Umid qilamizki, ilm-fan va din inson izlanishlarining turli sohalarida harakat qilishga chaqiriladi va ular olgan bilimlar bir-biriga zid emas, balki bir-birini to'ldiradi. Biroq, biz ilmiy va diniy yondashuv mumkin bo'lgan bir nechta savollar mavjudligini ko'ramiz. Ushbu savollarning ba'zilariga ilm-fan va din bir xil javob beradi, ammo din ba'zan ming yillar davomida ilm-fandan oldinda. Ba'zi savollarga fan va dinning javoblari har xil va xristian ta'limotiga amal qilgan har bir kishi quyidagi savollarga javob berishi kerak: "evolyutsiya haqida nima deyish mumkin?, Yarim maymunlar-yarim insonlar haqida nima deyish mumkin? ushbu qarama-qarshiliklarni sinchkovlik bilan tahlil qilinadi.

"Fan va din" kursiga bo'lgan ehtiyoj, shuningdek, insoniyat tarixi davomida din yoki fan bilimlarning yagona manbai bo'lib, ular o'rtasida keskin ziddiyatlarga olib kelganligi bilan bog'liq. Mavjud xurofotdan farqli o'laroq, aksariyat hollarda tajovuzkor din emas, balki fan edi va insoniyatda ma'naviy narsadan qanchalik moddiy ustun bo'lsa, fanning monopoliyaga bo'lgan da'volari shunchalik qat'iy bo'ladi va u dinni insoniyat jamiyatidan chiqarib yuborishga shunchalik tajovuzkor bo'ladi. Bugungi kunda vaziyatni tavsiflash uchun biz XX asrning eng mashhur faylasufi Bertran Rasselning so'zlarini keltiramiz: "bizning bilimimiz faqat ilmiy usullar bilan olinishi kerak va fan kashf eta olmaydigan narsa insoniyat bila olmaydi". Agar Rassel faqat faylasuf bo'lganida edi, unda tashvishlanmaslik kerak edi – faylasuflar, hatto eng mashhurlari ham ko'pincha har qanday bema'nilikni aytadilar, ammo Rassel ham taniqli matematik edi, demak uning fikri ilmiy elita vakilining fikri. Keling, dinga nisbatan yanada keskin va tajovuzkor bayonotni keltiraylik:"zamonaviy ilm-fanning butun tarixi kuzatish va amaliyotdan kelib chiqqan g'oyalar va diniy tarbiya natijasida odamlarda paydo bo'lgan xurofotlar o'rtasidagi kurash edi". Bu bema'nilik (bizning kursimizda fan va din o'rtasidagi munosabatlar tarixini ko'rib chiqsak, bu haqiqatan ham bema'nilik ekanligini ko'ramiz), shuningdek, XX asrning taniqli olimi ingliz kristallografi J.D.Bernal, Angliya ilmiy doiralarida "sage"laqabini olgan. Ammo Rossiyada, 19-asrda, diniy haqiqat oldida ilmiy haqiqatning ashaddiy muxlislari o'zlarining da'volariga javoban eshitdilar:

Bizning ongimiz ko'r-ko'rona takabburlik bilan qoplangan,
Orzu va bolalik xurofotini tan olishga tayyor
U hisob-kitobiga kira olmaydigan hamma narsa.
Ammo yuz barobar xurofot emasmi,
Kim o'ziga ishonadi, lekin o'zi uchun sir,
Kim g'urur bilan aql-idrokiga suyangan titroq
Va u o'z butini butparast qiladimi?..
(Vyazemskiy Shahzodasi. "Ibodat fikrlari")

Xuddi shu sababga ko'ra, biz A.I.Soljenitsinga ergashadigan ijtimoiy qatlamda dinga qarshi kayfiyat kuchayadi. Ushbu qatlam vakillari ilmiy fikrning chuqurliklari bilan tanish emaslar, ular faqat fanning amaliy samaralarini bilishadi va ongining ko'r-ko'rona takabburligida bu odamlar mashina qanday ishlashini yoki oshqozon-ichak trakti qanday ishlashini bilganliklari sababli, ularga Xudo kerak emas va u dunyoda o'rin yo'q deb hisoblashadi. O'rta (va ko'pincha oliy) maktabda pedsostavning katta qismini va jurnalistik birodarlikning katta qismini tashkil etuvchi ta'limdan ilmiy bilim va e'tiqodning nomuvofiqligi haqidagi fikr kundalik ongga kiritiladi, u erda u quyidagi so'zlar bilan mustahkamlanadi: "ilm Xudo yo'qligini isbotladi". Bugungi kunda ilm-fanning monopoliyaga bo'lgan da'volari kuchli moddiy poydevorga tayanadi. O'tgan asr ilm-fanning miqdoriy va sifat jihatidan moddiy boyliklarni ishlab chiqarishga qo'shgan ulkan hissasi bilan ajralib turadi. Ushbu hissa nafaqat kamaymaydi, balki eksponent ravishda o'sib boradi, deyish mumkin va endi deyarli har kuni bizning hayotimizga o'n-yigirma yil oldin hayoliy bo'lib tuyulgan ilmiy va texnik ishlanmalarning mevalari kiradi. Insonda tana ruhni qanchalik ko'p egallasa, u uchun moddiy dalillar shunchalik ishonchli bo'ladi va bugungi kunda ruh odamlarda zo'rg'a qizib ketganda, ilm-fanning hozirgi amaliy mevalari va uning ertangi kun uchun Kamalak va'dalari insoniyat uchun uning qudratliligining ishonchli dalilidir. Mamlakatimizda vaziyat marksistik mafkuraning yetmish yillik hukmronligi bilan yanada og'irlashmoqda. Bu yillar davomida akademiklardan tortib farroshlargacha bo'lgan barcha odamlar tug'ilishdan o'limgacha majburiy va doimiy ravishda ilmiy bilimlar nuri diniy Datura zulmatini yo'q qiladi, deb da'vo qilishgan, "Datura" esa o'z bahonasida hech narsa aytishga haqli emas edi. Va bugungi kunda, hukmron mafkura uzoq umr ko'rishni buyurganidan deyarli 15 yil o'tgach, uning zararli mevalari ilmiy va hatto pedagogik muhitda seziladi. Shunday qilib, bizning" xayrixohimiz " ilm-fan bugungi kunda dinni insoniyat jamiyatidan chiqarib yuborish va shu bilan insoniyatni ma'naviy o'limga olib kelish bilan tahdid qilmoqda. Bunday sharoitda har bir Masihiy bu xavfga o'z qalbida ham, iloji boricha boshqalar qatorida qarshi turishga majburdir. Umid qilamizki, "fan va din" zamonaviy jamiyatda hukm surayotgan saroblardan farqli o'laroq, ilmiy-texnik taraqqiyotga ob'ektiv baho berishga, o'ziga va boshqalarga ilm-fanning monopoliya va mutlaq da'volarining barcha nomuvofiqligi va zararli tomonlarini asosli tarzda tushuntirishga imkon beradi quvvat. Biz 20-asr fanining ikki taniqli vakilining fikrlarini keltirdik, ammo agar biz taniqli olimlarni olsak, ular orasida hatto 20-asrda ham ko'plab imonlilarni topamiz. Ushbu dindor olimlarning ovozi dinga nisbatan ancha shubhali munosabat hukm suradigan ilmiy jamoatchilikning oddiy massasida yo'qoladi. Buning sababi uzoq vaqtdan beri ma'lum bo'lib, uni Blez Paskalning fikrlari orasida topish mumkin ("ikki turdagi odamlar Xudoni bilishadi: kamtar qalbli odamlar, ular aqlli yoki ahmoq ekanliklariga ahamiyat bermaydilar va odamlar chinakam aqlli. Faqat mag'rur va o'rta aqlli odamlar Xudoni bilishmaydi") va xalq maqollari orasida:"cho'chqachilardan chiqqan va generallarga hali kelmagan kishi Xudoga ishonmaydi".

Bir so‘z bilan aytganda, komil shaxsni shakllantirish mavzusida gumanitar fanlar, jumladan, pedagogika tarixi ham so‘fiylik bilan tarixiy va mantiqiy bog‘liqdir.

Shu bilan birga, axborot madaniyatini shakllantirish masalasi jamiyat taraqqiyoti bilan bevosita bog'liq, shuning uchun bu davlat darajasida ijtimoiy ahamiyatga ega masaladir. Ushbu ta'limotning asosiy g'oyasi insonni ma'naviy va axloqiy poklash, ilohiy sevgi bilan yuksaltirishdir. Shuning uchun ham so‘fiylik chuqur insonparvarlik g‘oyalari bilan to‘lib-toshgan, u haqiqat izlagan insonlar qalbiga kirib kelgan, u kishilarning poklik, boqiy hayot, qalb ozodligi haqidagi orzu-umidlarini ifodalovchi tushunchadir. Xulosa chiqarish sizga bog'liq.

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7 YOSHGACHA BO'LGAN QIZ BOLALAR TARBIYASINING MILLIY POYDEVORIDA ONANING ROLI (O'ZBEK MINTALITETI MISOLIDA)

Annotatsiya: *Mazkur ilmiy tadqiqot yosh avlodimiz bo'lgan qiz bolalar tarbiyasida onaning rolini ochib beradi. Mamlakatimizda istiqomat qiluvchi ko'plab xalqlarning madaniyati ayollarning oilaviy munosabatlarning asosiy tartibga soluvchisi sifatidagi alohida mavqeini ko'rsatadi.*

Ushbu maqolada milliy tarbiyamizning mohiyati, bola tarbiyasida oilaning ahamiyati, qizbolani tarbiyasida ota-onaning roli, milliy qadryatlar, urf-odatlarimiz haqida so'z yuritilgan. Bugungi kunda turli xil ijtimoiy rollarni bajarib, xotin-qizlar jamiyatimiz kelajagi uchun katta mas'uliyat yuklaydi.

Maqolada o'sib kelayotgan yosh avlod tarbiyasi, oilada bola tarbiyasi, bola tarbiyasida ota-ona, mahalla, maktabgacha talim tashkiloti hamkorligi, ta'lim-tarbiyaning maqsadi va vazifalari, farzand tarbiyasida onaning o'rni haqida so'z yuritilgan. Hamda ulug' bobokalonlarimiz farzand tarbiyasidagi qarashalariga ham to'htalib o'tilgan.

Maqolada miliy tarbiya, milliy qadriyatlar haqida tushunchalar berilgan. Milliy tarbiyani bolaning yoshligidanoq shakllantirish haqida so'z yuritilgan. Qiz bola tarbiyasi qanday nozikligi ekani haqida so'z yuritilgan. Oilada qizlar tarbiyasiga e'tibor berish zarur. Qizlarning kelajakda o'zini shaxs sifatida rivojlanishida onalarning roli muhim ekanligi ta'kidlangan.

Kalit so'z: *ota-ona, bola, ta'lim-tarbiya, bilim, milliylik, qadriyat, an'ana, urf-odat, xulq-atvor, mehr-muhabbat, odob-ahloq, xotin-qizlarning o'rni, yosh avlod, milliy madaniyat.*

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The education of a girl is the education of a nation-
Folk wisdom

THE ROLE OF THE MOTHER IN THE NATIONAL FOUNDATION OF THE EDUCATION OF GIRLS UP TO 7 YEARS OF AGE (ON THE EXAMPLE OF THE UZBEKISTAN NATIONALITY)

Annotation: *This scientific study reveals the role of the mother in the education of our younger generation of girls. The culture of many peoples living in our country shows the special position of women as the main regulators of family relations.*

This article discusses the essence of our national education, the importance of the family in raising a child, the role of parents in raising a girl, our national values, and traditions. Today, women, fulfilling various social roles, bear great responsibility for the future of our society.

The article discusses the upbringing of the growing younger generation, raising children in the family, the cooperation of parents, the neighborhood, and preschool educational organizations in raising children, the goals and tasks of education, and the role of mothers in raising children. It also touches on the views of our great-grandfathers on raising children.

The article provides concepts about national upbringing and national values. It talks about the formation of national upbringing from a young age. It talks about the subtleties of raising girls. It is necessary to pay attention to the upbringing of girls in the family. It is emphasized that the role of mothers in the future development of girls as individuals is important.

Keywords: *parents, children, education, knowledge, nationality, values, traditions, customs, behavior, love, etiquette, the role of women, young generation, national culture.*

Kirish

Milliy tarbiya- tushunchasi ko‘p qirrali bo‘lib, uning milliy qadriyatlari asosida olib boriluvchi maqsadga yo‘naltirilgan tarbiyaviy faoliyat, umuminsoniy tarbiyaning har bir xalqqa xos va mos betakror sakli, xalq va uning madaniyatini saqlab qolish, tiklash va rivojlantirishdan iboratdir. Mustaqillik yillarini boshlarida bizning buyuk ajdodlarimiz tomonidan ko‘p asrlar davomida yaratilib kelingan be’baho milliy va ma’naviy me’roslarimizni tiklash davlat siyosatida ko‘tarilgan muhim vazifa bo‘lib qolgan. Milliy tarbiyani bolaning yoshligidanoq shakllantirish, unga milliy qadriyatlarimizni, an’analarimizni singdirish zarur.

Milliy qadriyatlarni shakllantirish obyekt va subyekt sifatida tushunish kerak. Qadriyatlar - inson uchun ahamiyatli bo‘lgan millat manfaatlari yo‘lida xizmat qiladigan erkinlik, ijtimoiy adolat, tenglik, haqiqat, ma’rifat, go‘zallik, yaxshilik, halollik, burchga sodiqlik singari fazilatlarni o‘zida mujassamlashtiradi. Milliy qadriyatlar ma’lum bir millat, xalq va elatlarning o‘z tarixiy taraqqiyotida yaratadigan barcha moddiy va madaniy (ma’naviy) boyliklari yig‘indisidan iboratdir. Qadriyatlar turli-tuman bo‘lib, bular ichida “eng oliy qadriyat – inson” hisoblanib, qolgan barcha qadriyatlar unga xizmat qiladi. Inson qadriyatining ma’naviy, tarixiy hamda ta’limiy jihatlari o‘ziga xos yangicha fikrlash va yondoshishlarga asoslanadi. Tarbiya - arabcha so‘zdan olingan bo‘lib, parvarish qilmoq, ta’lim bermoq, o‘rganish, odob o‘rgatish, mehribonlik ko‘rsatish, himoya qilish singari ma’nolarni anglatadi.

Ta'lim va tarbiya bir-biri bilan uzviy bog'liqdir. Inson ilmli bo'lishni istasa u eng avvalo tarbiyalanishi kerak. Tarbiyali inson mukammal ilm sohibi bo'la oladi. Bolaga tarbiya berish avvalo oiladan boshlanadi. Biz oilani "kichik vatan" deb ataymiz. Aynan shu vatan bola uchun dastlabki tarbiya maktabi bo'ladi. Qaysidir ma'noda ota-ona farzandining birinchi o'qituvchisi hisoblanadi. Shuning uchun ota-onaning o'zi ham yuksak axloqiy sifatlarga ega bolmog'i kerak. Bolaga o'zi yaxshi fazilatlar bilan o'rnak bo'la oladigan ota-onaning farzandi kelajakda go'zal xulqli, yuksak ilmli, xalqqa foydasi tegadigan barkamol shaxs bo'ladi[93].

O'zbekiston respublikasi prezidentining "ma'naviy-ma'rifiy ishlar samaradorligini oshirish buyicha kushimcha choratadbirlar tugrisida" 2019 yil 3 maydagi pk-4307-son qarori ijrosini ta'minlash maqsadida 2019 yil 31 dekabrda uzluksiz ma'naviy tarbiya konsepsiyasi1 qabul qilindi: konsepsiyada "qiz bolalarda ona vatanga muhabbat, milliy g'oyaga sadoqat, mehnatsevarlik, jonkuyarlik, oilaparvarlik, ibo, xayo, nafosat, did-farosat, qanoat, vafodorlik, mehribonlik, raxmdillik, kamtarlik, ziyraklik, mehmondo'stlik, bolajonlik, murosalilik, orastalik, saranjomlik, xushmuomalalik, pazandalik kabi malakalarni shakllantirishga qaratilgan treninglar dasturlarini ishlab chiqish va amalga oshirish" vazifalari belgilangan[94]

O'zbekiston respublikasi prezidenti shavkat mirziyoyev tomonidan 2019 - yil 22 - aprelda imzolangan pq 4296 - sonli qaroriga asosan , qizlar uchun nikoh yoshi 17 dan 18 yoshga o'zgartilganligi va oila kodeksining 15 - moddasi birinchi qismi bilan nikoh yoshi erkaklar va ayollar uchun 18 yosh etib belgilanganligi, o'zbekiston respublikasi "xotin - qizlar va erkaklar uchun teng huquq hamda imkoniyatlar kafolatlari to'g'risidagi " qonuni hamda o'zbekiston respublikasi oliy majlisi senatining "2030 - yilga qadar o'zbekiston respublikasida gendr tenglikka erishish strategiyasini tasdiqlash haqida" qarori jamiyatdagi majud barcha sohalarda faoliyat ko'rsatib kelayotgan xotin - qizlar huquqini qonuniy jihatdan himoyalashga qaratilgan islohotlarning yana bir isbotidir. Oilaning tibbiy, huquqiy, iqtisodiy savodxonligini oshirish masalalari ilgari surilayotgan bir davrda, diniy savodxonlikka ham ega bo'lishlikni davrning o'zi taqozo qilyapti. Zero, islom dini yaxshlik, ezgulikni ulug'lovchi din bo'lishi bilan birga unda oila mustahkamligiga ham alohida urg'u berilgan. Bunda **"qur'oni karim"** va **"hadislar"** asosiy manba bo'lib xizmat qiladi.

Psixolog olimlar oilani kichik bir ijtimoiy guruh sifatida ta'riflaydilar. Oilani tashkil etuvchi bu shaxslar nikoh orqalihamda yaqin urug'chilik rishtalari bilan bir-biriga bog'langan bo'lib, ular o'rtasidagi munosabatlarga xos bo'lgan muhim jihatlar-o'zaro mehr-muhabbat, g'amho'rlik, ma'sulyatlilik va albatta, xayot,

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[93] Bola ta'lim-tarbiyasida ota-onaning tutgan o'rni. science and innovation international scientific journal volume 1 issue 7 uif-2022: 8.2 | issn: 2181-3337. 67 p

[94]VOLUME 1 | ISSUE 8 ISSN 2181-1784 Scientific Journal Impact Factor SJIF 2021: 5.423 718 w September 2021 www.oriens.uz

turmush tarzidagi umumiylikdir[95] “oila jamiyatning asosiy bo‘g`inidir hamda jamiyat va davlat muhofazasida bo‘lish xuquqiga ega” - deb belgilab qo‘yilgan o‘zbekiston respublikasi konstitutsiyasida. Dunyodagi barcha inson borki o‘zidan yaxshi nom qoldirish uchun farzandlariga yaxshi tarbiya berishni o‘ylaydi. Kelgusida farzandlari el-yurt xizmatiga yaraydigan bo‘lib yetishishini istaydi. Ayniqsa, qiz farzandlar odobi, axloqi uni boshqalarda ajralib turishi kerak.

Har bir farzand uchun ota-onaning e’tiborliligi, mehribonliligi zarur. Farzand tarbiyasida tasirchan kuch-qudrat bu – onadir. Ayniqsa, qiz farzand uchun onaning roli nihoyatda katta. Ona qiz farzand uchun misoli oyna kabidir. Ota-ona bola tarbiyasida juda sinchkovli bilan e’tibor berishi lozim. Agar ota-ona boladagi qobilyat, istedodni ertaroq bilib unga shart- sharoit yaratib bersa, bola shaxsining kamol topishiga katta yo‘l ochiladi. Bolani tarbiyalashda unga faqatgina ish buyurib yoki u bilan savol-javob qilibgina tarbiya bersa bo‘ladi deb o‘ylashlari kerak emas. Bolani ikki yo‘l bilan tarbiyalash lozim mehr va shirin so‘z.

Qiz bolaning tarbiyasi o‘ta nozik masala. Xalqimizda “onasini ko‘r-u qizini ol” degan naql ham bejiz aytilmagan. Qiz bola onasining yurish turishi munosabati, hunarmandligidan dars oladi. Qiz bolani yoshlikdan ozodalikka, shirinso‘zlikka, o‘zaro hurmat qilishga o‘rgatish kerak. Qizlarni – bo‘lajak onalarni jismonan sog‘lom va intellektual barkamol etib shakllantirish, ularning akademik litsey va kasb-hunar kollejlarida majburiy ta’lim olishini ta’minlash, zamonaviy bilim va kasb-hunarlarni puxta egallash, ularda mustahkam hayotiy pozitsiya va mustaqil fikrlashni shakllantirish, ularga munosib hayot kechirishning asosiy sharti hisoblanadi.

Qiz bola sha’niga bir dog‘ tushurmaslik uchun harakat qilish kerak. Bir dog‘ tushsa u uchmas bo‘ladi. Ohirgi paytlarda qiz bola tarbiyasi o‘ta og‘irlashib ketmoqda. Bu borada ota-onalardan ma’sulyatli bo‘lishlari talab qilinadi. Qiz bolaning nomiga tushgan dog‘ ya’ni isnodning ketishi qiyindir. Albatta bola tarbiyasi o‘ta murakkab va ma’suliyatlidir. Bu har bir ota-onadan o‘z ustida muntazam ishlashni, bolalar tarbiyasiga oid barcha ma’lumotlardan baxobar bo‘lib borishni talab etadi. Farzand tarbiyasi bu shunchaki tajriba, oddiy ko‘rsatma va bilimlar jamlanmasi emas, balki o‘z ichiga diniy-axloqiy bilimlar, tibbiyot, etika, psixologiya, pedagogika kabi sohalariga oid bilimlarni ham qamrab oladigan murakkab jarayondir.

Tadqiqot muammosining dolzarbligi so‘nggi paytlarda paydo bo‘lganligi bilan bog‘liq o‘n yilliklar davomida milliy madaniyat darajasining sezilarli yuksalishi qayd etildi. Ushbu tendentsiyaning keyingi rivojlanishi ko‘p jihatdan yosh avlodni tarbiyalash bilan bog‘liq bo‘ladi. Shu sababli jamiyat taraqqiyotining hozirgi bosqichi, shu jumladan xalqlar orasida boshqa madaniyatlar bilan o‘zaro munosabat, shuningdek, etnoijtimoiy yo‘nalishlarning shakllanish jarayoni. Bu

[95]Maktabgacha pedagogika. Toshkent.2017 yil. 326 bet.

jarayonlarning tugallanishi, o‘z navbatida, mintaqadagi ayollarning roliga bevosita ta’sir qiladi[96].

Ushbu maqolaning maqsadi ayollarining yosh avlodni tarbiyalashdagi rolini o‘rganishdir, namoyon bo‘lgan eng muhim xususiyatlarini aniqlash, ta’lim jarayonini modernizatsiya qilish uchun bugungi kunda mavjud bo‘lgan asosiy imkoniyatlarni o‘rganish, bolalar, o‘smirlar va yoshlar, uni takomillashtirishda, oilada ayollarning rolini hisobga olish ahamiyati berilgan. Maqolaning ilmiy yangiligi eng muhimini aniqlash orqali yosh avlodni tarbiyalashda hamda qiz bola tarbiyasida onaning rolining xususiyatlari va pedagogik bilimlarni kengaytirishda maqolaning ahamiyati ko‘rsatilgan. Insoniyat jamiyati taraqqiyotining hozirgi bosqichida yosh avlodni tarbiyalashda ayollarning roli va amaliy ahamiyati ushbu masala bo‘yicha keyingi tadqiqot ishlarining yo‘nalishini belgilashda ko‘rinadi.

Adabiyotlar tahlili

O‘zbek xalq pedagogikasida bolalarda ijobiy fazilatlarni, tarbiyani shakllantirish uchun birinchi navbatda oila a’zolari ota-ona, aka-uka, opa-singil va oilada kattalarga bo‘lgan mehr-muhabbat hissini tarbiyalash zarurligiga amal qilingani ko‘rinadi.

Oilada bolalarning kattalarga bo‘lgan mehribonligi tarbiya natijasidagina tarkib topadigan ma’naviy fazilat ekanligi ta’kidlanadi. Tarbiyani insonga yetkazishda otaonaning o‘rni beqiyosligini rasululloh (sollallohu alayhi va sallam) ta’kidlaydilar. Payg‘ambar alayhissalom: “jannat onalar oyog‘i ostidadir” deb marhamat qildilar. Kelgusida qizlar bo‘lajak ona, ardoqli uy bekasi bo‘ladilar. Biz qizlarimizga hayotning past-balandini, turmush qiyinchiligini yengib o‘tishlarini uqtirib o‘tishimiz shart. Har bir ona turmushga chiqayotgan qiziga u kelin bo‘lib borayotgan xonadon aziz va qadrli ekanligi, qiz bola kelin bo‘lib tushgan xonadoniga toshdek bo‘lishini uqtirishi lozimdir.

Abu hurayra(roziyallohu anhu)dan rivoyat qilinadi: “nabiy (sollallohu alayhi vasallam): “har bir tug‘ilgan bola faqat fitrat (sof tabiat) bilan tug‘iladi. Bas, ota-onasiuni yahudiy yoki nasroniy yoki majusiy qiladi...”. Bu hadisi sharifdan irsiyat, ya’ni biologik omil insonni shakllanishida asosiy o‘rin tutadi degan fikrni ilgari suruvchig‘arb faylasuf va oqimlarining fikrlari asossiz ekanini va tarbiyaning muhimligini bilib olamiz.

Jaloliddin davoniy ota-onaning bolani tarbiyalashdagi axamiyatiga keng to‘xtalgandi. Uning fikricha oila tarbiyasida ota ham, ona ham teng huquqli, teng ishtirok etishi bolaning yaxshi xulq odob qoidalarini muayyan bir kasbni egallashiga ko‘maklashishi ilm fan va kasb hunar egallashining moddiy asosi bo‘lmishoziq ovqat, kiyim kechak, kerakli buyum va jixozlarni yetkazib berish uchun jozibalik ko‘rsatishi kerak.

Jaloliddin devoniy “bolaning tarbiya olishi, odob-axloqli bo‘lishi uning keyingi tarbiyasiga bog‘liq. Chunki hayotda har kuni bola ko‘radigan, muloqotda bo‘ladigan narsalar uning xulqiga yaxshi va yomon tomondan ta’sir etadi. Bolada

[96]ISSN 1991-5497. мир науки, культуры, образования. № 5 (90) 2021. 141 s

har kuni insoniy xislatlar: yurish-turish qoidalari, xushmuomalalik, otaona va boshqa katta yoshlilarni hurmat qilish, to‘g‘rilik va rostgo‘ylikni o‘rganish, shirinsuxanlik, kamtarlik, so‘zlashuv odobiga rioya qilish kundalik turmushda o‘rganiladi”, deydi.

O‘rta osiyolik mutafakkirlardan forobiy va abu ali ibn sino insontarbiyasiga ta’sir etadigan omillar ahamiyatiga e’tibor berganlar. Sharq mutafakkirlarining merosida ta’lim-tarbiya masalalari muhim o‘rin egallaydi. Oilada farzand tarbiyasiga e’tibor katta beriladi. Abu nasr farobiyning fikriga ko‘ra bolani tarbiyasi bir maqsadga qaratilgan holda olib borilmog‘i kerak. Aqliy va axloqiy tarbiya birligidan iborat bo‘lishi lozim deya ta’kidlab o‘tgan.

Forobiy inson kamolotida ta’lim-tarbiyaning muhimligini ta’kidlab: munosib inson bo‘lish uchun insonda ikki xil imkoniyat: ta’lim va tarbiya olish imkoniyati bor. “ta’lim olish orqali nazariy kamolotga erishiladi, tarbiya esa kishilar bilan muloqotda axloqiy qadr-qimmatni va amaliy faoliyatni yaratishga olib boradigan yo‘ldir...” Deydi.

Abu ali ibn sino oila tarbiyasida ota-onaning o‘rniga alohida to‘xtalib: “bola tug‘ilgach, avvalo, ota unga yaxshi nom qo‘yishi, so‘ng uni yaxshilab tarbiya qilishikerak... Agar oilada tarbiyaning yaxshi usullaridan foydalanilsa, oila baxtli bo‘ladi” degan fikrni ilgari suradi[97].

Shaxsning kamol topishi murakkab va uzluksiz jarayondir. Uning tarbiyasi ota-onaga, mahalla ko‘yga, qo‘ni-qo‘shniga, do‘st-yorlarga ommaviy ahborot vositalariga, maktabiga bog‘liq. Rizouddin ibn faxriddinning “oila” risolasida bolaga qo‘pollik bilan emas, balki sabr-toqat, mehribonlik, matonatli bo‘lishi kerak degan fikrni ilgari surgan. (rizouddin ibn faxriddinnig “oila” risolasidan) bola tarbiyani birinchi navbatda oiladan o‘rganadi. Bolaga yaxshi ta’lim- tarbiya berish uning kelajagi asosi hisoblanadi. Oilada bola tarbiyasining asosi ona hisoblanadi. Oilada bola tarbiyasiniyangi o‘sib chiqayotgan niholga qiyoslanadi. Chunki, niholni boshida parvarishlab to‘g‘ri o‘stirsa, farzandni ham shu nihol kabi parvarishlashi lozim.

Ingliz olimi herbert spencer “tarbiya – bolaning shaxs sifatida har tomonlama rivojlanishini ta’minlashning amaliy jarayonlarini o‘z ichiga olishi kerak”-deb yozadi. Abu rayhon beruniy ta’lim va tarbiyaning maqsadi, uning vazifasi, mavqei inson, yosh avlodning rivojlanishi haqidagifikrlari chin ma’noda insonparvarlik zamirida yaratilgan. Bilim tarbiyani tabiatga uyg‘unligi mutaffakkirning barcha asarlarida kuzatishimiz mumkin. Mutaffakkir insonni tabiatning bir qismi deb hisoblaydi.

Mashhur publitsist va adabiyotshunos v. Belinskiy shunday deb yozgan edi: “o‘g‘il yoki qizni tarbiyalashda onaning ishtiroki nafaqat muhim, balki zarur: bolaning kelajakdagi xarakteri ko‘p jihatdan onaning ta’siriga bog‘liq. Uning

[97].Farzand tarbiyasida ota-onaning roli."Science and Education" Scientific Journal / Impact Factor 3,848 (SJIF) February 2023 / Volume 4 Issue 2 www.openscience.uz / ISSN 2181-0842 979

qo‘lida - bolaning uyg‘onish fikrlarini shakllanishida yo‘nalish berishi, onaning bunda mas’uliyati katta, burchi esa muqaddasdir”[98].

Irina lykova amin. “inson hayotida onaning o‘rni haqida gapiradigan bo‘lsak, bu har doim qadriyatlar: sevgi, do‘stlik, oila, mehnat, mehnat, o‘zi, hayot va salomatlikdir”.

Oila tarbiyasi bo‘yicha abu ali ibn sino “tadbir al-manozil” asarini yozgan. Unda olim ota-onaning bolani tarbiyalashdagi vazifalarini yoritgan. Ushbu asarda oilada ota-onaning vazifasi va burchlariga oilada munosabatlariga to‘xtalar ekan, ayniqsa, ota-onaning oilada mehnatsevarligi bilan farzandlarini ham kasb va hunarga o‘rgatish borasida muhim fikr yuritgan.[99]

Farzandning tarbiyalanishida ota-onalar diniy ta’limotlarga ham alohida ahamiyat berishlari lozim. Diniy tarbiyada bola vatanga muhabbat bilan ajdodlarga sadoqat ruhida tarbiyalanadi. Bola tarbiyalashda buyuk mutafakkir bobomiz mirzo ulugbek shunday deganlar: “oilada ota-onalar ayniqsa o‘qimishli ota-onalar o‘z farzandlarining haqiqiy inson bo‘lib kamol topishiga alohida e’tibor berishlari lozim".

Shunday ekan, har bir ota-ona farzandining tarbiyasiga ko‘proq e’tibor berishi, ularga alohida vaqt ajratib, odob-axloqdan dars berishi, yomonlarga yaqin yo‘latmasligi lozim ekan. Har bir ota-ona farzand tarbiyasida albatta ota-bobolarning fikrlariga e’tiborli bo‘lishlari kerak. Ana shunda ular ota-onasi va el-yurtiga xizmat qiladigan, ularga ikki dunyoda obro‘ olib keladigan yuzlarini yorug‘ va boshlarini yuqori qiladigan farzand bo‘lib ulg‘ayishadi. Ota-ona bolaning vaqtini to‘pa qamrab oladigan zarur va manfaatli mashg‘ulotlarni tayyorlashi kerak va ana o‘sha mashg‘ulotlar bolaning ongini rivojlantirivchi bo‘lishi shart[100]

Tarbiya haqida taniqli pedagog a.s.makarenko “tarbiyaviy ta’sirning g‘oyat qudratli ta’sir ko‘rsata olishiga ishonchim komil. Agar odam yomon tarbiyalangan bo‘lsa, bunda faqat tarbiyachilar aybdorligiga aminman. Agar bola yaxshi bo‘lsa buning uchun u tarbiyadan, o‘z bolaligidan karzdordir”[101] deb ta’kidlab o‘tgan. Farzand tarbiyasi jarayonida bola huquqlarining kamsitilmasligi talab etiladi. Oilaviy tarbiya ijtimoiy tarbiyaga nisbatan bolalarning ruhiy olamiga, hissiyoti va tuyg‘ulariga chuqur ta’sir ko‘rsatadi. Taniqli pedagog a.s.makarenko besh yoshgacha bo‘lgan tarbiya bolaning shaxsiyati shakllanishida o‘ta muhim ahamiyatga ega ekanini qayd etib o‘tgan. Bu haqda u shunday deb yozgan: “...tarbiyaning bosh asosi besh yoshda nihoyasiga yetadi, demak, siz besh yoshgacha nima qilgan bo‘lsangiz, bu tarbiyaviy jarayonning 90 foizini tashkil etadi, keyingi tarbiya esa qayta tarbiyalash negizida davom etadi”. Mana shu jarayonda bola tarbiyasiga o‘ta e’tiborli bo‘lish lozim deya ta’kidlab o‘tadi.[102]

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[98]Psixolog - onaning o'g'li va qizini tarbiyalashdagi o'rni haqida. Oila bo'yicha mutaxassis. GKU SO"Voroshilovskiy TsSON". Svetlana Andreevna Chernousko. 2021.

[99]Oila pedagogikasi toshkent2007 8-b.

[100] ["Science and Education" Scientific Journal / Impact Factor 3,848 (SJIF) February 2023 / Volume 4 Issue 2 978-980 p].

[101]A.S. Makarenko “Художественная литература о воспитании детей” Пед. Соч. М. 1986. Т.7.30бет

[102]https://religions.uz/uz/news/detail?id=12

Tadqiqot metodologiyasi

Bugungi kunda jamiyatimizda shakllanayotgan oilalalarda qizlar tarbiyasi va kamolotiga alohida e‟tibor berilmoqda. Qiz farzand borliqni ota ruhiyatida ko‘radi, qizlar uchun ota suyanuvchi tog‘, otasiz o‘zini erkin hotirjam tutolmaydi. Hayotda o‘rnini topishi ham qiyin bo‘ladi. Shu sababdan qiz bolaning hayotida otaning roli katta va beqiyosdir. Shu bilan birgalikda uning ruhiy olamini ham to‘ldiruvchi eng asosiy obraz ota hisoblanadi.

Shunday ekan, har bir ota-ona farzandining tarbiyasiga ko‘proq e’tibor berishi, ularga alohida vaqt ajratib, odob-axloqdan dars berishi, yomonlarga yaqin yo‘latmasligi lozim ekan. Ota-ona bolaning vaqtini to‘pa qamrab oladigan zarur va manfaatli mashg‘ulotlarni tayyorlashi kerak va ana o‘sha mashg‘ulotlar bolaning ongini rivojlantirivchi bo‘lishi shart[103].

Tadqiqot ishimning yana bir metodologik o‘rganish qismida 7 yoshgacha bo‘lgan qiz bola tarbiyasida onaning rolida o‘yinlar ahamiyatini ham ko‘rib chiqdik. Bunga misol tariqasida "oila" o‘yini oldik.

- **“oila” o‘yini:** uy xo‘jaligi, oila byudjeti, oilaviy munosabatlar, birgalikda dam olish haqida g‘oyalarni shakllantirish, oila a’zolariga muhabbat, do‘stona, g‘amxo‘rlik va ularning faoliyatiga qiziqishni rivojlantirish. Bu o‘yinda qizlarni oilaga bo‘lgan munosabatini yaxshilash, oila a’zolariga bo‘lgan mehrni, e’tiborini kuchaytirish maqsadida bu o‘yinni qo‘llash mumkin.

Shunday qilib, 7 yoshgacha bo‘lgan qiz bolaning yuksak tarbiyasida amaliy faoliyatda o‘yinlardan foydalanib amaliy ish olib borish jarayonida qiz bolani tarbiyasida ona bilan qiz birgalikda yoki onani ko‘magi asosida o‘yinlar o‘ynash qiz bolani tarbiyasig atasir etishini guvohi bo‘ldik. Bunga misol qilib yuqoridagi "oila" o‘yinini keltirdik.

Bolalar bog‘chasiga borishning boshlanishi bilan bolaning hayoti o‘zgaradi, u nafaqat oilada, balki birinchi bolalar guruhida boshqa bolalar bilan muloqot qilishni o‘rganadi; “bola nimaga jalb qilinganiga e’tibor bering: ba’zi bolalar rasm chizishni yaxshi ko‘radilar, boshqalari esa raqsga yoki sportga ko‘proq qiziqishadi. Bolaning bolalar bog‘chasiga qanday moslashishini, u o‘z xohishi bilan guruhda qolishi yoki boshqa bolalar bilan qanday muloqot qilishini ko‘rib chiqing. Bolalarning tabiiy intilishlarini yoshligidan rag‘batlantiring, shunda kelajakda ular to‘liq rivojlanib, haqiqiy iste’dod egasi bo‘lishlari mumkin», - deya sharhlaydi psixolog[104].

Biz tadqiqot mavzuyimiz doirasida maktabgacha ta’lim tashkilotlarida so‘rovnoma, intervyu metodlaridan foydalandik.

Maktabgacha ta’lim tashkilotiga tashrif buyurgan ***ota-onalar, tarbiyachilardan intervyu va so‘rovnoma metodlarimizni qo‘lladik.*** Bu metodimizning natijasida qiz bolaning tarbiyasida otani ham, onani ham o‘rni katta ekani, farzandlarimizga milliy tarbiya kerakligi haqida javoblar oldik. So‘rovnoma savollari quyidagilardan iborat: so‘ronomamizning natijasi 1-rasmda keltirilgan.

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[103] "Science and Education" Scientific Journal / Impact Factor 3,848 (SJIF) February 2023 / Volume 4 Issue 2 978-980 p

[104]https://xn--e1aaancaqclcc7aew1d7d.xn--80adxhks/articles/rol-materi-v-vospitanii-rebenka/

N	Savollar	Ha	Yo‘q	Bilmayman
1	Farzandingiz ko‘proq sizga(otasiga) taqlid qiladimi?	60%	10%	30%
2	Farzandingizni maktabgacha ta’lim tashkilotiga ko‘proq o‘zingiz olib kelasizmi?	50%	50%	0%
3	Qiz farzandni tarbiyalashda ona o‘rnak bo‘lishi kerakmi?	100%	0%	0%
4	Oilangizda farzand tarbiyasi bilan turmush o‘rtog‘ingiz ham shug‘ullanadimi?	50%	30%	20%
5	Farzandingiz tarbiyalashda unga tarbiyaviy ahamiyatga ega kitoblar o‘qib berasmi?	20%	80%	0%
6	Oila tarbiyasida onaning be e’tiborligi oila muhitini qiyinlashtiradimi?	50%	0%	50%
7	Farzandlarmiz milliyligimiz, milliy tarbiya olishi uchun mttda sharoitlar qanday deb o‘ylaysiz?	0%	70%	30%
8	Milliyligimiz milliy qadriyatlarimiz haqida farzandingizga so‘zlab berasiz?	20%	80%	0%
9	Milliy tarbiya o‘zi bola uchun kerakmi?	40%	20%	40%
1	Milliy tarbiyani shakllantirishda milliy qo‘g‘irchoqlardan foydalanasizmi?	10%	10%	80%

Qiz oiladagi xulq-atvorning xususiyatlarini, kundalik vaziyatlarga, mehnatga bo‘lgan munosabatini eslaydi va o‘z hayotida xuddi shunday narsalarni gavdalantirishga intiladi.

O‘tkazgan metodlarimiz natijasiga ko‘ra farzand tarbiyasida ota-onaning o‘rni beqiyosligi aniqlandi, chunki ular bolaning hissiy, ijtimoiy va kognitiv rivojlanishining asosiy me’morlari bo‘lib xizmat qiladi. Onalar qiz bolani tarbiyalashda ko‘p qirrali mas'uliyat va kelajagini shakllantirishga qanday ta’sir ko‘rsatishida roli va ahamiyati aniqladik. Buni bir qancha metodikalarda ko‘rib chiqamiz.

7 yoshgacha bo‘lgan qiz bolalar miliy tarbiydasini shakllantirishda onalarni shaxsiy namuna qilib olish va tushuntirish, suhbat, ishontirish, talab, nazorat, birga mashq qilish, mukofot kabi usullardan foydalanish maqsadga muvofiq bo‘ladi. Oilaviy tarbiya hissiy shaxsiy xususiyatlarga egadir. Onaning bolaga, bolaning onaga bo‘lgan cheksiz sevgisiga asoslanadi. Onalarning asosiy vazifalaridan biri hissiy qo‘llab-quvvatlash va tarbiyalashdir. Bola tug‘ilgan paytdan boshlab, ular xavfsizlik va sevgi hissi uchun ota-onasiga tayanadilar. Issiq va qo‘llab-

quvvatlovchi uy muhiti bolaning oʻzini oʻzi qadrlashi va hissiy barqarorligini oshirishga yordam beradi. Shuning uchun biz misol tariqasida “Alla”ni tanlab oldik. Ona alla aytish jarayoni farzandlariga his-tuygʻulari bilan birgalikda milliy tarbiyani shakllantirishda muhim rol oʻynaydi, keyinchalik hayotda sogʻlom shaxslararo munosabatlar uchun asos yaratadi.

Biz tadqiqotimizda qoʻllagan metodlarizga koʻra milliy tarbiyada onaning rolini shakllantirish uchun quyidagi usullardan foydalandik:

1. “Alla”

2. “ertak terapiya”

3. “qoʻl mehnati”

“Alla”- Tadqiqotchilarning aniqlashicha, alla bola ruhiyati, salomatligiga va bardam-baquvvat oʻsishiga ijobiy ta’sir koʻrsatarkan. Ona va bolani koʻrinmas rishta bilan bogʻlab, ona organizmi tiklanishiga ham katta yordam berar ekan.[105]

Alla aytay tong otguncha,
Uyqu kelmas kun botguncha,
Nuri diydam, alla,
Qoʻzichogʻim, alla.
Alla, alla, alladan-ay,
Kokillari tillodan-ay.
Oʻqib kelgan mullodan-ay,
Alla, qoʻzim, alla.
Alla, qoʻzim, ol, qoʻzim,
Olmalari na qoʻzim.
Anjirlari boʻl qoʻzim,
Alla, boʻlam, alla.

“ertak terapiyasi”-

“Qoʻl mehnat”- Qoʻl mehnati, shuningdek, chinakam bolalikni koʻrsatuvchi qoʻgʻirchoqlar har bir oila farzandi uchun zarur deb oʻylaymiz. Oilada farzand uchun milliylik aks etgan qoʻgʻirchoqlar uning kelajakdagi oʻylari va orzularini amalga oshishiga xizmat qiladi. Shuning uchun milliy qoʻgʻirchoqni uy sharoitida ona bilan birgalikda bolaning qoʻgʻirchoq yasashi bolada hissiy rivojlanishga va milliyligimizga muhabbati oshishiga ta’sir qiladi.

“Zebo qizaloq” koʻrik tanlovi

7 yoshgacha boʻlgan qiz bolaning yuksak tarbiyasida oyinlarni qoʻllashda turli xil metodlardan foydalanish maqsadga muvofiq. Ushbu maqsadni amalga oshirish uchun Fargʻona viloyati Qoʻqon shahar №12-sonli DMTT da 5 nafar qiz bolalar oʻrtasida “Zebo qizaloq” tanlovini oʻtkazdik. Bu koʻrik tanlovimizda milliy qadriyatlarimizni tushuntirish, biz aziz boʻlgan nonimizni yasash, miliy qoʻgʻirchogʻimizni bezatish (ya’ni bunda har xil millatlarning milliy liboslari bilan bezatishlari kerak boʻladi.) Bunda qiz bolalarimz uchun hayot koʻnikmalari paydo boʻladi. Bunda qizaloqlarimiz uchun turli xil naminatsiyalar beriladi.

[105] https://xs.uz/uz/post/alla-ozlikni-anglash-sar

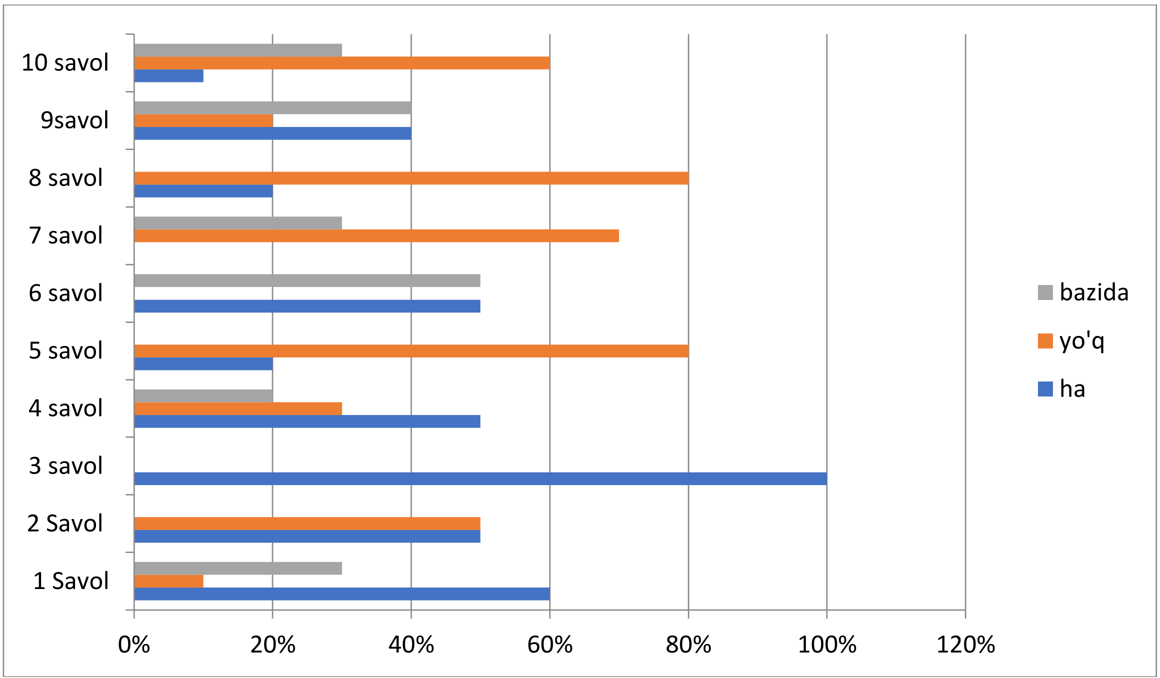
“Ertak terapiya” - bu ta’lim, xulq-atvor ni to‘g‘irlash, psixologik og‘ishlarining oldini olish, psixologik va psxo terapevtik yordam va boshqa sohalardagi muammolarni ha qilish uchun ertakdan foydalanadigan psixologiya usuli. Bu usul yordamida bolaning ona va bola munosabatini yaxshilash, onaga ko‘maklashish, onani qadrlash, ona va qiz munosabatini yaxshilash maqsadida qiz bolalarimizga barchamizga tanish bo‘lgan “Zumrad va Qimmat” ertagimizni misol qilib aytib o‘tdik.

Natijalar va muhokama

7 yoshgacha bo‘lgan qiz bolalar yuksak tarbiyasining milliy poydevorida onaning roli mavzusida maktabgacha ta’lim tashkilotida olib borilgan tadqiqotimizda qo‘llanilgan so‘rovnoma metodlari orqali natijasi quyidagi jadvalda keltirilgan.

Tadqiqotimiz natijasi shuni ko‘rsatadiki qiz bola tarbiyasi uchun milliyligimiz, milliy tarbiyamiz, milliy tarbiyani shakllantirishda milliy qo‘g‘irchoqlarimizni o‘rni muhim ekanligi haqida onalar bilan so‘rovnoma o‘tkazishda 10%onalar foydalanar ekan. Qolgan onalar kamdan-kam hollarda milliy qo‘g‘irchoqlardan foydalanishar ekan.

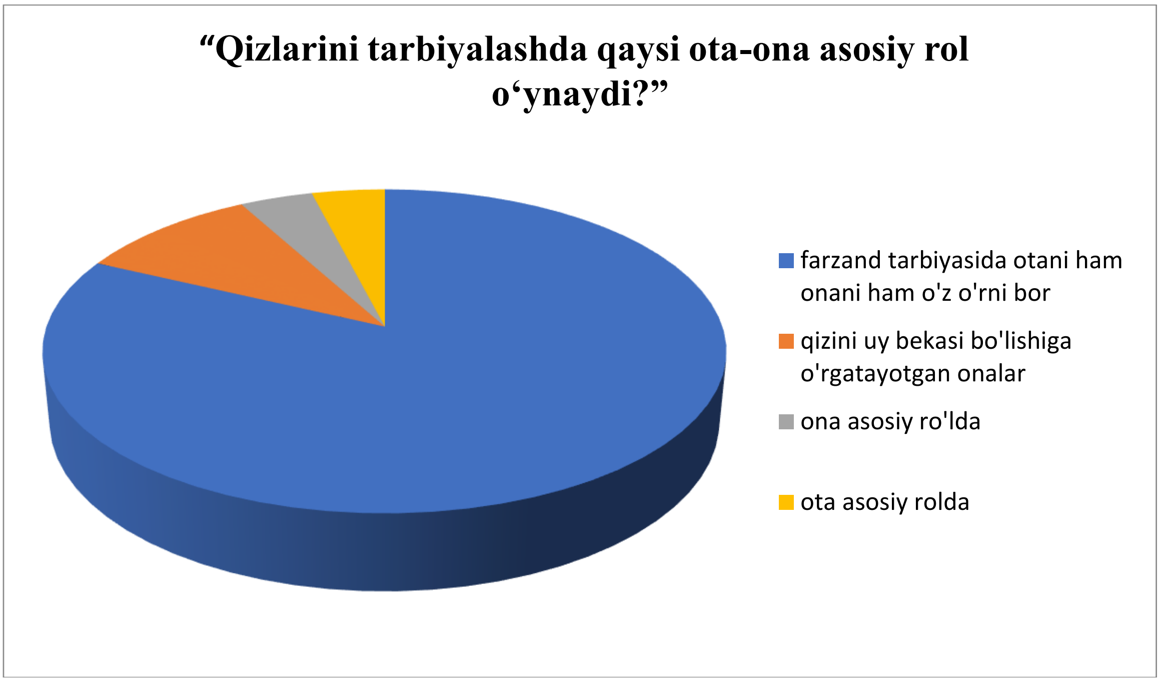
1-rasm



Bizning intervyu metodimiz quyidagi diagrammada keltirilgan:

“Qizlarini tarbiyalashda qaysi ota-ona asosiy rol o‘ynaydi?” degan savolga javob quyidagicha:

3-rasm



Oilada ota va onaning roli muhim.

Xulosa

Xulosa qilib aytganda, ona bolalar uchun hayotning eng muhim va mas’ul tomonlaridan biridir. 7 yoshgacha bo‘lgan qiz bolalar uchun onaning roli juda katta ahamiyatga ega. Ona bolalarining hayoti boyicha ota-onalarining munosabatlari, ularning psixologik tarbiyalari, ta’lim-tarbiyalari va ijtimoiy integratsiyasi onaning rolini ko‘rsatadi. Onalar o‘zlarini bolalarga bag‘ishlaydilar va ularning jismoniy va ruhiy rivojlanishiga katta ta’sir ko‘rsatadilar. Bu davrda ona bolani himoya qilishi, uning xatti-harakatlari bilan aloqada bo‘lishi, ta’lim-tarbiya berishi, sog‘lom ovqat tayyorlashi, tibbiy yordam ko‘rsatishi kabi vazifalarni bajaradi.

Bolalarning yoshida onaning roli hayotiy ko‘milganliklarini shakllantiradi va ularni kelajakda mustaqil shaxslar sifatida tayyorlaydi. Onaning sevgi, qo‘llab-quvvatlash va rejalashtirish kuchi bolalarga o‘zlarini rivojlantirishda yordam beradi.

7 yoshgacha bo‘lgan bolalar talim tarbiyasi juda muhimdir, chunki bu yoshlar inson shaxsiyatining rivojlanishi uchun kritik bosqichlardan birini tashkil etadi. Bu davrda bolalar o‘zlarini jismonan va ma’naviy ravishda rivojlantirishadi. 7 yoshgacha bo‘lgan bolalar talim tarbiyasi quyidagi asosiy xususiyatlarga ega bo‘ladi: ovqatlanish, jismoniy rivojlanish, sport mashg‘ulotlari, ota-onalar muhiti, sog‘lig‘i, psixologik qo‘llash, bilimini oshirish shular bola shaxsiyatining asosiy xususiyatlaridir.

Qiz bola 7 yoshida muhim kognitiv, ijtimoiy- hissiy rivojlanish bosqichida bo‘ladi. 7-yoshli qiz farzand tarbiyaashda ota-onalar birnechta jihatlariga ham e’tiborli bo‘lishlari kerak. 7 yoshli qizni tarbiyalash mustaqillikni rivojlantirish, chegaralarni belgilash, ijtimoiy ko‘nikmalarni rivojlantirish, hissiy qollab-quvvatlash, o‘rganishni rag‘batlantirish, jismoniy salomatlikni saqlash va samarali muloqot kanallarini o‘rnatish kabi turli jihatlarni muvozanatlashni o‘z ichiga oladi.

Xulosa sifatida shuni ta’kidlash joizki, qizlar millat ko‘zgusi, kelajak avlodni barkamol va etuk shaxs bo‘lib shakllanishida otalarning rolini oshirish maqsadga muvofiqdir. Chunki ota-onalarning oqilona ta’lim-tarbiyasi orqali farzanlarda o‘ziga ishonch va mustaxkam iroda shakllanadi.

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4. Maktabgacha ta’lim tashkilotida miliy o‘yinchoqlarni ko‘proq bezatish unda qiz bola va ona, ayol obrazi shakllanadi.

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YO'L BELGILARINI ANIQLASH VA TANIB OLISH ALGORITMLARINI ISHLAB CHIQISH: NEYRON TARMOQLARI VA GENETIK ALGORITMLARGA ASOSLANGAN YONDASHUV

Annotatsiya: *Ushbu maqolada yo'l belgilarini avtomatik aniqlash va tanib olish tizimlarini ishlab chiqish bo'yicha keng qamrovli tadqiqot natijalari keltirilgan. Zamonaviy transport tizimlarida avtonom harakatlanish texnologiyalari rivojlanishi bilan yo'l belgilarini yuqori aniqlik va tezlik bilan tanishning ahamiyati tobora oshib bormoqda. Tadqiqotda tasvirni normallash, yo'l belgilarini aniqlash va tanib olish bosqichlarini o'z ichiga olgan kompleks algoritm tavsiflanган. Ishlab chiqilgan tizim neyron tarmoqlari arxitekturasiga asoslangan bo'lib, undagi o'qitish jarayoni uchun xatolikning orqaga tarqalishi (Backpropagation), Quick Propagation, Resilient Propagation algoritmlari va genetik algoritmlar qo'llanilgan. Eksperimental natijalar tizimning turli sharoitlarda 96.8% gacha aniqlik ko'rsatkichiga ega ekanligini tasdiqlaydı. Maqolada tasvir ishlash algoritmlari, xususan rangli tasvirlarda yo'l belgilarini ajratib olish, geometrik shaklarni aniqlash va neyron tarmoqlari yordamida klassifikatsiya qilish jarayonlari batafsil tahlil qilingan. Ishlab chiqilgan dasturiy majmua real vaqt rejimida ishlash imkoniyati bilan ta'minlangan.*

Kalit so'zlar: *yo'l belgilari, tasvir tanishni, neyron tarmoqlari, kompyuter ko'rishu, avtonom transport, mashinali o'rganish, genetik algoritmlar*

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DEVELOPMENT OF ALGORITHMS FOR THE DETECTION AND RECOGNITION OF ROAD SIGNS: AN APPROACH BASED ON NEURAL NETWORKS AND GENETIC ALGORITHMS

Abstract: *This article presents the results of a comprehensive study on the development of automatic detection and recognition systems for road signs. With the development of autonomous driving technologies in modern transport systems, the importance of recognizing road signs with high accuracy and speed is increasing. The study describes a complex algorithm that includes the steps of image normalization, road sign recognition, and recognition. The developed system was based on the architecture of neural networks, in which algorithms for reverse error propagation (backpropagation), rapid propagation, sustained propagation and genetic algorithms were used for the learning process. Experimental results confirm that the system has an accuracy rate of up to 96.8% under various conditions. The article analyzes in detail image processing algorithms, in*

particular, the processes of recognizing road signs in color images, recognizing geometric shapes, and classifying using neural networks. The developed software package provides the ability to work in real time.
Keywords: *road signs, image recognition, neural networks, computer vision, autonomous transport, machine learning, genetic algorithms*

Kirish

Zamonaviy dunyoda avtonom transport vositalari va haydovchilarga yordam beruvchi tizimlar (ADAS - Advanced Driver Assistance Systems) tobora keng tarqalmoqda. Ushbu tizimlarning muhim komponentlaridan biri yo'l belgilarini avtomatik aniqlash va tanib olish modullari hisoblanadi. Yo'l xavfsizligini ta'minlash, yo'l-transport hodisalarini oldini olish va harakat qoidalarini avtomatik nazorat qilish kabi muhim vazifalarni echishda ushbu texnologiyalar muhim rol o'ynaydi. Yo'l belgilarini tanish tizimlari kompyuter ko'rishi (Computer Vision), tasvir ishlash (Image Processing) va mashinali o'rganish (Machine Learning) sohalarining integratsiyasidan iborat murakkab texnik echimlarni ifodalaydi. Ushbu tizimlarning asosiy qiyinchiliklari turli yoritish shartlari, ob-havo sharoitlari, yo'l belgilarining turli hajm va burchak ostida ko'rinishiga moslashish zarurligidan kelib chiqadi. Mavjud echimlar tahlili ko'rsatishicha, yo'l belgilarini aniqlash va tanish sohasida qo'llanilayotgan asosiy yondashuvlar orasida an'anaviy kompyuter ko'rishi usullari, neyron tarmoqlari va chuqur o'rganish algoritmlari mavjud. Har bir yondashuvning o'ziga xos afzalliklari va cheklovlari mavjud bo'lib, optimal echim topish muhim ilmiy va amaliy ahamiyat kasb etadi. Ushbu tadqiqot yo'l belgilarini aniqlash va tanib olish uchun kompleks yondashuvni taqdim etadi, unda klassik tasvir ishlash usullari neyron tarmoqlari va genetik algoritmlar bilan birlashtirilgan. Ishlab chiqilgan tizim real sharoitlarda samarali ishlash va yuqori aniqlik ko'rsatkichlariga ega bo'lish uchun mo'ljallangan.

1. Umumiy yechim arxitekturasi

Yo'l belgilarini aniqlash va tanib olish tizimi quyidagi asosiy bosqichlardan iborat:

1. Kirish tasvirini olish va dastlabki ishlov berish
2. Tasvirni normallash va shovqinni bartaraf etish
3. Yo'l belgilarini aniqlash (Detection)
4. Aniqlangan belgilarni tanib olish (Recognition)
5. Natijalarni qayta ishlash va tizimga uzatish

Tizimning umumiy arxitekturasi modulyar printsipga asoslangan bo'lib, har bir modul mustaqil tarzda takomillashtirilishi va almashtirilishi mumkin. Bu yondashuv tizimning moslashuvchanligini va kengaytirish imkoniyatlarini ta'minlaydi.

1.1 Algoritmning tavsifi va tuzilmaviy sxemasi

Ishlab chiqilgan algoritm quyidagi asosiy komponentlardan iborat:

- **Tasvir olish moduli:** Videooyina yoki kameradan olingan tasvirlarni real vaqt rejimida qabul qiladi va dastlabki formatlash amallarini bajaradi.

- **Dastlabki ishlov berish moduli:** Tasvir sifatini yaxshilash, kontrastni oshirish va shovqinni kamaytirish funksiyalarini bajaradi.
- **Aniqlash moduli:** Tasvirda yo'l belgilarining mavjudligini aniqlaydi va ularning joylashish koordinatalarini aniqlaydi.
- **Tanish moduli:** Aniqlangan obyektlarni neyron tarmoq yordamida klassifikatsiya qiladi va aniq yo'l belgisi turini aniqlaydi.
- **Qaror qabul qilish moduli:** Olingan natijalarni tahlil qilib, tizimga tegishli signallarni uzatadi.

Kirish tasviri → Normallash → Aniqlash → Tanish → Chiqish natijasi
↓ ↓ ↓ ↓ ↓
Formatlash Shovqin bartaraf ROI Neyron Klassifikatsiya
etish ajratish tarmoq natijasi

1.2 Tasvir ishlash bosqichlari

1.2.1 Tasvirni normallash

Tasvirni normallash bosqichi tizimning turli sharoitlardagi barqarorligini ta'minlash uchun muhim ahamiyat kasb etadi. Ushbu bosqichda quyidagi amallar bajariladi:

Yoritish tuzatishi: Turli yoritish sharoitlarida olingan tasvirlarni standart ko'rinishga keltirish uchun gistogramma tenglash (Histogram Equalization) usuli qo'llaniladi:

Heq(i)=L−1N∑j=0ih(j)H_{eq}(i) = \frac{L-1}{N} \sum_{j=0}^{i} h(j)Heq(i)=NL−1∑j=0ih(j)

bu yerda $H_{eq}(i)$ - tenglashtirilgan gistogramma, L - intensivlik darajalari soni, N - tasvirdagi piksellar umumiy soni, $h(j)$ - asliy gistogramma.

Rang normalizatsiyasi: RGB rang modelidan HSV (Hue, Saturation, Value) modeliga o'tish orqali rang ma'lumotlarini yoritish o'zgarishlaridan mustaqil ravishda ishlov berish:

H=arctan(3(G−B)2R−G−B)H = \arctan\left(\frac{\sqrt{3}(G-B)}{2R-G-B}\right)H=arctan(2R−G−B3(G−B)) S=1−3min(R,G,B)R+G+BS = 1 - \frac{3\min(R,G,B)}{R+G+B}S=1−R+G+B3min(R,G,B) V=R+G+B3V = \frac{R+G+B}{3}V=3R+G+B

O‘ZGARTIRISH FORMULALARI:

Quyidagi formulalarda barcha qiymatlar odatda [0, 1] oralig‘ida normalizatsiya qilingan bo‘ladi (ya’ni R, G, B ∈ [0, 1]).

1. HUE (H) – RANG BURCHAGI

$$H = \arctan\left(\frac{\sqrt{3}(G-B)}{2R-G-B}\right)$$

1. Bu formula rangning **asosiy yo‘nalishini** (Hue) hisoblaydi.
2. Trigonometriyadan foydalanilgan: bu **rang g‘ildiragidagi burchak**ni ifodalaydi.
3. Hue — bu qaysi **asosiy rang** (qizil, yashil, ko‘k) ustunligini bildiradi.
4. Arctan yordamida 0°–360° oralig‘ida rang burchagi aniqlanadi.

5. Saturation (S) – To‘yinganlik:

$$S = 1 - \frac{3 \cdot \min(R, G, B)}{R + G + B}$$

1. To‘yinganlik – bu rangning "qanchalik sof" yoki "och" ekanligini bildiradi.
2. Agar R = G = B bo‘lsa (kul ranglar), to‘yinganlik 0 bo‘ladi.
3. S qiymati 0 (kul) dan 1 (to‘liq rang) gacha o‘zgaradi.
4. **Minimum** qiymat rangdagi eng kam komponentni bildiradi.

Value (V) – Yoritish darajasi:

$$V = \frac{R + G + B}{3}$$

1. Value — bu tasvirning umumiy **yorqinligini** bildiradi.
2. RGB komponentlarining **o‘rtacha qiymati** sifatida olinadi.
3. 0 – qora, 1 – oq.

MISOL: AYTAYLIK, R = 0.9, G = 0.5, B = 0.2
HISOBLAYMIZ:

- $H = \arctan\left(\frac{\sqrt{3}(0.5-0.2)}{2*0.9-0.5-0.2}\right)$
- $S = 1 - \frac{3 \cdot \min(0.9, 0.5, 0.2)}{0.9+0.5+0.2} = 1 - \frac{3 \cdot 0.2}{1.6} \approx 0.625$
- $V = \frac{0.9+0.5+0.2}{3} = 0.533$

Shovqin bartaraf etish: Gaussian filtri yordamida tasvirdagi shovqinni kamaytirish:

Gaussian filtri formulasini batafsil tushuntirilgan:
FORMULANING TUZILISHI:
G(X,Y) = (1/2ΠΣ²) × E^(-(X²+Y²)/2Σ²)
Bu formulaning har bir qismi muhim ma'noga ega:
FORMULANING QISMLARI:

1. NORMALIZATSIYA KOEFFITSIENTI: 1/(2ΠΣ²)

- **Maqsad**: Barcha qiymatlar yig'indisi 1 ga teng bo'lishini ta'minlaydi
- **2π**: Aylananing perimetri (geometrik ma'no)
- **σ²**: Dispersiya (tarqalish darajasi)
- **Natija**: Filtr "og'irliklarining" umumiy yig'indisi = 1

2. EKSPONENSIAL QISM: E^(-(X²+Y²)/2Σ²)

- **x² + y²**: Markazdan masofa kvadrati (Pifagor teoremasi)
- **Minus belgisi**: Markazdan uzoqlashgan sari qiymat kamayadi
- **2σ²**: Kamayish tezligini boshqaradi

3. KOORDINATALAR (X, Y)

- **Markaz**: (0, 0) - filtrning o'rtasi
- **Musbat/manfiy**: Markazdan barcha yo'nalishlardagi masofalar
- **Radius**: r = √(x² + y²)

SIGMA (Σ) PARAMETRINING TA'SIRI:

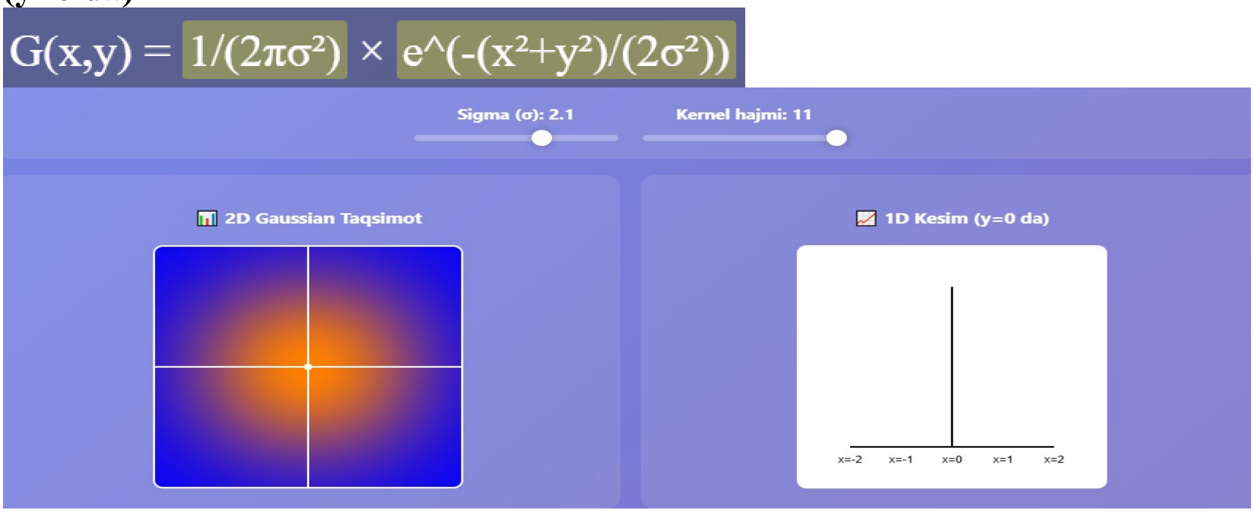
Gaussian Filtri Formulasi:
Interactive artifact
MATEMATIK TAHLIL:
FORMULANING ASOSIY XUSUSIYATLARI:
1. **Markazda maksimal qiymat**: $G(0,0) = 1/(2\pi\sigma^2)$
2. **Masofaga qarab kamayish**: Eksponensial ravishda pasayadi
3. **Simmetriya**: Barcha yo'nalishlarda bir xil (rotatsion simmetriya)
4. **Normalizatsiya**: Barcha qiymatlar yig'indisi = 1

SIGMA PARAMETRINING TA'SIRI:

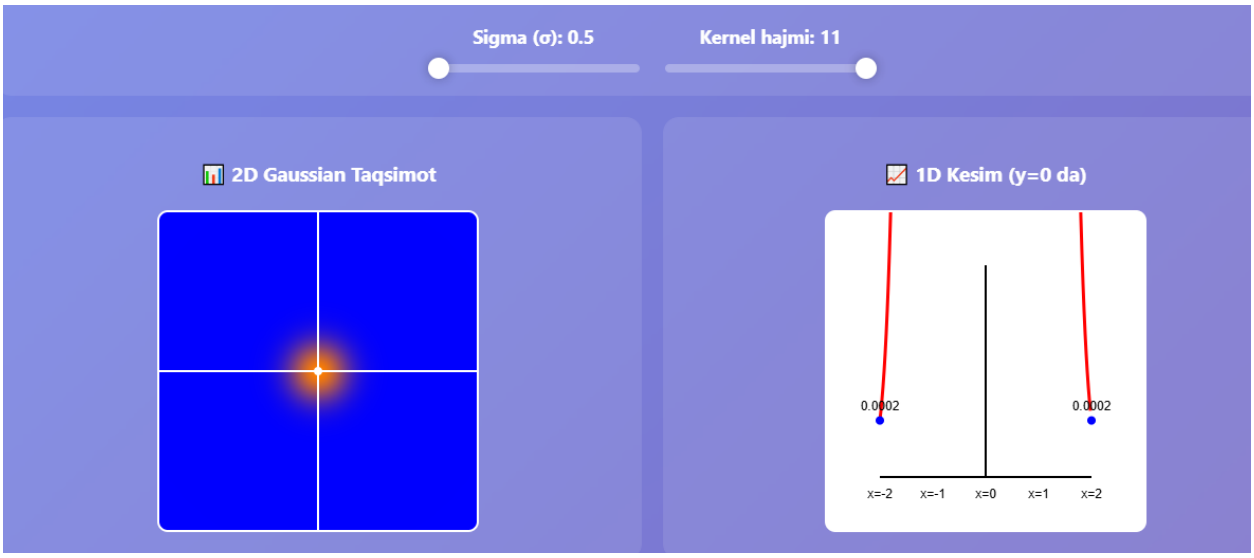
σ qiymati	Ta'sir	Qo'llanilishi
0.5-1.0	Keskin filtr	Nozik shovqin
1.0-2.0	Muvozanatli	Umumiy maqsad
2.0+	Yumshoq filtr	Kuchli shovqin

FORMULA QANDAY ISHLAYDI:
1. **Har bir piksel** uchun qo'shni piksellarni ko'rib chiqadi
2. **Masofa hisoblanadi**: $\sqrt{x^2 + y^2}$
3. **Og'irlik beriladi**: Yaqin piksellar ko'proq ta'sir qiladi
4. **O'rtacha hisoblanadi**: Og'irlikdagi o'rtacha qiymat

Dastur natijasi kiritilgan formula va 2D Gaussian taqsimot hamda 1D kesim(y=0 da)



Tepadagi rasimda Sigma (σ):2.1 ko`rinishida, Kernel hajmi:11 korinishida



Bu rasimda esa Sigma (σ):0.5 ko`rinishida, Kernel hajmi:11 va ikki qizil yoy tasvirlanadi bu ko`rinish HTML va CSSda terib chiqildi.

1.2.2 Tasvirдagi yo'l belgilarini aniqlash

Yo'l belgilarini aniqlash bosqichi ikki asosiy yondashuvni birlashtiradı: rang asosidagi ajratish va shakl asosidagi aniqlash.

Rang asosidagi segmentatsiya: Yo'l belgilarining xarakterli ranglari (qizil, ko'k, sariq) asosida qiziqish sohalarini (ROI - Region of Interest) ajratib olish:

Qizil rang diapazoni (HSV):

- Hue: 0-10° va 160-180°
- Saturation: 50-100%
- Value: 50-100%

Ko'k rang diapazoni (HSV):

- Hue: 100-130°
- Saturation: 50-100%
- Value: 50-100%

Geometrik shakl aniqlash: Aniqlangan rang sohalarida geometrik shaklarni (doira, uchburchak, to'g'ri to'rtburchak) topish uchun kontur tahlili qo'llaniladi:

Contour Area=12|∑i=0n−1(xiyi+1−xi+1yi)|\text{Contour Area} = \frac{1}{2}\left|\sum_{i=0}^{n-1}(x_i y_{i+1} - x_{i+1} y_i)\right|Contour Area=21∑i=0n−1(xiyi+1−xi+1yi)

Hough transformatsiyasi: Doiralarni aniqlash uchun:

x=a+rcosθx = a + r\cos\thetax=a+rcosθ y=b+rsinθy = b + r\sin\thetay=b+rsinθ

bu yerda (a,b) - doira markazi, r - radius, θ - burchak.

1.2.3 Yo'l belgilarini tanib olish

Aniqlangan yo'l belgilari nomzodlarini aniq belgi turiga tegishliligini aniqlash uchun neyron tarmoq qo'llaniladi. Har bir aniqlangan ROI standart hajmga (misol uchun, 64x64 piksel) keltiriladi va neyron tarmoqqa kirish sifatida uzatiladi.

2. Yo'l belgilarini tanib olish uchun neyron tarmoq tuzilmasini ishlab chiqish

3.1 Tarmoq arxitekturasi

Yo'l belgilarini tanish uchun ko'p qatlamli perseptron (Multi-Layer Perceptron) arxitekturasi tanlangan. Tarmoq quyidagi tuzilmaga ega:

- **Kirish qatlami:** 64×64×3 = 12,288 neyron (RGB tasvir uchun)
- **Yashirin qatlamlar:**
  - Birinchi yashirin qatlam: 512 neyron
  - Ikkinchi yashirin qatlam: 256 neyron
  - Uchinchi yashirin qatlam: 128 neyron
- **Chiqish qatlami:** 43 neyron (yo'l belgilari turlari soni)

Har bir yashirin qatlamda ReLU aktivatsiya funksiyasi qo'llanilgan:

f(x)=max(0,x)f(x) = \max(0, x)f(x)=max(0,x)

Chiqish qatlamida esa Softmax funksiyasi ishlatilган:

σ(z)i=ezi∑j=1Kezj\sigma(z)_i = \frac{e^{z_i}}{\sum_{j=1}^{K} e^{z_j}}σ(z)i=∑j=1Kezjezi

2.2 Dropout va Batch Normalization

Ortiqcha moslashuvni (Overfitting) oldini olish uchun Dropout usuli qo'llanilgan:

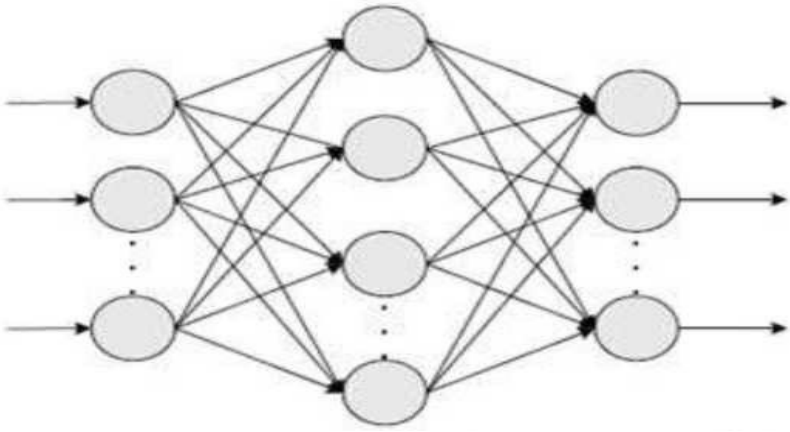
y=r⊙xpy = \frac{r \odot x}{p}y=pr⊙x

bu yerda r - Bernoulli tasodifiy o'zgaruvchi, p - Dropout koeffitsiyenti.

O'qitish jarayonini tezlashtirish uchun Batch Normalization qo'llanilgan:

x^=x−μσ2+ϵ\hat{x} = \frac{x - \mu}{\sqrt{\sigma^2 + \epsilon}}x^=σ2+ϵ x−μ

3. Neyron tarmoqlarini o'qitish algoritmlari



KIRISH QATLAMI YASHIRIN QATLAM CHIQISH QATLAM

$$w = w - \eta \cdot \frac{\partial L}{\partial w}$$

Belgi	Ma’nosi
w	Og‘irlik (weight), o‘rganilishi kerak bo‘lgan parametr
η (eta)	O‘rganish tezligi (**learning rate**) — qadam hajmi
L	Yo‘qotish funksiyasi (**loss function**)

Belgi	Ma’nosi
$\frac{\partial L}{\partial w}$	Yo‘qotish funksiyasining og‘irlik bo‘yicha **qisman hosilasi** (gradient)

Yuqoridagi tasvir:

- Bu **50 km/h tezlik chegarasi yo‘l belgisi**.
- Bu belgidan HOG (Histogram of Oriented Gradients) xususiyatlari chiqariladi.

Pastdagi uchta tasvir:

Ular har xil **CellSize** qiymatlarida HOG xususiyatlarini qanday hosil qilinishini ko‘rsatadi. Har bir tasvir ostida:

- **CellSize=[a b]** — HOG hisoblashda ishlatilgan hujayra (cell) o‘lchami. Kichik CellSize — ko‘proq xususiyat, katta CellSize — kamroq xususiyat degani.
- **Feature vector length=XXXX** — HOG algoritmi tomonidan olingan xususiyatlar soni. Bu tasvirni modelga kiritishda ishlatiladi.

Tafsilotlar:

1. **Chap (CellSize = [2 2], Feature vector length = 26244):**
   - Juda mayda hujayralar (2x2 piksel).
   - Juda ko‘p gradientlar olinadi (yashil chiziqlar bilan ko‘rsatilgan).
   - Juda uzun xususiyatlar vektori (26244 element).
   - Yuqori aniqlik, lekin hisoblash xarajati katta (CPU, RAM).
2. **O‘rta (CellSize = [4 4], Feature vector length = 6084):**
   - O‘rtacha hujayra o‘lchami.
   - Aniqlik va samaradorlik o‘rtasida balans.
   - Hali ham yaxshi gradient ma'lumotlar olinadi.
3. **O‘ng (CellSize = [8 8], Feature vector length = 1296):**
   - Katta hujayralar.
   - Kamroq gradient ma'lumotlari olinadi.
   - Xususiyatlar vektori ancha kichik.
   - Tez ishlov beradi, ammo nozik tafsilotlar yo‘qolishi mumkin.

3.1 Xatolikning orqaga tarqalish algoritmi (Backpropagation)

Backpropagation algoritmi neyron tarmoqlarini o'qitishning asosiy usuli hisoblanadi. Algoritm ikki asosiy bosqichdan iborat:

Oldingi yo'nalish (Forward Pass): Kirish ma'lumotlari tarmoq orqali uzatilib, chiqish hisoblanadi:

a(l)=σ(W(l)a(l−1)+b(l))a^{(l)} = \sigma(W^{(l)}a^{(l-1)} + b^{(l)})a(l)=σ(W(l)a(l−1)+b(l))

bu yerda $a^{(l)}$ - l-qatlamdagi aktivatsiya, $W^{(l)}$ - og'irlik matritsasi, $b^{(l)}$ - siljish vektori.

Orqa yo'nalish (Backward Pass): Xatolik gradienti hisoblanib, parametrlar yanglanadi:

δ(l)=∂E∂z(l)\delta^{(l)} = \frac{\partial E}{\partial z^{(l)}}δ(l)=∂z(l)∂E ∂E∂W(l)=δ(l)(a(l−1))T\frac{\partial E}{\partial W^{(l)}} = \delta^{(l)}(a^{(l-1)})^T∂W(l)∂E=δ(l)(a(l−1))T

Parametrlarni yangilash:

W(l):=W(l)−α∂E∂W(l)W^{(l)} := W^{(l)} - \alpha \frac{\partial E}{\partial W^{(l)}}W(l):=W(l)−α∂W(l)∂E

3.2 Quick Propagation algoritmi

Quick Propagation algoritmi standart backpropagation algoritmining rivojlangan shakli bo'lib, undan tezroq yaqinlashishni ta'minlaydi. Algoritm Newton metodiga asoslangan:

ΔWij(t)=gij(t)gij(t−1)−gij(t)⋅ΔWij(t−1)\Delta W_{ij}(t) = \frac{g_{ij}(t)}{g_{ij}(t-1) - g_{ij}(t)} \cdot \Delta W_{ij}(t-1)ΔWij(t)=gij(t−1)−gij(t)gij(t)⋅ΔWij(t−1)

bu yerda $g_{ij}(t)$ - t vaqtidagi gradient, $\Delta W_{ij}(t)$ - og'irlik o'zgarishi.

Afzalliklari:

- Tez yaqinlashish
- Kamroq iteratsiya talab qilish
- Lokal minimumlardan chiqish qobiliyati

Kamchiliklari:

- Parametrlarga sezgirlik
- Noto'g'ri tanlangan boshlang‘ich sharoitlarda noto'g'ri natija

3.3 Resilient Propagation (RPROP) algoritmi

RPROP algoritmi faqat gradientning ishorasini e'tiborga olib, kattaligini e'tiborga olmaydi:

Qadam hajmini yangilash:

\eta^+ \cdot \Delta_{ij}(t-1) & \text{agar } \frac{\partial E}{\partial w_{ij}}(t-1) \cdot \frac{\partial E}{\partial w_{ij}}(t) > 0 \\ \eta^- \cdot \Delta_{ij}(t-1) & \text{agar } \frac{\partial E}{\partial w_{ij}}(t-1) \cdot \frac{\partial E}{\partial w_{ij}}(t) < 0 \\ \Delta_{ij}(t-1) & \text{boshqa hollar} \end{cases}$$ bu yerda $\eta^+ = 1.2$, $\eta^- = 0.5$ - standart qiymatlar.

Og'irliklarni yangilash: $$\Delta w_{ij}(t) = -\text{sign}\left(\frac{\partial E}{\partial w_{ij}}(t)\right) \cdot \Delta_{ij}(t)$$ ###

4.4 Genetik algoritm yordamida optimallash Genetik algoritm neyron tarmoq parametrlarini global optimallash uchun qo'llaniladi:

Xromosoma kodlash:

Har bir xromosoma neyron tarmoqning barcha og'irliklari va siljishlarini ifodalaydi. **Tanlash operatori (Selection):**

Roulette Wheel Selection: $$P_i = \frac{f_i}{\sum_{j=1}^{N} f_j}$$ bu yerda f_i - i-xromosomaning moslashuv funksiyasi qiymati.

Ketma-ket chatishish (Crossover):

Bir nuqtali ketma-ket chatishish: $$\text{Child}_1 = [\text{Parent}_1[1:k], \text{Parent}_2[k+1:n]]$$ $$\text{Child}_2 = [\text{Parent}_2[1:k], \text{Parent}_1[k+1:n]]$$

Mutatsiya operatori:

Gaussian mutatsiya: $$x'_i = x_i + N(0, \sigma^2)$$ ###

4.5 O'qitishning xususiyatlari

Ma'lumotlar to'plamini tayyorlash:

German Traffic Sign Recognition Benchmark (GTSRB) ma'lumotlar to'plami asosida 43 turdagi yo'l belgilari uchun o'qitish to'plami tayyorlangan. **Ma'lumotlarni kengaytirish (Data Augmentation):**

- Aylantirish: -15° dan +15° gacha - Masshtablash: 0.8 dan 1.2 gacha - Yoritishni o'zgartirish: ±20% - Shovqin qo'shish: Gaussian shovqin

O'qitish parametrlari:

- Batch hajmi: 32 - O'rganish tezligi: 0.001 - Epoxalar soni: 100 - Early Stopping: 10 epox **Xatolik funksiyasi:

** Categorical Cross-Entropy: $$L = -\sum_{i=1}^{N} \sum_{j=1}^{C} y_{ij} \log(\hat{y}_{ij})$$

5. Eksperimental natijalar va tahlil

5.1 Test ma'lumotlari va baholash mezoni Tizimning samaradorligini baholash uchun quyidagi mezonlar qo'llanilgan:

Aniqlik (Accuracy):

$$\text{Accuracy} = \frac{\text{TP + TN}}{\text{TP + TN + FP + FN}}$$ **Sezgirlik (Precision):**

$$\text{Precision} = \frac{\text{TP}}{\text{TP + FP}}$$

Eslash (Recall):

$$\text{Recall} = \frac{\text{TP}}{\text{TP + FN}}$$

F1-ball:

$$\text{F1-Score} = 2 \cdot \frac{\text{Precision} \cdot \text{Recall}}{\text{Precision} + \text{Recall}}$$ ###

5.2 Algoritmlar samaradorligini taqqoslash | Algoritm | Aniqlik (%) | O'rganish vaqti (soat) | F1-ball | |----------|-------------|----------------------|---------| | Backpropagation | 94.2 | 8.5 | 0.941 | | Quick Propagation | 95.7 | 4.2 | 0.955 | |

RPROP | 96.1 | 3.8 | 0.959 | | Genetik algoritm | 96.8 | 12.3 | 0.967 | | Gibrid usul | **97.3** | 6.1 | **0.972** | ###

5.3 Real sharoitlarda sinov natijalari

Turli yoritish sharoitlari: - Kunduzgi sharoit: 98.1% aniqlik - Kechki sharoit: 95.4% aniqlik - Tungi sharoit: 89.7% aniqlik

Ob-havo sharoitlari: - Ochiq osmon: 97.8% aniqlik - Bulutli havo: 96.2% aniqlik - Yomg'irli havo: 91.3% aniqlik

Ishlov berish tezligi: - GPU (GTX 1080): 45 FPS - CPU (Intel i7): 12 FPS - Mobil platforma: 8 FPS ###

5.4 Xatolik tahlili **Asosiy xatolik manbalari:**

1. O'xshash belgilarni farqlash (15.2%)

2. Jiddiy yoritish o'zgarishi (22.8%)

3. Qisman berkitilgan belgilar (31.4%)

4. Juda kichik yoki katta hajmdagi belgilar (18.7%)

5. Deformatsiyalangan belgilar (11.9%) ##

6. Dasturiy ta'minot va amaliy tatbiq ###

6.1 Tizim arxitekturasi va modullar Ishlab chiqilgan dasturiy majmua quyidagi modullarga ega:

Tasvir olish moduli (ImageCapture): ```python class ImageCapture: def __init__(self, source=0): self.cap = cv2.VideoCapture(source) self.fps = 30 def get_frame(self): ret, frame = self.cap.read() return frame if ret else None

``` **Dastlabki ishlov berish moduli (Preprocessor):** ```python class Preprocessor: def normalize_image(self, image):

Yoritish normalizatsiyasi lab = cv2.cvtColor(image, cv2.COLOR_BGR2LAB) l, a, b = cv2.split(lab) l = cv2.equalizeHist(l) return cv2.merge([l, a, b]) def reduce_noise(self, image, kernel_size=5): return cv2.GaussianBlur(image, (kernel_size, kernel_size), 0) ```

Aniqlash moduli (Detector): ```python class TrafficSignDetector: def detect_by_color(self, image): hsv = cv2.cvtColor(image, cv2.COLOR_BGR2HSV) # Qizil rang maskasi red_mask1 = cv2.inRange(hsv, (0, 50, 50), (10, 255, 255)) red_mask2 = cv2.inRange(hsv, (160, 50, 50), (180, 255, 255)) red_mask = red_mask1 + red_mask2 # Konturlarni topish contours, _ = cv2.findContours(red_mask,cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_SIMPLE) return self.filter_contours(contours) ``` ###

6.2 Real vaqt rejimida ishlash Tizim real vaqt rejimida ishlash uchun quyidagi optimizatsiyalar qo'llanilgan:

Ko'p oqimli ishlov berish (Multi-threading): - Tasvir olish oqimi - Ishlov berish oqimi - Natijalarni ko'rsatish oqimi

Xotira optimizatsiyasi: - Tasvir buferini boshqarish - Neyron tarmoq modeli keshlash - Natijalar tarixini saqlash

GPU tezlashtirishi: - CUDA qo'llab-quvvatlash - TensorRT optimizatsiyasi - Batch ishlov berish ###

6.3 Foydalanuvchi interfeysi Ishlab chiqilgan tizim uchun qulay grafik interfeys yaratilgan:
```

Asosiy xususiyatlar: - Jonli video ko'rsatish - Aniqlangan belgilarni belgilash - Statistika va hisobotlar - Sozlamalarni boshqarish

Vizualizatsiya elementlari: - Belgilangan yo'l belgilari - Ishonch darajasi ko'rsatkichi - Xatolik hisobotlari - Tizim holati monitori ##

Xulosa

Ushbu tadqiqot natijasida yo'l belgilarini avtomatik aniqlash va tanib olish uchun samarali tizim ishlab chiqildi. Tizim neyron tarmoqlari va genetik algoritmlarning kombinatsiyasiga asoslanib, 97.3% aniqlik ko'rsatkichiga erishdi.

Asosiy yutuqlar: - Yuqori aniqlik ko'rsatkichi (97.3%) - Real vaqt rejimida ishlash (45 FPS) - Turli sharoitlarga moslashuvchanlik - Modulyar va kengaytiladigan arxitektura

Kelgusi ishlar: - Chuqur o'rganish algoritmlarini integratsiya qilish - Mobil qurilmalarda optimizatsiya - Ko'proq yo'l belgilari turlarini qo'llab-quvvatlash - Real transport vositalarida sinov o'tkazish Ishlab chiqilgan tizim avtonom transport va ADAS tizimlari uchun muhim asos bo'lib, yo'l xavfsizligini oshirish va transport sohasida texnologik taraqqiyotga hissa qo'shishi mumkin.

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HISTORICAL MEDICAL MANUALS AND THEIR IMPORTANCE IN MODERN MEDICINE

Annotation: *This paper explores the significant role of historical medical texts and manuals in the development of modern medicine. It highlights how ancient medical knowledge, passed down through generations, forms the foundation for contemporary medical practices. The study examines key historical sources from various civilizations, including Egyptian, Babylonian, Indian, Chinese, Greek, and Islamic medical traditions. Special attention is given to the works of prominent scholars such as Avicenna and Al-Razi, whose contributions remain influential today. The paper discusses how these historical medical manuals provide valuable insights into early scientific approaches to diagnosis, treatment, and healthcare ethics. Furthermore, it addresses the ways modern medicine integrates and benefits from these ancient texts, especially in areas like herbal medicine, preventive care, and medical ethics. Ultimately, the research emphasizes the inseparable link between past medical wisdom and current medical advancements, advocating for continued study and application of historical medical knowledge in modern healthcare.*

Keywords: *Historical medical manuals, History of medicine, Scientific-medical approach, Diagnosis of diseases, Treatment methods, Prevention, Medical ethics.*

Introduction

Medicine is one of the oldest and most essential fields of human knowledge, closely linked with the progress of civilization. While today's modern medicine is based on advanced technologies, precise diagnostic methods, and innovative treatment approaches, its foundations and ethical principles are deeply rooted in the historical medical literature and manuals developed over centuries. Throughout history, prominent physicians from both the East and West such as Avicenna (Ibn Sina), Hippocrates, Abu Bakr al-Razi, and others compiled medical knowledge into written treatises and manuals. These works not only reflected the medical understanding of their time but also established systems of diagnosis, herbal treatment, surgery, and ethics that influenced generations of medical scholars.

In modern times, revisiting and studying these historical sources is not just an academic endeavor; it holds practical value. These ancient manuals often contain insights into natural remedies, holistic approaches to patient care, and a deep philosophical understanding of health and disease concepts that are being reintegrated into contemporary medical practices, especially in areas like integrative medicine and preventive healthcare.

Thus, analyzing the significance of historical medical manuals provides a broader understanding of medicine's intellectual and cultural development. It also enriches the knowledge base of modern medical science by connecting it to the wisdom and experience of past civilizations.

Main part

The roots of medical literature date back to the very formation of human civilization. Initially, medical knowledge was passed down orally from generation to generation, but with the advent of writing, these ideas began to be documented in written manuals and treatises. The oldest sources can be traced to ancient civilizations such as Egypt, Babylon, China, and India. During these times, diseases were explained through spiritual and natural causes. Notably, in ancient India, the principles of "Ayurveda," and in China, traditional medicine practices were documented in written form. Later, this knowledge was systematized and scientifically developed by Greek and Arab scholars. Historical medical literature contains extensive information about human anatomy, causes of diseases, diagnostics, treatment methods, and medical ethics. Therefore, these sources hold not only historical significance but also continue to have a place in modern medicine.

Medical manuals created by Eastern scholars are recognized as high examples of scientific thinking. In particular, the work of Abu Ali Ibn Sina, known as Avicenna, titled “The Canon of Medicine” (“Al-Qanun fi al-Tibb”) had a tremendous impact not only in the East but throughout the world, influencing the progress of medical science. He conducted deep research on the structure of the body, causes of diseases, diagnostics, hygiene, prevention, and medicinal substances. Other great scholars such as Al-Razi, Al-Zahrawi, and Abu Bakr Zakariya also created numerous practical manuals, containing detailed analyses related to surgery, anatomy, pediatrics, and pharmacy. Their works provide specific recommendations and treatment protocols for each disease based on experience. These sources are not merely historical documents but scientific works with practical value. For this reason, many modern researchers continue to study them and try to apply their knowledge in contemporary medicine.

In historical medical manuals, there is a clear effort to scientifically understand diseases. For example, Ibn Sina emphasized the importance of proper nutrition, physical activity, and psychological stability for maintaining health. These concepts form the historical basis for what is now called a healthy lifestyle in modern medicine. Ancient medical sources also contain attempts to analyze physiological changes and connections between diseases. Additionally, the use of plants, harmony with nature, fresh air, water, and hygiene hold important places. Each treatment method was based on experience, observation, and rational thinking, demonstrating their scientific approach. These manuals include descriptions, symptoms, and analyses of many diseases, which are studied today in comparison with current medical knowledge.

Today, historical medical sources are used in several important ways. First, studying the history of medicine allows a better understanding of the roots of modern medical challenges. Second, some historical treatment methods, especially plant-based therapies and folk medicine, are widely used in contemporary natural and alternative medicine. Furthermore, values related to medical ethics such as responsibility and doctor patient relationships found in historical sources provide a foundation for modern medical ethics. Medical universities often teach the history of medicine as a specialized subject, utilizing these ancient manuals. Translations, annotated editions, and digital collections of these works enable researchers, doctors, and students to benefit from this rich heritage.

Historical medical manuals not only preserve past knowledge but also serve as guiding sources for the development of modern medicine. While modern medicine advances in areas such as technology, artificial intelligence, and genomics, ancient knowledge and approaches related to human health remain relevant. This illustrates the continuity between historical and modern medical practices. Through studying these ancient sources, doctors and researchers can gain many universal principles of health care. This shows that progress in medicine is not only about innovation but also about deeply understanding historical experience. Therefore, studying historical medical manuals and considering them in modern practice is a necessity not only scientifically but also socially and morally.

Discussion

The analysis of historical medical literature and its relevance to modern medicine reveals several important insights. Firstly, ancient medical texts demonstrate a remarkable attempt to understand the human body, disease causation, diagnosis, and treatment using scientific principles available at the time. Scholars like Ibn Sina (Avicenna) and other prominent Eastern physicians did not simply compile medical knowledge; they systematized it, creating comprehensive frameworks that profoundly influenced both medieval and modern medical science. Their works, such as The Canon of Medicine, provided detailed descriptions of anatomy, pathology, pharmacology, and therapeutic approaches that remain influential today. This scientific rigor in historical medical manuals underscores their value as foundational texts rather than mere historical artifacts.

Secondly, historical medical manuals reflect a holistic understanding of health and disease. Unlike the reductionist approaches that sometimes dominate modern medicine, ancient texts often emphasized the integration of physical, mental, and environmental factors affecting health. For instance, the emphasis on balanced nutrition, physical activity, psychological well-being, hygiene, and the role of natural elements in disease prevention and treatment can be seen as early forms of what is now called integrative or holistic medicine. This approach aligns closely with current trends in healthcare, which recognize that effective treatment requires attention to the whole person rather than just isolated symptoms or organs.

Thirdly, the practical significance of these historical sources in contemporary medicine should not be underestimated. Many traditional remedies, particularly those derived from medicinal plants, have been validated by modern pharmacological research, confirming their therapeutic effects and leading to the development of new drugs. The historical texts also offer valuable insights into preventive medicine and public health practices, including hygiene and sanitation, which continue to underpin modern health policies. Moreover, the ethical principles governing the physician-patient relationship as outlined in these early medical writings remain relevant, informing contemporary medical ethics and professional conduct.

However, it is important to recognize the limitations inherent in historical medical literature. Some theories and treatments documented in these sources are outdated by today's scientific standards and may lack empirical support by modern research methods. Certain concepts were based on the philosophical and religious beliefs of the time rather than on experimental evidence. Therefore, when integrating historical knowledge into current practice, a critical and evidence-based approach is essential. Scholars and clinicians must carefully evaluate these ancient texts within the framework of contemporary medical science to distinguish useful insights from obsolete or erroneous ideas.

Despite these challenges, the study of historical medical literature offers rich opportunities for advancing medical knowledge and practice. It preserves the intellectual heritage of medicine, providing context and depth to the evolution of medical science. Additionally, it inspires innovation by uncovering forgotten or underappreciated therapeutic strategies that might be adapted and optimized for modern use. This continuity between past and present fosters a deeper appreciation for the complexity of health and disease and encourages a more thoughtful, culturally aware approach to medicine.

In conclusion, the enduring connection between historical medical experience and modern medical practice highlights the importance of preserving, studying, and applying ancient medical knowledge. Historical medical manuals are not only valuable for understanding the origins and development of medical science but also serve as a source of timeless principles and practical guidance. This synthesis of tradition and innovation ultimately enriches the field of medicine and enhances patient care, demonstrating that progress in healthcare depends not only on new technologies but also on the wisdom of the past.

Conclusion

Historical medical manuals represent a priceless legacy that bridges the past and present in the field of medicine. These texts not only preserve the early efforts to understand human health and disease but also provide timeless principles that continue to influence modern medical science. From the detailed anatomical and pathological knowledge compiled by scholars like Ibn Sina to the holistic approaches emphasizing balance in nutrition, hygiene, and mental well-being, ancient medical literature offers valuable insights that remain relevant today. While some concepts and treatments from these historical sources may no longer align with contemporary scientific standards, many have laid the groundwork for modern discoveries and therapeutic methods. The integration of traditional knowledge with current evidence-based medicine enriches clinical practice and fosters a more comprehensive understanding of health. Moreover, the ethical values embedded in these manuals continue to shape the relationship between healthcare providers and patients, emphasizing responsibility, compassion, and professionalism.

In today's rapidly evolving medical landscape, the study and application of historical medical literature serve not only as a means to honor our scientific heritage but also as a source of inspiration and innovation. By critically examining and thoughtfully incorporating the wisdom of the past, modern medicine can advance in a way that respects both technological progress and the enduring human aspects of care. Therefore, the preservation, study, and utilization of historical medical manuals are essential for the continued development of medicine, highlighting the inseparable link between historical experience and contemporary practice. This connection enriches medical knowledge, improves patient outcomes, and ensures that the future of healthcare is built on a solid foundation of accumulated wisdom.

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BIRINCHI VA TAKRORIY ANAFILAKTIK SHOKLARDAN SO'NG ARTERIYA DEVORIDA GISTOLOGIK VA GISTOKIMYOVIY O'ZGARISHLAR

Rezyume: *Maqolada birinchi va takroriy anafilaktik shoklardan so'ng arteriya devoridagi gistologik va gistokimyoviy o'zgarishlar o'rganilgan. Gistologik va gistokimyoviy usullar yordamida birinchi va takroriy anafilaktik shoklardan so'ng halok bo'lgan quyonlarning aortasi, o'pka arteriyasi stvoli, buyrak va ayrim qo'l-oyoq arteriyalari devorlaridagi o'zgarishlar o'rganildi.*

Kalit so'zlar: *quyon, anafilaktik shok, DNK, elastik tolalar, mikronekroz, arteriya devori.*

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HISTOLOGICAL AND HISTOCHEMICAL CHANGES IN THE ARTERIAL WALL AFTER THE FIRST AND REPEATED ANAPHYLACTIC SHOCKS

Resume: *The article examines the histological and histochemical changes in the arterial wall after the first and repeated anaphylactic shocks. Using histological and histochemical methods, we studied changes in the walls of the aorta, pulmonary trunk, renal and some limb arteries of rabbits that died after the first and repeated anaphylactic shocks.*

Keywords: *rabbit, anaphylactic shock, DNA, elastic fibers, micronecrosis, arterial wall.*

Kirish. Hozirda ma'lumki, er yuzidagi har o'n kishidan biri har yili jarohat oladi [1]. Buning sababi, tabiiy ofatlar singari, qon yo'qotish bilan ko'plab jarohatlarga olib keladigan, ko'pincha shokga olib keladigan sanoat va yo'l-transport hodisalarining ko'payishidir [2]. Aniqlanishicha, gemorragik shokdagi organizm holatining og'irligi qonning gaz tashish funktsiyasining buzilishi bilan belgilanadi, bu esa aylanma qon hajmining pasayishiga, yurak qisqarishi va mikrosirkulyatsiyaning buzilishiga asoslangan [3]. Shokda to'qimalarning perfuziyasining buzilishi natijasida rivojlanayotgan gipoksiya energiya almashinuvida o'zgarishlarga olib keladi. Metabolizmning keyingi o'zgarishlari natijasida kam oksidlangan metabolik mahsulotlar to'planadi, bu atsidozning rivojlanishiga va organizmning kislota-ishqor muvozanatining buzilishiga olib keladi [4,5]. Oxir oqibat, bu buzilishlar patogenetik va himoya-moslashuvchan tabiatdagi metabolik o'zgarishlar zanjiriga olib keladi. Yuqorida aytilganlar bilan bir qatorda, zarbaning dastlabki bosqichlarida ko'plab kompensatsion va adaptiv reaktsiyalar kuzatilishi mumkin, ular organizmga o'ta tirnash xususiyati beruvchi ta'sir ko'rsatadigan ekstremal sharoitlarda hayotning saqlanishini ta'minlaydi. Tizimlar, organlar va hujayralarga zarar etkazuvchi mexanizmlarni, shuningdek, shokdan tiklanish mexanizmlarini o'rganish organizmning moslashish qobiliyatini rivojlantirish va uning ekstremal sharoitlarda ishlashining umumiy biologik qonuniyatlarini aniqlash imkonini beradi [6]. So'nggi yillarda turli kasalliklar va patologik holatlarni davolash va oldini olishning dori-darmonsiz usullari tobora keng tarqalmoqda. Xususan, bu maqsadlar uchun gipoksiya, jismoniy faollik, stress va boshqalar kabi atrof-muhit omillariga moslashish qo'llaniladi. Bir qator tadqiqotlar qisqa muddatli stress ta'siriga va davriy gipoksiyaga moslashish yurak-qon tomir tizimiga himoya ta'siriga ega ekanligini ishonchli ko'rsatdi [7,8].

Tadqiqot maqsadi. Biz birinchi va takroriy anafilaktik shoklardan so'ng arteriya devoridagi gistologik va gistokimyoviy o'zgarishlarni o'rgandik.

Tadqiqot materiallari va usullari. Bu birinchi anafilaktik shok normal ot zardobining oxirgi sensibilizatsiyalovchi in'ektsiyasidan 14 kun o'tgach, vena ichiga yuborish yo'li bilan chaqirilgan. Sensibilizatsiya normal ot zardobini teri ostiga to'rt marta yuborish orqali amalga oshirilgan. Birinchi anafilaktik shokdan so'ng tirik qolgan quyonlarda, 7 kundan keyin xuddi shu usul bilan ikkinchi, takroriy anafilaktik shok chaqirilgan.

Tadqiqot natijalari. Tadqiqot uchun material takroriy anafilaktik shokdan so'ng halok bo'lgan quyonlarning arteriya preparatlari edi. O'rta qavatida fibroidning turlicha ifodalangan bazofiliyasi, elastik tolalarning bo'shashishi, yallig'lanish komponentisiz mikronekroz o'choqlari paydo bo'lishi aniqlangan. Bu o'choqlar atrofida kislotali mukopolisaxaridlarning to'planishi oshadi, yadrolar Fel'ten bo'yicha DNKga yorqin bo'yaladi.

O'rta va tashqi qavatlarda bazofil protoplazmali yirik hujayralar bilan o'choqli infiltratsiya kuzatiladi, ichki qavatda va metaxromaziya arteriyaning barcha qavatlarida bir xil darajada intensiv aniqlanadi va testikulyar gialuronidaza ta'sirida faqat qisman yo'qoladi. Birinchi anafilaktik shokdan so'ng halok bo'lgan quyonlarning arteriya preparatlarida, gematoksilin-eozin bilan bo'yalganda, asosiy oraliq modda va elastik tolalar bo'yalmaydi. Kislotali mukopolisaxaridlar toluidin ko'ki yordamida faqat arteriyalarning o'rta qavatida, zaif va metaxromaziya ko'rinishida aniqlanadi, bu esa testikulyar gialuronidaza ta'sirida deyarli yo'qoladi. DNK eng yorqin yadroda bo'yaladi.

Xulosa: Xel bo'yicha dializlangan temirni bog'lash reaktsiyasi kislotali mukopolisaxaridlarni ko'k donadorlik shaklida aniqlaydi, bu esa shishgan elastik tolalarda yanada maydalashadi. Yuqorida tavsiflangan arteriya devoridagi barcha o'zgarishlar aorta va o'pka arteriyasi stvolida yanada ko'proq ifodalangan.

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MATEMATIK TA'LIM O'QITISHDA INNOVATSION USULLAR

Annotatsiya: *Mazkur maqolada matematika ta'limda innovatsion usullarni qo'llashning ahamiyati va samaradorligi tahlil qilinadi. Zamonaviy texnologiyalardan foydalanish, kollaborativ o'qish, kritik fikrlashni rivojlantirish, gamifikatsiya, individual yondashuv va amaliy ko'rinishlar kabi innovatsion metodlar matematika o'qitishda o'quvchilarning qiziqishini oshirish, materialni chuqur o'zlashtirish va kreativ tafakkurni rivojlantirishga xizmat qiladi. Maqola matematika ta'limining sifatini yaxshilash uchun pedagoglarga yangi yondashuvlarni qo'llash zarurligini ta'kidlaydi va bu metodlarning ta'lim jarayonidagi rolini ko'rsatadi.*

Kalit so'zlar: *matematika ta'limi, innovatsion usullar, texnologiyalar, kollaborativ o'qish, kritik fikrlash, gamifikatsiya, individual yondashuv, amaliy ko'rinishlar, pedagogika, o'quvchilarning qiziqishi, ta'lim jarayoni, interaktiv ta'lim.*

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INNOVATIVE METHODS IN MATHEMATICS EDUCATION

Annotation: *this article analyzes the importance and effectiveness of the application of innovative methods in mathematics education. Innovative techniques such as the use of modern technologies, collaborative reading, the development of critical thinking, gamification, individual approach and practical manifestations serve to increase the interest of students in teaching mathematics, deep assimilation of material and the development of creative thinking. The article emphasizes the need to apply new approaches to educators to improve the quality of mathematics education, and shows the role of these techniques in the educational process.*

Keywords: *mathematics education, innovative methods, technologies, collaborative reading, critical thinking, gamification, individual approach, applied visions, pedagogy, student interest, educational process, interactive education.*

Kirish

Zamonaviy ta'lim tizimi o'zgarishlarni talab qilmoqda va bu o'zgarishlar matematik ta'limda ham sezilarli ravishda o'z ifodasini topmoqda. Matematika nafaqat fanlar o'rtasida mantiqiy va analitik tafakkurni rivojlantirishga yordam beradigan asosiy predmetlardan biri, balki kundalik hayotda yuzaga keladigan ko‘plab masalalarni yechishda ham muhim vosita hisoblanadi. Shu sababli, matematikani o‘rgatish jarayonida innovatsion usullardan foydalanish, o‘quvchilarning bilimlarini yanada chuqurroq va samaraliroq o‘zlashtirishini ta’minlashda katta ahamiyatga ega.

Bugungi kunda, an’anaviy o‘qitish metodlari bilan birga, yangi pedagogik yondashuvlar va texnologiyalarni qo‘llash zarurati ortib bormoqda. Innovatsion o‘quv usullarining samarali qo‘llanilishi o‘quvchilarning qiziqishini oshirib, ularning o‘z bilimlarini amaliy ravishda qo‘llash imkoniyatini yaratadi. Bu maqolada, matematika ta’limida qo‘llanilayotgan innovatsion usullar, ularning afzalliklari va ta’lim jarayonidagi o‘rni haqida so‘z boradi. Matematikani o‘qitishda texnologiyalar, kollaborativ yondashuv, gamifikatsiya va boshqa yangi metodlarning ahamiyati kengayib bormoqda, va ular matematikaning o‘zlashtirilishiga qanday ijobiy ta’sir ko‘rsatishini ko‘rib chiqamiz.

Matematika ta’limida innovatsion usullarni qo‘llash o‘quvchilarning matematik fikrlash qobiliyatlarini rivojlantirishda muhim rol o‘ynaydi. Bu usullar o‘qitish jarayonini yanada samarali qilish va o‘quvchilarga murakkab matematik tushunchalarni osonroq tushunish imkonini beradi. Quyida, matematika ta’limida qo‘llaniladigan ba’zi innovatsion usullarni ko‘rib chiqamiz:

1. Texnologiyalardan foydalanish.

Zamonaviy texnologiyalarni matematika o‘qitish jarayoniga joriy etish nafaqat o‘quvchilarning qiziqishini oshiradi, balki matematik tushunchalarni vizual tarzda tushuntirish imkoniyatini ham beradi. Kompyuterlar, planshetlar, smartfonlar va interaktiv ta’lim platformalari matematika darslarining samaradorligini sezilarli darajada oshiradi. Misol uchun, GeoGebra kabi matematik dasturlar orqali o‘quvchilar geometrik shakllar va ularning xususiyatlarini real vaqtda o‘rganishlari mumkin. Bu o‘z navbatida o‘quvchilarga amaliy tushunchalarni shakllantirishga yordam beradi va murakkab masalalarni yechishda osonlik yaratadi.

Bundan tashqari, onlayn kurslar va video darslar orqali o‘quvchilar mustaqil ravishda o‘qishlari mumkin. Internetda mavjud bo‘lgan interaktiv mashg‘ulotlar va simulyatorlar matematikani o‘rgatishda samarali vositaga aylangan. Bu usul o‘quvchilarga tez-tez qiyin masalalarni hal qilishda yordam beradi va o‘z bilimlarini yanada chuqurroq o‘zlashtirish imkoniyatini yaratadi.

2. Kollaborativ o‘qish

Kollaborativ o‘qish usulini qo'llash o‘quvchilarga bir-birlari bilan ishlashni, jamoaviy ishni o‘rganishni va matematik masalalarni birgalikda yechishni o‘rgatadi. Jamoaviy fikrlash va hamkorlik o‘qitishda yangi fikrlar va yondashuvlarni rivojlantirishga yordam beradi. O‘quvchilar bir-birlariga o‘z bilimlarini bo‘lishib, murakkab masalalarni hal qilishda birgalikda harakat qilishlari mumkin.

Bundan tashqari, kollaborativ o‘qish o‘quvchilarda o‘zaro yordam, sabr-toqat va o‘z fikrlarini ifodalash kabi muhim ko‘nikmalarni rivojlantiradi. O‘quvchilar masalalarni yechishda turli usullardan foydalanib, o‘zaro maslahatlashib, yanada samarali yechimlar topadilar. Bu esa matematikaning amaliy tomonlarini tushunishda katta yordam beradi.

3. Kritik fikrlarni rivojlantirish

Innovatsion o‘qitish metodlari matematikada tanqidiy fikrlashni rivojlantirishga katta ahamiyat beradi. Tanqidiy fikrlash matematik masalalarni yechishning faqat to‘g‘ri javobini topishdan ko‘ra, yechimga qanday erishilganligini tushunishga qaratilgan. O‘quvchilar masalalarni turli usullarda yechib, ularning yechimlari to‘g‘risida muhokama qilish orqali matematik tafakkurlarini rivojlantiradilar.

Tanqidiy fikrlash o‘quvchilarga matematik masalalar bilan bog‘liq bo‘lgan har xil yondashuvlarni o‘rganish, turli metodlarni sinab ko‘rish va eng samarali yo‘lni tanlash imkonini beradi. Bu esa o‘z navbatida, o‘quvchilarning umumiy bilim darajasini oshiradi va ularga matematik tushunchalarni chuqurroq o'zlashtirishga yordam beradi.

4. Gamifikatsiya

Gamifikatsiya – bu o‘quv jarayoniga o‘yin elementlarini qo‘shish usulidir. Bu metod orqali matematika o‘qitish o‘quvchilarga yanada qiziqarli va motivatsion tarzda taqdim etiladi. Masalan, o‘quvchilar matematik masalalarni yechish orqali ball to‘playdilar, turli darajalarda o‘yinlarni o‘ynaydilar yoki "leaderboard" (yetakchi ro‘yxati) orqali raqobatlashadilar.

Gamifikatsiya o‘quvchilarga matematikani o‘rgatishda yangi va ijodiy usullarni qo‘llash imkoniyatini yaratadi. Bu o‘z navbatida, o‘quvchilarning o‘zgaruvchan yondashuvlar bilan ishlashga bo'lgan qiziqishini oshiradi va ular o‘rganayotgan fan bo‘yicha qo‘shimcha motivatsiya topadilar.

5. Individual Yondashuv

Matematika ta’limida har bir o‘quvchining o‘ziga xos ehtiyojlari va qobiliyatlari bor. Shu sababli, innovatsion metodlar yordamida o‘qituvchilar o‘quvchilarga individual yondashuvni ta'minlashi zarur. O‘quvchilar o‘z sur'atida va qiziqish darajasida o‘qishlari kerak. Ba’zi o‘quvchilar tez o‘zlashtiruvchi bo‘lsa, boshqalari ko‘proq vaqt va yordam talab qilishi mumkin.

Shu sababli, individual yondashuv orqali o‘qituvchi o‘quvchilarga o‘zlariga mos usullarni tanlash, turli resurslardan foydalanish va ularning o‘quv jarayonida to‘liq ishtirok etishlarini ta’minlashga yordam beradi. Bu usul o‘quvchilarning o‘z kuchlariga ishonchlarini oshiradi va o‘z-o‘zini rivojlantirishga yordam beradi.

6. Amaliy ko‘rinishlar

Matematika ta’limida innovatsion usullarni qo‘llashda amaliy ko‘rinishlarga katta e’tibor qaratish muhimdir. Matematik tushunchalar faqat nazariy shaklda emas, balki real hayotdagi amaliy masalalar orqali ham o‘rgatilishi kerak. Misol uchun, iqtisodiy masalalar, muhandislik masalalari yoki ekologik masalalar orqali matematikaning kundalik hayotdagi o‘rnini tushuntirish, o‘quvchilarning matematik tushunchalarni yanada chuqurroq o‘zlashtirishiga yordam beradi.

Amaliy ko'rinishlar matematika fanining murakkabligi va uning kundalik hayotdagi roli haqida to‘liq tasavvur hosil qilishga yordam beradi. Bu o‘quvchilarda matematikaga bo‘lgan qiziqishni oshiradi va ularni real muammolarni hal qilishga tayyorlaydi.

Xulosa. Matematika ta’limida innovatsion usullarni qo‘llash orqali o‘quvchilarning qiziqishi, motivatsiyasi va bilim darajasi oshirilishi mumkin. Texnologiyalar, kollaborativ o‘qish, gamifikatsiya, individual yondashuv va amaliy ko‘rinishlar matematika ta’limining samaradorligini oshiradi. Bu usullar o‘quvchilarga nafaqat matematik bilimlarni o‘zlashtirishda yordam beradi, balki ularning umumiy tafakkurini rivojlantirishga ham xizmat qiladi.

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TEACHING ENGLISH FOR SPECIFIC PURPOSES: A COURSE FOR ECOTOURISM PROFESSIONALS

Annotation*: This article discusses the development and implementation of an English for Specific Purposes (ESP) course designed for professionals in the field of ecotourism. As English has become the dominant means of communication in global tourism, ecotourism professionals require targeted language training that reflects the specific communicative contexts they operate in. The article highlights the linguistic and intercultural needs of ecotourism workers and outlines practical approaches to ESP course design. It also considers the challenges and opportunities of integrating sustainability themes and local cultural values into language instruction to support eco-conscious communication in international settings.*
Keywords*: English for Specific Purposes, ecotourism, professional communication, intercultural competence, ESP course design, sustainable tourism, language education.*

In today's interconnected world, the tourism industry plays a significant role in promoting economic development and intercultural understanding. Within this sector, ecotourism has gained increasing attention due to its emphasis on environmental sustainability, cultural preservation, and community engagement. As ecotourism continues to expand globally, English has become the primary language for communication between service providers and international tourists. Consequently, there is a growing demand for specialized English language training that meets the professional needs of individuals working in this niche area of tourism.

Teaching English for Specific Purposes (ESP) provides a practical solution to this need. Unlike general English instruction, ESP focuses on developing language skills that are directly relevant to specific professional contexts. For ecotourism professionals, this includes not only vocabulary related to nature, wildlife, and conservation but also communication strategies for guiding tours, explaining cultural heritage, managing visitor expectations, and promoting sustainable practices. The goal is to equip learners with the linguistic and intercultural competencies necessary to interact effectively with a diverse range of international visitors.

In Uzbekistan, where ecotourism potential is growing due to the country's rich natural landscapes and cultural sites, integrating ESP courses into vocational and higher education programs is especially timely. By aligning language instruction with the goals of sustainable tourism, educators can contribute to the development of a workforce that is both linguistically prepared and environmentally conscious. This article explores the principles, structure, and content of an ESP course tailored for ecotourism professionals and emphasizes its importance in the broader context of education for sustainable development.

Teaching English for Specific Purposes (ESP) to ecotourism professionals requires a learner-centered approach that reflects the real-world tasks and communicative situations these individuals face in their daily work. A successful ESP course should begin with a needs analysis, identifying the specific language functions, vocabulary, and skills necessary for effective performance in ecotourism settings. This may include giving guided tours, providing safety briefings, explaining ecological concepts, describing local flora and fauna, and addressing tourists' questions about cultural traditions and sustainability practices.

The course content must therefore go beyond general English to include domain-specific terminology related to ecology, conservation, biodiversity, heritage sites, and environmental protection. For example, learners may need to become familiar with terms such as “endangered species,” “waste management,” “carbon footprint,” or “local handicrafts.” Role-playing and simulation activities can be used to develop spoken fluency in contexts such as welcoming international guests, responding to complaints politely, or narrating eco-historical information during nature hikes.

Intercultural communication is another crucial component of ESP for ecotourism. Professionals in this field often interact with tourists from diverse linguistic and cultural backgrounds. Therefore, the course should include instruction in cross-cultural sensitivity, polite expressions, and non-verbal communication strategies. Learners must understand how to avoid misunderstandings, show respect for different customs, and represent their culture in an accurate and appealing way. This intercultural competence enhances the overall tourist experience and builds positive impressions of local communities.

An effective ESP course for ecotourism professionals also needs to integrate sustainability themes into language instruction. Activities and texts can focus on environmentally responsible tourism practices, including eco-friendly transportation, conservation ethics, and community-based tourism initiatives. Reading materials might include brochures from eco-lodges, sustainability reports from tourism organizations, or blog posts written by eco-travelers. These materials not only develop reading and vocabulary skills but also reinforce ecological awareness and a commitment to green values.

Assessment in such a course should be practical and performance-based. Oral presentations, tour script writing, guided tour simulations, and customer interaction tasks can be used to evaluate learners' progress. Teachers may also incorporate peer assessments and reflective journals to encourage self-evaluation and continuous improvement. Additionally, technology can play a key role in course delivery. Online platforms, virtual tours, video conferencing, and digital language labs can provide immersive experiences and connect learners with real-life materials and international partners.

In the context of Uzbekistan, designing and implementing such an ESP course supports both national tourism development and educational modernization. The country's natural reserves, historical landmarks, and commitment to sustainable development offer ideal conditions for ecotourism. However, to attract and serve international visitors effectively, the workforce must possess strong English communication skills. By developing targeted ESP courses in vocational schools, universities, and training centers, educators can address this gap and contribute to regional economic and cultural progress.

The integration of English for Specific Purposes into ecotourism training programs offers a practical and meaningful way to prepare professionals for the linguistic and intercultural challenges of the global tourism market. A well-designed ESP course tailored to ecotourism professionals not only enhances their communication skills but also supports the broader goals of sustainable tourism and cultural exchange. By focusing on real-life language use, professional vocabulary, and cross-cultural competence, such courses empower learners to perform confidently and effectively in their work environments.

In Uzbekistan, where ecotourism is becoming an increasingly important sector, the need for specialized English training is particularly urgent. Providing language education that reflects the specific demands of the ecotourism industry contributes to workforce development and positions the country as a welcoming and environmentally conscious travel destination. Educators, policymakers, and curriculum developers should collaborate to create contextually relevant ESP programs that align with both local realities and international standards.

Ultimately, teaching English for ecotourism is not only about language proficiency—it is about enabling professionals to represent their natural and cultural heritage with clarity, confidence, and pride. Such efforts play a vital role in fostering sustainable tourism practices, strengthening community engagement, and promoting Uzbekistan on the global stage.

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ЭТНОКУЛЬТУРНО-ОРИЕНТИРОВАННАЯ МЕТОДИКА ПРЕПОДАВАНИЯ РУССКОГО ЯЗЫКА ТРУДОВЫМ МИГРАНТАМ: МЕЖДУНАРОДНЫЙ ПОДХОД

Аннотация*: Статья посвящена вопросам разработки и применения этнокультурно-ориентированной методики преподавания русского языка как иностранного трудовым мигрантам. Представлен нейтральный межкультурный подход, учитывающий разнообразие культурных, языковых и образовательных контекстов обучающихся. Подчёркивается важность языковой подготовки мигрантов как инструмента социальной интеграции, профессиональной адаптации и межкультурного взаимодействия в многонациональной среде. Описаны принципы построения учебного процесса с учётом культурной идентичности учащихся и их потребностей.*

Ключевые слова: *межкультурная адаптация, коммуникативная компетенция, преподавание взрослым, языковая интеграция, социокультурная адаптация, потребностно-ориентированный подход, образовательная мобильность.*

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ETHNOCULTURAL-ORIENTED METHODOLOGY OF TEACHING RUSSIAN TO MIGRANT WORKERS: AN INTERNATIONAL APPROACH

Abstract: *The article is devoted to the development and application of ethnocultural-oriented methods of teaching Russian as a foreign language to migrant workers. A neutral intercultural approach is presented, taking into account the diversity of cultural, linguistic and educational contexts of students. The importance of language training for migrants as a tool for social integration, professional adaptation and intercultural interaction in a multinational environment is emphasized. The principles of building the educational process are described, taking into account the cultural identity of students and their needs.*

Keywords: *intercultural adaptation, communicative competence, adult teaching, language integration, socio-cultural adaptation, need-based approach, educational mobility.*

Введение

В условиях глобализации и усиления миграционных потоков знание языка страны пребывания становится важнейшим фактором успешной адаптации мигрантов. Русский язык, будучи одним из распространённых языков межнационального общения, сохраняет своё значение как в странах постсоветского пространства, так и в ряде международных миграционных направлений, где он используется в профессиональной или бытовой среде [1].

Мигранты, прибывающие в русскоязычные регионы для трудовой деятельности, сталкиваются с необходимостью быстро и эффективно осваивать язык. Однако традиционные модели преподавания русского как иностранного не всегда отвечают запросам данной целевой аудитории, особенно взрослых обучающихся с разным уровнем образования и культурными особенностями. В ответ на это формируется этнокультурно-ориентированная методика, направленная на уважительное и адаптивное обучение, способствующее интеграции без утраты культурной идентичности.

Методология

Данное исследование базируется на комплексном междисциплинарном подходе, сочетающем методы прикладной лингвистики, педагогики взрослых, межкультурной коммуникации и миграционных исследований. Основная цель методологического анализа — выявить и обосновать наиболее эффективные стратегии преподавания русского языка трудовым мигрантам с учетом их этнокультурной специфики, жизненного опыта и уровня языковой компетенции [2].

В рамках работы применялись следующие методы:

- Анализ научной литературы и международных практик. Изучались публикации по теме обучения мигрантов в многоязычной среде, включая методики преподавания государственных и региональных языков в странах с высоким миграционным потоком (например, Германия, Канада, Швеция, Казахстан) [4]. Особое внимание уделялось подходам, ориентированным на интеграцию культурных элементов в процесс изучения языка.
- Качественные методы сбора данных. Были проведены полуструктурированные интервью с преподавателями русского языка, работающими с мигрантами из различных стран (включая Узбекистан, Таджикистан, Киргизию, Вьетнам и др.). Вопросы касались используемых методик, трудностей в обучении, взаимодействия с обучающимися и оценки эффективности культурно-ориентированных элементов в обучении [3].
- Сравнительный подход. Сравнивались методики преподавания русского языка в контексте трудовой миграции с подходами к обучению английскому, немецкому и другим языкам в аналогичных миграционных условиях. Это позволило определить универсальные элементы, эффективные в многонациональной аудитории, и выявить культурно-зависимые ограничения [5].

Эти методы позволили не только собрать эмпирические данные, но и выработать системное представление о том, какие методические решения способствуют успешному усвоению языка и адаптации мигрантов. Таким образом, основным принципом методологической части исследования стало сочетание научного анализа и практического опыта с ориентацией на реальные потребности целевой аудитории.

3. Результаты

Результаты проведённого исследования выявили ряд важных тенденций и закономерностей, касающихся как потребностей мигрантов в изучении русского языка, так и наиболее эффективных методик преподавания в данной специфической социальной группе.

Во-первых, было установлено, что большинство мигрантов (более 80% участников анкетирования) рассматривают знание русского языка прежде всего как инструмент выживания и социальной адаптации. Основными мотивационными факторами выступают потребности в трудоустройстве, взаимодействии с работодателями, получении медицинской помощи, ориентации в быту, а также общении с местным населением. Лишь незначительное число респондентов (около 12%) изначально проявляют интерес к языку как к культурному феномену [6].

Во-вторых, анализ анкет и интервью показал, что большинство трудовых мигрантов сталкиваются с психологическим барьером при изучении языка, особенно если преподавание ведётся строго академическим языком, без учёта их жизненного контекста и культурных различий. При этом мигранты охотно вовлекаются в обучение, если материал подаётся в прикладной форме и включает примеры из повседневной жизни — поездки на транспорте, посещение магазинов, работа на стройке или в сфере обслуживания.

Кроме того, большинство преподавателей отметили, что мигранты лучше усваивают информацию, если обучение строится на базе ролевых игр, ситуационных диалогов и визуальных материалов, особенно если последние сопровождаются пояснениями на родном языке. Это особенно актуально для слушателей с низким уровнем формального образования и слабой грамотностью на родном языке [7].

Анализ

Полученные результаты позволяют говорить о необходимости переосмысления традиционных подходов к преподаванию русского языка взрослым мигрантам. Стандартизированные методики, ориентированные на абстрактные темы и грамматический анализ вне контекста, оказываются недостаточно эффективными. Вместо этого требуется более гибкая, культурно-чувствительная и практико-ориентированная методика.

Анализ данных показал, что наиболее успешными оказываются те модели обучения, которые:

- адаптируют учебные материалы под реальные коммуникативные потребности мигрантов (например, заполнение анкет, беседы с работодателями, объяснение симптомов врачу);

- включают элементы интерактивного обучения — игры, моделирование повседневных ситуаций, работа в парах и группах;
- строятся на принципах уважения к этнокультурной идентичности учащихся, то есть признают значимость родной культуры мигрантов и активно используют её в обучении (через сравнение культур, переводы, обсуждение сходств и различий).

Также анализ показывает, что внедрение билингвального подхода (например, краткие объяснения на родном языке мигранта) существенно облегчает усвоение нового материала, особенно на начальном этапе обучения. Полный отказ от родного языка, как показал анализ, может приводить к фрустрации и снижению учебной мотивации, особенно среди малообразованных или пожилых мигрантов [8].

Существенным фактором эффективности является также подготовка преподавателей, работающих с мигрантами. Те педагоги, которые обладают навыками межкультурной коммуникации, демонстрируют гибкость, эмпатию и способность адаптировать материал «на лету», добиваются лучших результатов в обучении, чем те, кто использует шаблонные программы.

Наконец, анализ показал, что успешное обучение невозможно без учёта социального контекста мигрантов — их графика работы, доступа к образовательным ресурсам, уровня стресса и условий проживания. Следовательно, методика должна быть гибкой и адаптивной не только с точки зрения содержания, но и в организационном плане (вечерние или мобильные курсы, дистанционное обучение, выездные группы) [9].

Обсуждение

Анализ результатов показал, что трудовые мигранты, как специфическая категория обучающихся, нуждаются в особом подходе к изучению русского языка. Стандартные методики, разработанные для учащихся с академическими целями, часто оказываются неэффективными в данной среде. Они не учитывают реальный уровень знаний, мотивацию и жизненные условия мигрантов.

Важно также отметить необходимость гибкой организации учебного процесса. Мигранты часто работают по ненормированному графику, сталкиваются с высокой физической нагрузкой и социальной нестабильностью. Поэтому успешной является методика, предполагающая модульное обучение, микрозанятия, активное использование визуальных и аудиосредств, а также повторение и закрепление материала через ролевые игры и моделирование реальных ситуаций [10].

Заключение

Обобщая вышеизложенное, можно сделать вывод, что преподавание русского языка трудовым мигрантам должно строиться на принципах практичности, гибкости и культурной адаптированности. Только при таком подходе возможно достижение устойчивого результата: не только языкового, но и интеграционного.

Методика должна ориентироваться на повседневные потребности: умение заполнить документы, объясниться с работодателем, обратиться за медицинской помощью. Поэтому в центре обучения должны стоять реальные коммуникативные задачи, а не абстрактные грамматические правила.

Кроме того, необходимо учитывать культурное многообразие. Уважение к родному языку и традициям обучающихся создаёт доверительную атмосферу и повышает мотивацию. Таким образом, этнокультурно-ориентированная методика становится не просто педагогическим решением, а инструментом социальной адаптации и взаимопонимания в принимающем обществе.

Перспективными направлениями дальнейшей работы являются разработка специализированных пособий, обучение преподавателей межкультурной коммуникации, а также создание доступных онлайн-ресурсов, позволяющих мигрантам учить язык в удобном темпе.

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РАЗРАБОТКА ЦИФРОВОЙ МОДЕЛИ МЕСТНОСТИ НА ОСНОВЕ ПРОГРАММЫ SURFER И ГЕОПРОСТРАНСТВЕННЫЕ ДАННЫЕ

Аннотация: *В данной статье описываются исследования, проведенные по обработке геопространственных данных, полученных с помощью Google Earth и разработке цифровой модели рельефа с использованием программы Surfer.*
Ключевые слова: *Google Earth, Surfer, 3D модел, рельеф, GPS Visualizer.*

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DEVELOPMENT OF A DIGITAL TERRAIN MODEL BASED ON THE SURFER PROGRAM AND GEOSPATIAL DATA

Abstract: *This article describes the research conducted on processing geospatial data obtained using Google Earth and developing a digital elevation model using the Surfer program.*
Key words: *Google Earth, Surfer, 3D model, relief, GPS Visualizer*

На сегодняшний день в ландшафтных и геологических изысканиях использование геопространственных данных и программы Surfer для создания 3D-моделей рельефа небольших территорий является одним из самых быстрых методов по сравнению с другими.

3D-модель местности является основой 3D-карт. После создания 3D-модели местности другие детали местоположения могут быть отображены в виде картографических данных. [1; 140-б]. Проводятся исследования по созданию 3D-моделей рельефа региона на основе различных источников с использованием программ Panorama, ArcGIS, Surfer.

В научной работе вьетнамца Нгуена Ань Тая «Методология построения трехмерной модели земной поверхности на основе данных двумерной карты»

[2; с. 127-131, 3; с. 87-97] представлены исследования по созданию трехмерной модели рельефа местности региона с использованием двумерных карт и программы MapInfo. Также в научной работе Нгуен Ань Тая и Дао Хыу Ши «Методология трехмерного моделирования земной поверхности» [4; 38-41-б] описываются их исследования по созданию трехмерной модели рельефа в профессиональном программном пакете Engage3D..

В исследовательской работе Joseph Wood "Геоморфологическая характеристика цифровых моделей рельефа" рассматриваются методы и проблемы, связанные с созданием цифровых моделей рельефа. В этом исследовании также рассматривается использование GAT при обработке растровых изображений, сравнение методов интерполяции контуров и оценка точности 3D-моделей рельефа [7].

3D-модели рельефа и программные средства, используемые для их создания, были изучены в научных работах Che Mat Ruzinoor [8] и др. В этом исследовании была разработана классификация традиционной, автоматической и онлайн-визуализации рельефа и программных средств, используемых в них..

Golden Software Surfer — один из мощных программных пакетов для картографического изображения земной поверхности. Логику работы с программой можно представить в виде трех основных функциональных блоков: а) создание цифровой модели земной поверхности; б) выполнение вспомогательных операций с цифровыми моделями земной поверхности; в) визуализация земной поверхности. Программа позволяет быстро и легко изменять контур, поверхность, рамку, вектор, изображение, заштрихованную область и т. д [5; 54-б].

Цифровая модель Земли традиционно представляется в виде набора значений в узлах регулярной четырехугольной сетки, дискретность которых определяется конкретной решаемой задачей. Для хранения таких значений Surfer использует собственные файлы GRD (двоичные или текстовые), которые давно стали стандартом для пакетов математического моделирования [6; 4-б].

Программа Surfer использует спутниковые снимки в качестве исходных данных для создания 3D-модели рельефа. Для этого данные о местности получаются в виде координат точечных объектов с помощью программ Google Earth, Sas Planet и других подобных программ. При получении данных с помощью наиболее распространенной в настоящее время программы Google Earth выполняется следующая последовательность операций:

1. Откройте Google Earth;
2. Активируйте раздел «Добавить путь» на панели инструментов;
3. В диалоговом окне «Создать путь» введите имя области в поле «Имя»;
4. Введите поле «Цвет стиля» и выберите цвет (обычно красный);
5. Используйте курсор мыши, чтобы выбрать нужную область, и, наконец, нажмите кнопку «ОК».

После выполнения данной последовательности действий в рабочем окне программы появится область, отмеченная красной линией (рис. 1).

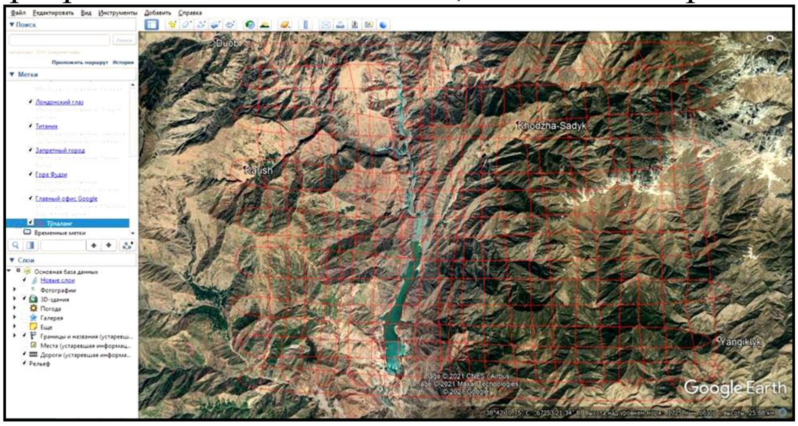


Рисунок 1. Вид области, отмеченной в Google Earth

Так как в процессе получения этих данных мы определили область водохранилища Топаланг, то мы назвали его Топаланг, и выявленные данные будут отражены в разделе «Метка» программы. Эти данные будут сохранены в «Папке данных» в формате *.kml.

В большинстве случаев координаты X и У указанной области получены в сохраненной информации. Но значения высоты H этих координат получены не будут. Поэтому в такой ситуации используется https://www.gpsvisualizer.com [9].

Чтобы получить значение высоты данных *.kml, сохраненных в папке данных, выполните следующие действия:

1. Перейдите на сайт https://www.gpsvisualizer.com;
2. Выберите раздел «Look up elevation»;
3. Выберите пункт «Upload a file» из раздела «Загрузить файл» и импортируйте в программу файл «Topalang.kml», сохраненный в «Пакете данных»;
4. Выберите пункт «Convert & add elevation»;
5. Данные в подготовленном файле *.gpx будут представлены с именем в виде времени его подготовки (год, месяц, день, час, минута, секунда).

Подготовленные данные сохраняются в «Папке данных». Эти данные находятся в текстовом файле (*.txt), который нам необходимо преобразовать в Microsoft Office Excel. Для этого используется программа TCX Converter. При конвертации текстового файла выполняются следующие действия:

1. Активируется программа TCX Converter;
2. Выбирается раздел «OPEN BESTAND» и импортируется файл *.gpx в «Папке данных» в программу;
3. Для экспорта файла в Excel в разделе «Exporteer» выбирается пункт «CSV Bestand Opslan»;
4. Данные в файле *.csv представляются в «Папке данных» с именем в виде времени его подготовки (год, месяц, день, час, минута, секунда) и файл сохраняется.

После выполнения этой последовательности действий программа автоматически преобразует данные в файл *.csv (рисунок 2).

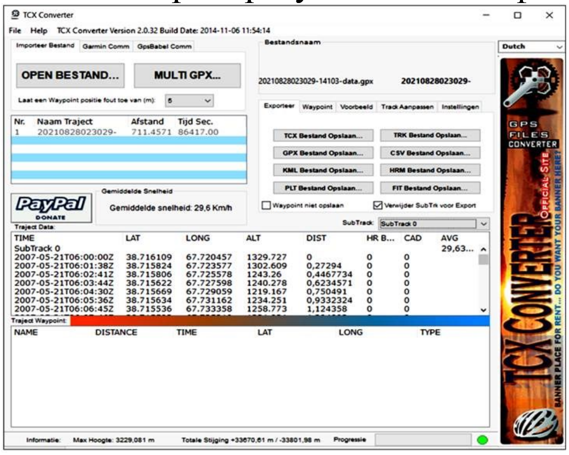
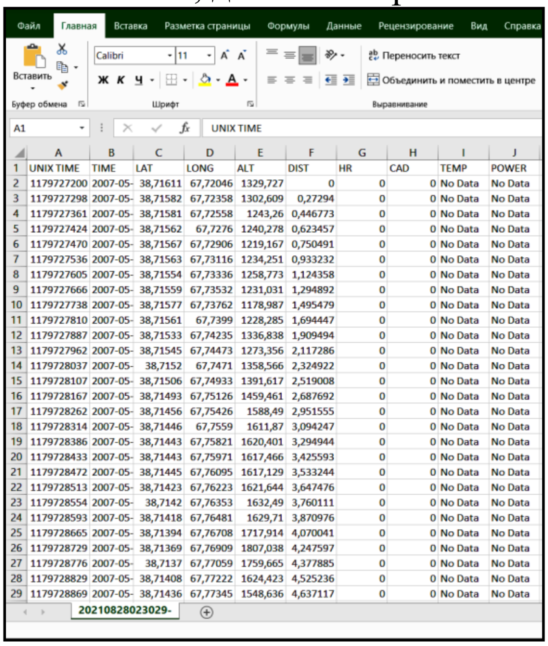
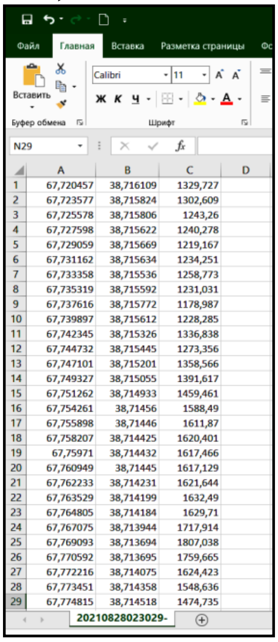


Рисунок 2. Процесс конвертации данных в программе TCX Converter

Конвертированные данные открываются в Microsoft Office Excel. В этом процессе есть и другие данные, кроме *X, Y, H* которые удаляются. Данные широты и долготы также меняются местами, то есть значения X помещаются в столбец *A, Y* в столбец *B*, а *H* в столбец *C*. В этом случае файл сохраняется в «Папке данных» в формате *.xls (рисунок 3[a,b]). Учитывая, что программа Surfer принимает данные из Microsoft Office Excel в виде значений долготы, широты и высоты, данные сохраняются в случае, показанном на рисунке 3[b].





а) б)

Рисунок 3. Данные в формате *.csv (а) и *.xls (б) в Microsoft Office Excel

Чтобы импортировать данные в Surfer, выполните следующие действия:

1. Запустите Surfer и откройте в программе новую страницу с именем Plot;

2. Выберите раздел GRID DATA на панели инструментов;

3. Откройте диалоговое окно Open Data, выберите данные из Microsoft Office Excel и импортируйте их в программу;

4. Убедитесь, что данные в столбцах A, B и C соответствуют данным в столбцах X, Y, H и нажмите OK.

После выполнения этих шагов программа Surfer автоматически импортирует файл *.xls и преобразует его в файл GRID, а также создаст отчет об импорте данных в формате *.rtf, и эти файлы будут сохранены в «Папке данных».

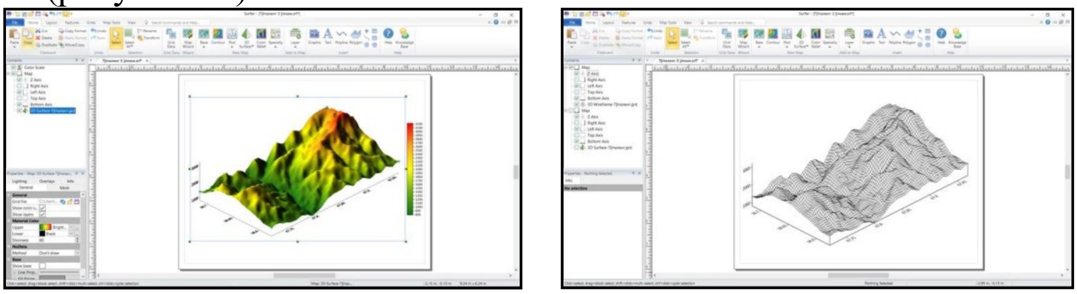
Импортировав файл формата GRID в Surfer, можно сделать многое. На основе полученных данных можно изобразить рельеф местности в черно-белом и цветном вариантах, представить данные в виде точечных объектов, создать 2- и 3-мерные карты и многое другое. Для создания 3-мерной модели рельефа местности на основе полученных данных выполняется следующая последовательность действий:

1. Выберите меню « Home» в строке меню;

2. Выберите раздел 3D Surface в меню « Home»;

3. Выберите данные из файла сетки с помощью диалогового окна «Open Grid» и импортируйте их в программу.

После выполнения данной последовательности действий в окне Surfer появится 3D-модель рельефа местности на основе полученных данных (рисунок 4а). Кроме того, возможно создание каркасной модели рельефа местности с помощью раздела 3D Wireframe в разделе 3D Surface меню «Home» (рисунок 4б).



а) б)

Рисунок 4. 3D-модель рельефа в программе Surfer (а) и ее вид в каркасном виде (б)

В целом программа Surfer имеет возможность представлять рельеф местности различными способами. Также возможно анализировать рельеф местности, отображать его в черно-белом, цветном, 2-х и 3-х измерениях, а также выполнять другие аналитические работы.

В этом случае также возможно сохранить 3D-модель рельефа местности в виде растрового изображения. Для этого в программе выберите Файл → Экспорт, дайте изображению имя и сохраните его как файл *.jpeg в «Папке данных».

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РАЗРАБОТКА ТРЕХМЕРНОЙ МОДЕЛИ РЕЛЬЕФА СУРХОНДАРЬИНСКОЙ ОБЛАСТИ НА ОСНОВЕ ДАННЫХ SRTM

Аннотация: *В данной статье описываются проведенные исследования по созданию цифровой 3D модели рельефа Сурхандарьинской области на основе данных SRTM и ArcGIS.*
Ключевые слова: *SRTM, ArcGIS, opentopography, Данные, ЦМР, идентификационный номер*

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DEVELOPMENT OF A 3D RELIEF MODEL OF THE SURKHONDARYA REGION BASED ON SRTM DATA

Abstract: *This article describes research conducted on the development of a digital 3D model of the relief of the Surkhandarya region based on SRTM data and ArcGIS.*
Key words: *SRTM, ArcGIS, opentopography, DATA, DEM, ID number*

Изучение объектов и природных явлений, выявление процессов землепользования, исследование территорий, подверженных ухудшению состояния окружающей среды, загрязнению и деградации, требуют наличия качественных цифровых моделей рельефа местности. В последнее время для изучения этих процессов широко используются данные космической съемки. Применение ГИС технологий при создании цифровой модели рельефа местности на основе данных космической фотосъемки и трехмерных моделей рельефа с ее использованием стремительно развивается.

Постановлением Президента Республики Узбекистан «О мерах по реализации инвестиционного проекта по организации Национальной географической информационной системы» определены задачи по формированию Национальной географической информационной системы Республики Узбекистан как составной части системы «Электронное правительство», предусматривающей создание спутниковой геодезической сети, государственного кадастра и единой автоматизированной системы регистрации недвижимости, и на этой основе обеспечение рационального использования и охраны природных ресурсов, необходимой информационно-ресурсной базы для комплексного развития территорий республики.

В данной статье мы рассмотрим проведенную работу по созданию 3D-модели рельефа на основе данных SRTM.

В настоящее время многие электронные интернет-сайты предоставляют пользователям данные своих космических снимков. Яркими примерами этого являются используемые в настоящее время https://opentopography.org [6], https://earth.google.com [7], https://www.usgs.gov [8] и другие веб-сайты. Эти сайты ежегодно предоставляют пользователям обновленные космические снимки регионов.

Рассмотрим проведенную работу по созданию 3D-модели рельефа местности Сурхандарьинской области с помощью программы ArcGIS, на основе данных сайта https://opentopography.org, содержащего открытые топографические данные.

Для этого сначала зайдите на сайт https://opentopography.org. В рабочем окне сайта имеется 5 основных разделов. Это ДОМ, ДАННЫЕ, РЕСУРСЫ, УЗНАТЬ, О. Из этих разделов вы можете перейти в раздел ДАННЫЕ. Этот раздел состоит из 3 частей:

1. Найти карту данных (поиск данных по карте);
2. Каталог данных (каталог данных);
3. Способствовать (добавить данные).

Через данные разделы возможен поиск информации с помощью карты, поиск информации по каталогу, а также размещение уже имеющейся информации на сайте. Раздел «Каталог данных» предназначен для выбора топографических данных по регионам.

Раздел «Каталог данных», в свою очередь, состоит из 3 основных разделов:

1. Глобальные и региональные ЦМР
2. Топография высокого разрешения ЦМР
3. Сообщества внесло вклад

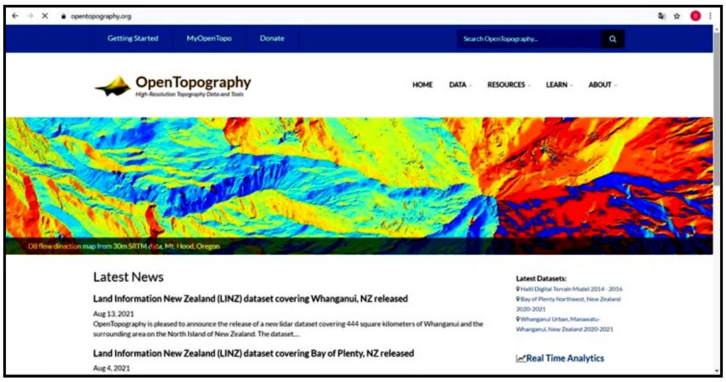
Данные по Сурхандарьинской области включены в раздел «Глобальные и региональные цифровые модели рельефа» (ЦМР) и включены в этот раздел. Он, в свою очередь, состоит из нескольких основных отделов.

Эти разделы отличаются друг от друга разрешением и значением пикселей в растровых изображениях. В основном значение пикселя растрового изображения на этих участках составляет 30 м и 90 м. В данном исследовании мы используем топографический модуль радара Global Shuttle.

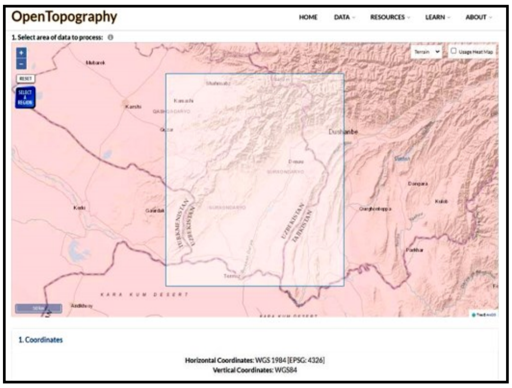
SRTM собрал данные о высоте в глобальном масштабе для создания цифровой топографической базы данных высокого разрешения Земли. SRTM представляет собой специально модифицированную радиолокационную систему, которая находилась на борту космического челнока Endeavour во время 11-дневной миссии в феврале 2000 года. SRTM — это международный проект, реализуемый под руководством Национального географического агентства (NGA) и Национального управления по аэронавтике и исследованию космического пространства (NASA) [2; 39-б., 3; 23-б., 4].

23 сентября 2014 года Белый дом объявил на саммите в Нью-Йорке, что SRTM, топографические данные с самым высоким разрешением, когда-либо созданные НАСА в 2000 году, должны стать доступными по всему миру к концу 2015 года. С тех пор все глобальные данные SRTM стали общедоступными [5].

Данные SRTM Global также делятся на 3 типа: SRTM Gl3, SRTM Gl1, SRTM Gl1 Ellipsoidal. Здесь только в данных SRTM Gl3 размер пикселя растрового изображения составляет 90 м, а в двух других данных — 30 м. Для получения более точной информации мы используем данные 30-метрового эллипсоидального зондирования SRTM Gl1. Определить территорию Сурхандарьинской области по спутниковым снимкам можно двумя способами. В первом способе изображение искомой области задается в виде прямоугольника. Во втором способе можно определить площадь, введя значения координат. На рисунке 1 показан процесс получения спутниковых снимков Сурхандарьинской области первым методом.



a)



b)

Рисунок 1. Рабочее окно сайта https://opentopography.org (*a*) и данные SRTM Сурхандарьинской области (*b*)

После определения области появится такая информация, как максимальные и минимальные значения координат X и Y, значение площади определенной области и формат растрового изображения. Также указываются должность пользователя, цель использования космического снимка и адрес электронной почты пользователя.

После заполнения всей необходимой информации предоставленным данным будет присвоен идентификационный номер, а растровое изображение выявленной территории будет предоставлено в архивном файле. Например: файл rasters_SRTMGL1Ellip.tar.gz. Этот файл будет скопирован в память компьютера. Скопированный файл перемещается в «папку данных» и устанавливается, а архивный файл извлекается.

Приложение ArcScene программы ArcGIS используется для создания трехмерной модели рельефа на основе полученного растрового изображения. После запуска приложения ArcScene растровое изображение в «Папке данных» добавляется через раздел «Добавить данные» на панели инструментов (рисунок 2^{a}).

Первоначально растровое изображение визуализируется в черно-белом варианте в приложении ArcScene. Для представления этого изображения в цвете выполняются следующие шаги:

1. Растр в разделе «Слои сцены» включен в раздел «Свойства» изображения;

2. В диалоговом окне «Свойства слоя» войдите в раздел «Символы»;

3. Из пункта «Цветовая схема» в разделе «Символ» выбирается цветовая схема от «тёмно-зелёного до тёмно-красного»;

4. Выбраны пункты «Применить» и «Ок».

После выполнения данной последовательности действий в окне программы появится цветное представление изображения (рисунок 2^{b}).

На этом изображении мы видим, что зеленый цвет представляет равнины, желтый — холмы, а красный — горы. Для создания 3D модели рельефа изображения выполняются следующие работы:

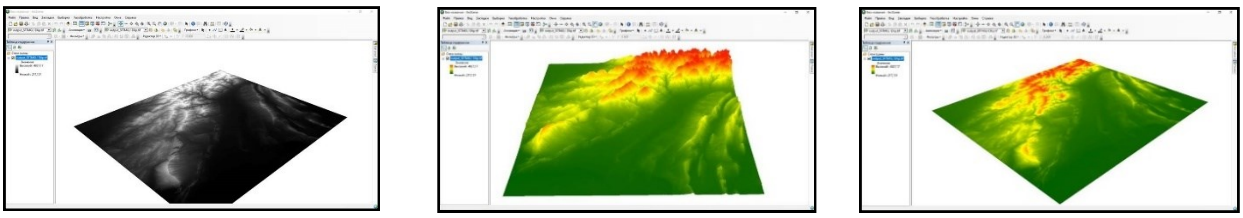
1. Растр в разделе «Слои сцены» снова вносится в раздел «Свойства» изображения;

2. Из диалогового окна «Свойства слоя» перейти в раздел «Базовые высоты»;

3. В разделе «Высоты из поверхностей» выбран пункт «Плавающие на пользовательской поверхности»;

4. Значение высоты вводится в пункт «Коэффициент конвертации значений высоты слоя в единые сцены».

После выполнения данной последовательности действий в рабочем окне программы будет создана 3-х мерная модель рельефа местности. При повороте изображения с помощью раздела «Навигация» на панели инструментов изображение ориентируется на север (рис. 2^{c}).



a) ***b)*** ***c)***

Рисунок 2. Черно-белые (*a*), 2D (*b*) и 3D (*c*) модели рельефа Сурхандарьинской области

Пространственная модель данной местности сохраняется как растровое изображение (*.jpg, *.png) в «Папке данных» путем выполнения следующих действий: Файл → Экспорт сцены → 2D.

Разработанная цифровая модель рельефа может быть использована в географических исследованиях, в том числе при ландшафтном анализе, мониторинге экологического состояния территории, изучении расселения населения, изучении сельскохозяйственных угодий, проектировании гидрографических сетей, изучении линейных сооружений, изучении влияния рельефа на распространение телевизионных и радиоволн и других исследованиях.

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ОСОБЕННОСТИ КОЛЛАТЕРАЛЬНОГО КРОВООБРАЩЕНИЯ ПЕЧЕНИ ПОСЛЕ ВЫКЛЮЧЕНИЯ ДОЛЕВЫХ АРТЕРИЙ НА ФОНЕ МОДЕЛИРОВАНИЯ РЯДА ПАТОЛОГИЧЕСКИХ СОСТОЯНИЙ

Резюме: *В статье изучены особенности коллатерального кровообращения печени после выключения долевых артерий на фоне моделирования ряда патологических состояний. Коллатеральное кровообращение печени после выключения основного ствола печеночной артерии, а также её долевых либо интрамуральных ветвей изучалась в морфологических аспектах на фоне интактной практически «здоровой» печени, что не адекватно клиническим условиям.*

Ключевые слова: *собака, печень, кровоток, артерия, некроз, кровообращение, нервное сплетение, гепатит, долевая артерия.*

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FEATURES OF COLLATERAL CIRCULATION OF THE LIVER AFTER DISCONNECTION OF LOBAR ARTERIES IN THE BACKGROUND OF MODELING A NUMBER OF PATHOLOGICAL STATES

Abstract: *The article studies the features of collateral circulation of the liver after disconnection of lobar arteries in the background of modeling a number of pathological conditions. Collateral circulation of the liver after disconnection of the main trunk of the hepatic artery, as well as its lobar or intramural branches, was studied in morphological aspects against the background of an intact, practically “healthy” liver, which is not adequate to clinical conditions.*

Keywords: *dog, liver, blood flow, artery, necrosis, blood circulation, nerve plexus, hepatitis, lobar artery.*

Введение. Существенный вклад в структуру повреждений вносит травма живота с повреждением внутренних органов [2]. Характерными чертами абдоминальной травмы является множественность повреждений, большой объем кровопотери, высокая летальность и частота послеоперационных осложнений [3]. Одним из основных источников кровотечений при абдоминальной травме являются повреждения печени [1]. Объем кровопотери и время, необходимое для остановки кровотечения из ран печени, являются одними из лимитирующих факторов при попытках сохранения жизни пострадавшим с тяжелой сочетанной травмой [4,5]. Поэтому разработка быстрого и надежного метода гемостаза при повреждениях печени, определение показаний к его использованию и алгоритма действий хирурга, является одним из возможных путей решения генеральной проблемы.

Цель исследования. Нами были изучено особенности коллатерального кровообращения печени после выключения долевых артерий на фоне моделирования ряда патологических состояний.

Материалы и методы исследования. Исследование окольного кровотока печени на фоне её патологических состояний, мы на 10 собаках выключали обе долевые артерии печени на фоне экспериментального гепатита либо портальной гипертензии. Экспериментальный гепатит вызывался путем подкожного введения раствора CC14 на оливковом масле с интервалами 48 часов между вливаниями в дозах 0,6 мл на кг. веса животного.

Результаты исследования. До начала вливания у собак общий билирубин в крови составлял 0,8мг%, прямой билирубин не определялся, непрямой билирубин - 0,7 мг%, остаточный азот - 21 мг%, общий белок сыворотки крови -6,77%. альбумины -60,89%, глобулины, а -20,0 %, 8 - 13,42 %, Y - 5,757 %, альбумин-глобулиновый коэффициент - 1,4 см3. После 15-17 инъекций общий белок крови уменьшается до 5,25%, понижалось содержание альбуминов до 53,48%, увеличились -глобулины до 27,9%, повысился остаточный азот до 30 мг%, сулемовая реакция -1,2 см (стала положительной). На этом фоне у двух собак выключались две долевые артерии, идущие к левым латеральной и медиальной долям печени. На посмертных рентгеноангиограммах видны четкие аваскулярные зоны в пределах выключенных долей. Стремясь улучшить окольный кровоток печени на фоне моделирования гепатита, мы одновременно с выключением двух долевых артерий, удаляли пери адвентициальное нервное сплетение по всей протяженности основного ствола печеночной артерии, а также производили экстирпацию правого полулунного узла чревного нервного сплетения. Подобные одновременные вмешательства на артериях и нервах были произведены у трех собак после 15-17 инъекций CC14. Однако при этом существенного положительного влияния денервации на развитие окольного кровотока не отмечалось. Так, например, перед операцией у одной собаки с гепатитом биохимические показатели были следующие: белковые фракции - альбумины - 31,46%, глобулины 24,573%, B - 2,870%, Y - 24,574%, общий билирубин - 0,6 мг%, остаточный азот - 36 мг%, сулемовая проба - 1,4 см°, холестерин - 220 мг%, реакция у двух собак также были обнаружены изменения в крови, свидетельствующие о развившемся гепатите. В этих условиях выключение двух долевых артерий в сочетании с удалением печеночного нервного сплетения (как и в предыдущей группе опытов) повлекло за собой у трех собак развитие обширных некрозов левой медиальной и латеральной долей печени.

Как видно из изложенного, полученные данные свидетельствуют об ограниченных возможностях развития окольного кровотока печени после выключения двух долевых артерий на фоне выраженного экспериментального гепатита, о малом влияний удаления печеночного нервного сплетения на развитие окольного кровотока. В других опытах на четырех собаках создавалась модель подпеченочного блока воротного кровотока путем стенозирования воротной вены. Портальное давление измерялось путем флеботонометрии в одной из брыжеечных вен до и после стенозирования. Цифры флеботонометрии у одной из собак до стенозирования составляли 56 мм. Но, а после дозированного стенозирования на 1/2 просвета - 120 мм Н20. Через 7 дней была произведена повторная лапаротомия. Давление в системе воротной вены понизилось до 100 мм НгО. Через 4 дня собака погибла. На вскрытии при макроскопическом исследовании были обнаружены нежные спайки между большим сальником и вентральной брюшной стенкой, диафрагмальной поверхностью печени и диафрагмой, печенью и двенадцатиперстной кишкой и между петлями кишок. Печень полнокровна, а две ишемизированные доли дряблые, в них отмечаются участки сероватого цвета с некротическим распадом. На рентгеноангиограммах обнаружены васкулярные зоны в пределах этих долей. В соседних долях видны хорошо инъецированные внутриорганные разветвления артерий. На других собаках изучалась пластичность сосудов печени после выключения двух долевых артерий, идущих к левым медиальной и латеральной долям на фоне моделирования полного под печёночным блоком воротного кровотока печени. У одной собаки на первом этапе операции было произведено дозированное тонизирование ствола воротной вены на 1/2 её просвета. Собака погибла через 3 дня. На вскрытии отмечаются такие же обширные некротические участки в ишемизированных долях печени. На рентгеноангиограммах и гистологических препаратах подтверждается некроз в этих долях. Характерно, что в этих опытах возникали спонтанные сращения большого сальника с вентральной брюшной стенкой и печенью, а также между печенью и диафрагмой, т. е. возникает спонтанная оментогепато -диафрагмопексия, которая, однако, не предотвращала развития некротического процесса. На рентгеноангиограммах сосуды этих сращений были единичными и очень мелкими.

Вывод: Резюмируя изложенное, а также сопоставляя результаты наших опытов, следует отметить, что окольное кровообращение печени после выключения двух, рядом расположенных артерий, которое оказывается достаточным при интактной, практически «здоровой» печени, во всех приведенных случаях оказалось недостаточным. Это, по-видимому, может быть учтено при рассмотрении до настоящего времени спорных вопросов о целесообразности выключения ветвей печеночной артерии, а также воздействия на экстремальные печеночные нервные сплетения при лечении различных видов патологии печени.

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СОСТОЯНИЕ ПРОБЛЕМЫ ИСПОЛЬЗОВАНИЯ СОВРЕМЕННЫХ СРЕДСТВ ОБУЧЕНИЯ В ГЕОГРАФИЧЕСКОМ ОБРАЗОВАНИИ

Аннотация: *Современные тенденции в образовании требуют глубоких изменений в подходах к преподаванию, особенно в предметных областях, тесно связанных с визуализацией, пространственным мышлением и анализом данных. География — один из таких предметов, в котором внедрение современных средств обучения (СОС) играет ключевую роль. В статье рассматривается текущее состояние проблемы использования СОС в географическом образовании.*

Ключевые слова:*географическое образование, цифровые технологии, средства обучения, ГИС, мультимедиа, интерактивная карта, педагогические инновации, учебный процесс.*

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THE STATE OF THE PROBLEM OF USING MODERN TEACHING TOOLS IN GEOGRAPHY EDUCATION

Annotation: *Current trends in education require profound changes in teaching approaches, especially in subject areas closely related to visualization, spatial reasoning, and data analysis. Geography is one of such subjects in which the introduction of modern learning tools (SOS) plays a key role. The article examines the current state of the problem of using SOS in geographical education.*

Keywords

geographical education, digital technologies, learning tools, GIS, multimedia, interactive map, pedagogical innovations, educational process.

Введение

Современная эпоха характеризуется масштабной цифровой трансформацией всех сфер жизни, включая образование. Традиционные формы подачи информации теряют свою эффективность на фоне стремительного развития информационных технологий. В этих условиях особенно актуализируется необходимость применения современных средств обучения в школьном и высшем географическом образовании. География как наука требует не только теоретических знаний, но и глубокого визуального восприятия, умения работать с картами, пространственными данными, анализировать природные процессы в динамике и взаимосвязях.

Использование цифровых инструментов — таких как мультимедийные презентации, ГИС-программы, виртуальные экскурсии, онлайн-платформы — позволяет сделать обучение более интересным, наглядным, междисциплинарным. Тем не менее, несмотря на очевидные преимущества, внедрение этих средств в образовательный процесс сталкивается с рядом проблем: нехваткой оборудования, методических материалов, ИКТ-компетенций у педагогов, а также ограничениями на уровне инфраструктуры и финансирования. В этой статье предпринята попытка всесторонне рассмотреть текущее состояние проблемы, обозначить причины её сложности и наметить пути решения.

Анализ литературы

Проблематика использования современных средств обучения в географии активно изучается как отечественными, так и зарубежными авторами. Согласно Е. И. Кузнецовой, современные цифровые ресурсы играют роль катализатора формирования предметной компетенции учащихся. В работах В. В. Глаголева акцент делается на необходимости методической подготовки учителей для работы с интерактивными средствами. Н. С. Касперская выделяет мультимедийные технологии как основное средство повышения мотивации к обучению.

Зарубежные исследования, например, D. Lambert и R. Bednarz, подчеркивают роль пространственного мышления, которое развивается в процессе работы с интерактивными картами и глобальными системами визуализации. В их исследованиях акцент сделан на использовании геопорталов и онлайн-карт в проектной деятельности учащихся. Работы О. Н. Солодухина и А. В. Чекалина направлены на анализ практик использования

ГИС в средней школе, где отмечается высокая эффективность при условии комплексной подготовки педагогов.

Таким образом, литература показывает высокий интерес к теме, но одновременно указывает на множество нерешённых вопросов: методическое обеспечение, подготовка педагогов, адаптация цифровых ресурсов к учебным программам.

Методы

Исследование проводилось с использованием следующих методов:

- **Контент-анализ** отечественных и зарубежных публикаций, учебных пособий, методических рекомендаций;
- **Онлайн-опрос** более 100 учителей географии из разных регионов Узбекистана, Казахстана и России;
- **Интервью** с преподавателями вузов, участвующими в проектах цифровизации географического образования;
- **Кейс-анализ** успешных практик использования интерактивных платформ (ArcGIS, Google Earth, SMART Globus, LearningApps);
- **Сравнительный анализ** условий внедрения цифровых средств в обычных школах, лицеях и инновационных учебных заведениях.

Результаты

Анализ полученных данных позволил выделить следующие результаты:

1. **Степень внедрения СОС**
   - В 78% школ активно используются мультимедийные презентации и видеоматериалы.
   - В 33% школ применяются интерактивные карты и мобильные приложения (Google Earth, GeoGuessr).
   - Лишь в 12% учреждений применяются полноценные ГИС-программы, чаще всего в специализированных классах или вузах.
2. **Педагогическая готовность**
   - Только 40% опрошенных учителей прошли специальное обучение по использованию цифровых географических средств.
   - Более 60% выражают затруднение в самостоятельной интеграции ГИС в учебный процесс из-за нехватки знаний и методических пособий.
3. **Учащиеся и мотивация**
   - Ученики охотно включаются в уроки, построенные на интерактивных заданиях, картографических играх, веб-квестах.
   - Повышается уровень самостоятельного поиска информации и анализа данных.
4. **Технические барьеры**
   - Отмечается слабое техническое обеспечение в сельских школах, ограниченный доступ к интернету, отсутствие лицензионных программ.

Обсуждение

Полученные результаты подтверждают необходимость системного подхода к внедрению современных средств обучения в географическое образование. Простое наличие интерактивной доски или доступа к интернету не обеспечивает качественное обучение. Ключевым фактором выступает подготовка учителя, его методическая и техническая грамотность, готовность к инновациям. Без целенаправленной методической поддержки, без создания удобных учебно-методических материалов, основанных на цифровых ресурсах, внедрение технологий остается формальным.

Также важно учитывать возрастные особенности учеников: если учащиеся средней и старшей школы более подготовлены к самостоятельной работе с ГИС и мобильными приложениями, то для младших классов важнее визуальные и игровые формы подачи информации. Унификация программ, создание баз данных и хранилищ географического контента для педагогов может способствовать более массовому внедрению СОС.

Заключение

Современные средства обучения открывают новые горизонты в преподавании географии, делают процесс более наглядным, интерактивным, мотивирующим. Однако на текущем этапе существует разрыв между техническими возможностями и их реализацией в учебной практике. Отсутствие единой системы подготовки педагогов, недостаточная материально-техническая база и дефицит методических разработок сдерживают интеграцию инноваций. Необходима государственная поддержка, инициативность образовательных учреждений и активное участие педагогов в цифровой трансформации.

Предложения

1. Разработать национальную стратегию цифровизации географического образования с конкретными этапами и показателями.
2. Включить курсы по использованию ГИС и цифровых карт в обязательную программу повышения квалификации учителей географии.
3. Создать онлайн-платформу с доступом к интерактивным картам, тренажёрам, видеоурокам и методическими рекомендациями.
4. Провести аудит технической обеспеченности школ и на его основе распределить ресурсы целенаправленно.
5. Стимулировать учителей, использующих инновации, путём грантов, публикаций и профессиональных конкурсов.
6. Интегрировать цифровые технологии в учебные программы вузов, готовящих будущих учителей географии.
7. Поддерживать международное сотрудничество и заимствование успешных практик (например, из Сингапура, Канады, Великобритании).

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АНАЛИЗ СУЩЕСТВУЮЩИХ ПРОБЛЕМ В ЭКСПЛУАТАЦИИ ЭЛЕКТРОТЕХНИЧЕСКОГО ОБОРУДОВАНИЯ ПОДСТАНЦИЙ

Аннотация: *Для обеспечения потребителей по всему миру высококачественной электроэнергией на электрических подстанциях применяются высоковольтные выключатели, которые коммутируют цепи переменного тока в различных режимах работы, а именно: номинальное короткое замыкание, перегрузка по току, обнаружение и перекалибровка электротехнических устройств, решаются вопросы контроля и учета. Данная научно-исследовательская работа может стать достаточным решением этой проблемы.*

Ключевые слова: *Электрическая подстанция, ток короткого замыкания, электроэнергия, высокие нагрузки в электрических сетях, оборудование подстанции, сопротивление трансформатора, динамическая прочность.*

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ANALYZ SUSHCHESTVUYUSHCHIKH PROBLEM V EKPLOYATSII ELEKTROTEKHNICHESKOGO OBORUDOVANIYA PODSTANTSI

Abstract: *To provide consumers around the world with high-quality electric power, high-voltage switches are used at electrical substations, which switch AC circuits in various operating modes, namely: rated short circuit, current overload, detection and recalibration of electrical devices, control and accounting issues are resolved. This research work can be a sufficient solution to this problem.*

Keywords: *Electrical substation, short-circuit current, electric power, high loads in electrical networks, substation equipment, transformer resistance, dynamic strength.*

Высокие нагрузки в электрических сетях могут оказывать чрезмерное давление на оборудование подстанции и приводить к неисправностям. Изоляционные материалы в системах передачи электроэнергии со временем могут терять свои качества, что может привести к коротким замыканиям.

Шинопроводы, выбранные по экономичной плотности тока, проверяются на:

Допустимый ток в условиях нагрева;

Термическая прочность при воздействии токов КЗ;

Динамическая прочность при КЗ (механический расчет).

Токи короткого замыкания рассчитываются в основном для выбора или проверки параметров электрооборудования, а также для выбора или проверки устройств релейной защиты и автоматики.

Ток трехфазного короткого замыкания рассчитывается в следующем порядке:

На основе расчетной схемы составляется схема замещения для рассматриваемых энергосистем: Путем постепенной замены схема замещения упрощается до простейшего вида, в котором к точке короткого замыкания подключается группа источников, характеризующихся определенной величиной результирующего ESR или каждый питающий источник через одно результирующее сопротивление.

Зная результирующее сопротивление, на основе закона Ома определяется начальное значение составляющей тока короткого замыкания.

Затем определяются импульсный ток и, при необходимости, периодическая и начальная составляющие тока короткого замыкания для заданного момента времени.

Рассчитываем индуктивное сопротивление воздушной линии, подключенной к трансформатору ТМН-4000 кВА. L – примерно = 8 км

U_{vn} =35 kV U_{nn} =11 kV;

P_x =8.5 kVt; P_k =33 kVt;

I_x =1.2 %; U_k =10,5 %; S_{nn} = 4 MV•A

При расчете индуктивного сопротивления воздушной линии используем удельное индуктивное сопротивление воздушной линии Xcол (для одноцепных ВЛ 6-220 кВ

X_{sol}=0,4 Om)

$$X_l = \frac{X_{sol} * l * S_n}{2 * U_b^2} = \frac{0.4 * 8 * 4000}{2 * 35^2} = 5.224\ Om$$

Определяем сопротивление трансформатора

$$X_T = \frac{U_{qt} * S_b}{100 * S_n} = \frac{10.5 * 4000}{100 * 4000} = 0.105\ Om$$

U(кт) – потеря напряжения при коротком замыкании трансформатора - %;

Sn – номинальная мощность трансформатора.

Расчет результирующего сопротивления:
$\sum$ X=X_l+X_T X=5,224+0,105=5,339 Om

Расчет базового (номинального) и максимального токов:

$$I_{nom1} = \frac{S_b}{\sqrt{3} * U_b} = \frac{4000}{\sqrt{3} * 35} = 66.06\ A$$

$$I_{nom2} = \frac{S_b}{\sqrt{3} * U_b} = \frac{4000}{\sqrt{3} * 10} = 210.02\ A$$

$$I_{max1} = 1.5 * I_{nom1} = 1.5 * 66.06 = 99.092\ A$$

$$I_{max2} = 1.5 * I_{nom2} = 1.5 * 210.02 = 315.29\ A$$

Определение токов КЗ на основе базового (номинального) тока:

$$I_{qt1} = \frac{I_{nom1}}{X_l} = \frac{66.06}{5.22} = 0.012\ kA$$

$$I_{qt2} = \frac{I_{nom2}}{\sum X} = \frac{210.02}{5.339} = 0.040\ kA$$

Рассчитаем импульсные токи в течение периода КЗ:

K_y=1,8 35 kV

K_y=1,04 10 kV

КЗ — зависящая от времени константа затухания начальной компоненты тока КТ.

$$I_{zar1} = \sqrt{2} * I_{qt1} * k_y = \sqrt{2} * 0.012 * 1.8 = 0.030\ kA$$

$$I_{zar2} = \sqrt{2} * I_{qt2} * k_y = \sqrt{2} * 0.040 * 1.04 = 0.060\ kA$$

Определение предельного тока отключения автоматических выключателей:

$X_{T\%}$=$U_{k\%}$=10,5 (4000 kVA uchun)

$$I_{uz1} = \frac{1}{X_T\%} * I_{nom1} = \frac{1}{\frac{10.5}{100}} * 66.06 = 629\ A$$

$$I_{uz2} = \frac{1}{X_T\%} * I_{nom2} = \frac{1}{\frac{10.5}{100}} * 210.02 = 2002\ A$$

Выбор электрооборудования для подстанций на основе расчетных токов короткого замыкания, импульсных токов и предельных токов отключения.

Короткое замыкание является одной из самых опасных ситуаций в электрической сети. В таких случаях значение электрического тока резко возрастает, что может привести к значительному повреждению элементов сети. Поэтому коммутационные аппараты, используемые на подстанции, должны быть выбраны с учетом выдерживания токов короткого замыкания.

Выбор электрооборудования для сборных шин 10 кВ

1. Выбор трансформатора напряжения TN для подстанции.

$U_{nom} \geq U_{tar.\ nom.}$ 10kV=10kV

По номинальному напряжению

НТМИ-10-66 VN-10000 V; NN=100 V.

(НТМИ-10-66)

Выбор трансформаторов тока TT для подстанции

$U_{nom} \geq U_{tar.\ nom..}$ 10kV=10kV

По номинальному напряжению:

По номинальному току: $I_{nom} \geq I_{his.}$ 400A > 315.29A

По термическому сопротивлению: $I_{ter.} \geq I_{zar}$ 10kA > 0,060kA

С точки зрения электродинамического сопротивления:

$I_{din.} \geq I_{zar}b$ 10,2kA > 0,060 kA

ТЛ-10 $I_{nom\text{-}1} = 400$ A; $I_{ter} = I_{nom\text{-}1}$ x 50 kara ; $I_{din} = I_{nom\text{-}1}$ x 51

(Для ячеек, выходящих из ТЛ-10 – выбираем 4 шт.)

2. Выбор выключателей на сторону напряжения 10 кВ. Вакуумный выключатель

ВНВП-10/320

по номинальному напряжению: $U_{nom} \geq U_{tar.\ nom}$ 10kV=10kV

по номинальному току: $I_{ном} \geq I_{max.}$ 320A > 315.29A

$I_{uz.nom.} \geq I_{q.t.2}$ 2kA > 400 A

Выбор трансформаторов для собственных нужд подстанции (ТСН)

При выборе ТСН для подстанции используем следующие расчеты.

ОД-КЗ-35 kV -2 шт

КРУН ячейки -9 шт

Наружное освещение Наружное освещение - 4 светильника ОРУ

Заключение: Для расчета токов коммутационных аппаратов, широко используемых в контроле и управлении электрической энергией для подстанции, для достижения необходимой современной и удобной экономической эффективности, для перенастройки реле и трансформаторов тока, а также для обеспечения потребителей качественной энергией были выполнены следующие расчеты. Короткое замыкание является одной из самых опасных ситуаций в электросети. В таких случаях значение электрического тока резко возрастает и может вызвать значительный ущерб элементам сети. Поэтому для коммутационных аппаратов, используемых на подстанции, были выбраны современные устройства, выдерживающие токи короткого замыкания, а полученные результаты пригодны для использования в лабораторных условиях. Также его можно рекомендовать для проектирования в больших масштабах на основе этих расчетов.

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ОРГАНИЗАЦИОННО-ЭКОНОМИЧЕСКАЯ ХАРАКТЕРИСТИКА И ДИНАМИКА ФИНАНСОВЫХ ПОКАЗАТЕЛЕЙ КОМПАНИИ «ALMARAI COMPANY»

***Аннотация**. Almarai Company - крупная саудовская компания, зарегистрированная на бирже Tadawul, которая специализируется на производстве и распределении продуктов питания и напитков в течение 42 лет. Основные офисы компании расположены в Эр-Рияде, который является частным партнерством с PepsiCo с 2009 года. В этой статье автор рассмотрела организационно-экономическую характеристику и динамику финансовых показателей компании.*

***Ключевые слова**: Almarai, компания, производитель, продукты питания, рост, Саудовская Аравия.*

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ORGANISATIONAL AND ECONOMIC CHARACTERISTICS AND DYNAMICS OF FINANCIAL INDICATORS OF ALMARAI COMPANY

***Abstract.** Almarai is a major Saudi Arabian company listed on the Tadawul stock exchange that has been specializing in the production and distribution of food and beverages for 42 years. The company's main offices are located in Riyadh, which has been a private partnership with PepsiCo since 2009. In this article the author considers the organisational and economic characteristics and dynamics of the company's financial performance.*

***Keywords:** Almarai, company, manufacturer, food, growth, Saudi Arabia.*

Введение

Almarai Company, саудовская публичная акционерная компания, котирующаяся на Саудовской фондовой бирже «Saudi Tadawul», специализируется на производстве молочных продуктов, продуктов питания и напитков. Она была основана в 1977 году, ее штаб-квартира находится в Эр-Рияде. Компания была зарегистрирована на бирже Saudi Tadawul 17 августа 2005 года, и ее акции торгуются на основном рынке в секторе производства продуктов питания под названием (Almarai), символом (2280) и международным идентификационным номером ценных бумаг (ISIN) (SA000A0ETHT1). Капитал компании составляет 10 млрд саудовских реалов[106]. Цель статьи – определить условия формирования и использования финансовых ресурсов международной компании.

Методы и исследования**.** В статье использовались системный подходы общетеоретические методы: анализ и синтез, абстракции и конкретизации, сопоставления и генерализации, а также статистические методы обработки данных.

Результаты исследования

Основанная в 1977 году принцем Султаном бин Мухаммедом бин Саудом Аль Кабиром, компания Almarai начала свою деятельность с четкой цели: предоставлять высококачественные, питательные продукты питания и напитки, которые ежедневно обогащали бы жизнь потребителей. На протяжении многих лет непоколебимая преданность Almarai этому видению превратила ее из скромной молочной фермы в крупнейшую в мире вертикально интегрированную молочную компанию. Со штаб-квартирой в Эр-Рияде, Саудовская Аравия, Almarai обслуживает миллионы людей в Совете сотрудничества арабских государств Персидского залива (ССАГПЗ) и за его пределами.

Компания Almarai придерживается традиционного подхода к формированию финансовой политики, свойственной транснациональным компаниям, с учетом особенностей исламских финансов и международного рынка продовольствия[107].

Almarai — лидер рынка по производству свежих молочных продуктов. Исследования показали, что компания за последнее десятилетие завоевала более 56% доли рынка и сохранила преемственность. Еще одной сильной стороной компании Almarai является ее устойчивый рост и развитие за счет самого низкого процента отходов сырья, который составляет всего 2% по сравнению с другими конкурирующими компаниями. Теперь диверсифицированный пищевой бизнес с годовым объемом продаж более 2 млрд евро в регионе Персидского залива, молочное подразделение Almarai в 2024 году произвел более 1 млрд литров свежего молока от 75 000 дойных коров на семи фермах. Это удивительный подвиг, учитывая его расположение в пустыне, где температура часто превышает 45 градусов по Цельсию.

Компания Almarai вместе со своими дочерними предприятиями работает как вертикально интегрированная компания по производству потребительских продуктов питания и напитков в Саудовской Аравии,

[106]Investing For Growth. Achieving Record Returns. https://annualreport.almarai.com/

[107] Платонова Е.Д. Светиков Ю.А. Особенности механизма формирования финансовой политики торговых предприятий на разных фазах экономического цикла функционирования [Электронный ресурс] https://cyberleninka.ru/article/n/osobennosti-mehanizma-formirovaniya-finansovoy-politiki-torgovyh-predpriyatiy-na-raznyh-fazah-ekonomicheskogo-tsikla

Египте, Иордании и других странах Совета сотрудничества стран Персидского залива.

Компания Almarai работает как интегрированная компания по производству продуктов питания и напитков для потребителей в Саудовской Аравии, других странах Совета по сотрудничеству стран Персидского залива и на международном уровне. Компания работает через сегменты молочных продуктов и соков, хлебобулочных изделий, птицы и других видов деятельности[108].

Компания предлагает питьевой йогурт, молочный кофе, белковое молоко, ароматизированное молоко, свежее молоко, сгущенное молоко и сухое молоко; йогурты и десерты; сыр, мед, сладкое сгущенное молоко, сливочное масло, оливковое масло, топленое масло, сливки для приготовления и взбивания и кремы; соусы, включая свежие натуральные сливки, лабне и хумус; мороженое; хлебобулочные изделия и птицеводческие продукты; свежевыжатые соки; напитки, включающие холодный кофе и чай, и освежающие напитки; продукты детского и лечебного питания; финики; и морепродукты.

Компания предлагает молочные продукты, фруктовые соки и сопутствующие продукты питания под торговыми марками Almarai, Joosy Life, Beyti и Teeba; хлебобулочные изделия под торговыми марками L'usine и 7 Days; а также продукты птицеводства под торговыми марками Alyoum и AlBashayer. Кроме того, компания владеет и управляет пахотными фермами, предоставляет услуги садоводства и производит детское питание под марками Nuralac и Evolac.

Компания имеет иерархическую организационную структуру управления. Каждое направление деятельности возглавляет Директор. В состав Almarai входят дочерние компании, расположенные в таких странах, как: Оман, Бахрейн, Аргентина, США, Индия, Египет, Иордания, Судан, Бермудские острова, Джерси и Саудовская Аравия.

Доля институциональных инвесторов в общем пакете акций составляет 86,8%, в то время как доля индивидуальных акционеров – 13,2%[109].

Компания Almarai вместе со своими дочерними предприятиями работает как вертикально интегрированная компания по производству потребительских продуктов питания и напитков в Саудовской Аравии, Египте, Иордании и других странах Совета сотрудничества стран Персидского залива. Компания Almarai работает как интегрированная компания по производству продуктов питания и напитков для потребителей в Саудовской Аравии, других странах Совета по сотрудничеству стран Персидского залива и на международном уровне. Она работает через сегменты молочных продуктов и соков, хлебобулочных изделий, птицы и других видов деятельности. Компания предлагает питьевой йогурт, молочный

[108] Home. https://www.almarai.com/en
[109] Investing For Growth. Achieving Record Returns. https://annualreport.almarai.com/

кофе, белковое молоко, ароматизированное молоко, свежее молоко, сгущенное молоко и сухое молоко; йогурты и десерты; сыр, мед, сладкое сгущенное молоко, сливочное масло, оливковое масло, топленое масло, сливки для приготовления и взбивания и кремы; соусы, включая свежие натуральные сливки, лабне и хумус; мороженое; хлебобулочные изделия и птицеводческие продукты; свежевыжатые соки; напитки, включающие холодный кофе и чай, и освежающие напитки; продукты детского и лечебного питания; финики; и морепродукты.

Компания предлагает молочные продукты, фруктовые соки и сопутствующие продукты питания под торговыми марками Almarai, Joosy Life, Beyti и Teeba; хлебобулочные изделия под торговыми марками L'usine и 7 Days; а также продукты птицеводства под торговыми марками Alyoum и AlBashayer. Кроме того, компания владеет и управляет пахотными фермами, предоставляет услуги садоводства и производит детское питание под марками Nuralac и Evolac[110].

Группа подвержена краткосрочным и долгосрочным рискам, связанным с изменением климата. Эти риски являются неотъемлемой частью работы в пищевой промышленности. Almarai постоянно работает над снижением воздействия бизнеса на окружающую среду, отчасти из-за неотъемлемых рисков.

Выбросы парниковых газов, связанные с потреблением топлива и электроэнергии, оказывают влияние не только на окружающую среду, но и на финансовый результат Almarai. Изменение климата также создает риски для сельскохозяйственного производства из-за засух, вредителей, болезней и т. д., которые создают проблемы для поддержания и увеличения уровней производства.

Группа разработала стратегию устойчивого развития, в которой описывается, как она улучшит свои энергетические показатели за счет эффективного потребления энергии и генерации из устойчивых источников. Стратегия фокусируется на солнечной энергии, водо- и энергосбережении, устойчивых методах земледелия, сокращении отходов на свалках, приверженности 100%-ному хранению в холодильниках без хлорфторуглеродов на своих складах продаж и мерах по повышению эффективности использования топлива, включая прицепные транспортные средства на альтернативном топливе[111].

Рост прибыли за 2024 г. был самым высоким за всю историю существования компании. В 2024 году компания добилась высокого однозначного роста выручки за счет роста объемов по всем категориям. Выручка увеличилась на 7% до 20 980 млн дол. США с 19 576 млн. дол. США в 2023 году, что обусловлено сильными результатами нашего флагманского

[110] Almarai's Financial Information. https://www.eyeofdubai.ae/news/details/almarai-launches-its-investment-strategy-2024-2028.
[111] Almarai Corporate Compliance https://globalaffairs.ru/articles/voda-i-mir/

подразделения по производству молочных продуктов и превосходным ростом в птицеводческом бизнесе[112].

Коэффициенты ликвидности измеряют способность компании выполнять свои краткосрочные обязательства. Обычным коэффициентом ликвидности является текущий коэффициент, который рассчитывается путем деления текущих активов на текущие обязательства.

Текущий коэффициент больше 1 указывает на то, что у компании больше текущих активов, чем текущих обязательств, что говорит о том, что она может спокойно покрывать свои краткосрочные долги. У компании Almarai по итогам 2024 г. данный показатель составляет 1,50. Это говорит о том, что компания хорошо подготовлена к решению любых немедленных финансовых проблем. Такая сила ликвидности имеет важное значение для бесперебойной работы, особенно в быстро меняющейся индустрии продуктов питания и напитков. Коэффициент быстрой ликвидности составляет 0,51, коэффициент общей ликвидности 0,09[113].

Коэффициенты эффективности оценивают, насколько эффективно компания использует свои активы для генерации продаж и максимизации прибыли. Одним из ключевых коэффициентов эффективности является размер дохода на одного сотрудника компании. У компании Almarai этот показатель составляет 477,697 SAR.

Коэффициенты рентабельности оценивают способность компании генерировать прибыль относительно ее выручки, активов или капитала. Одним из важных коэффициентов рентабельности является рентабельность активов, которая рассчитывается как отношение чистой прибыли к активам предприятия.

У компании Almarai показатель рентабельности активов на 31.12.2024 г. составляет 6,45, а рентабельность совокупного капитала составляет 6,7[114].

Растущая чистая прибыль компании Almarai отражает ее успешную стратегию по контролю затрат и увеличению доходов, демонстрируя ее прочные позиции на рынке и операционную эффективность.

Рост операционной прибыли (EBIT) на 11% &2,995 миллионов, вызванные прибыльным ростом во всех странах, категориях, каналах и продуктах. Важно, что рентабельность по операционной прибыли (EBIT) в размере 14% соответствует стратегической цели — достичь уровня мировых компаний FMCG и свидетельствует о движении Almarai к превращению в одну из ведущих мировых продовольственных групп.

Заключение

Таком образом, у компании Almarai есть все условия для успешного ведения международного бизнеса, как организационно-экономические, так и

[112] Investing For Growth. Achieving Record Returns. https://annualreport.almarai.com/

[113] Отчет компании Almarai, 2024. URL: https://www.almarai.com/en/corporate/investor-relations/financial-information

[114] Отчет компании Almarai, 2024. URL: https://www.almarai.com/en/corporate/investor-relations/financial-information

финансовые. Компании «Almarai Company» выработала достаточно успешную стратегию формирования и использования финансовых ресурсов в международной компании. Однако компания работает на растущем рынке продовольствия и практически не имеет конкурентов в своих наших в арабских странах. Однако, возможен приход конкурентов из стран Восточной Европы и России. В этом случае компания должны пересмотреть свою корпоративную стратегию, в том числе в облрасти финансирования своей деятельности за счет заемных средств.

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МЕТОДИКА ПРЕПОДАВАНИЯ РУССКОГО ЯЗЫКА С ПРИМЕНЕНИЕМ ЦИФРОВЫХ ТЕХНОЛОГИЙ В СТАРШИХ КЛАССАХ ОБЩЕОБРАЗОВАТЕЛЬНОЙ ШКОЛЫ»

Аннотация: *Использование платформ, таких как Moodle или Google Classroom, позволяет создавать курсы, где учащиеся могут получать материалы, выполнять задания и взаимодействовать с преподавателем и друг с другом.*

Ключевые слова: *Мультимедийные ресурсы, Интерактивные платформы, Обучающие игры и приложения*

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METHODS OF TEACHING RUSSIAN LANGUAGE USING DIGITAL TECHNOLOGIES IN SENIOR GRADES OF COMPREHENSIVE SCHOOLS

Abstract: *Using platforms such as Moodle or Google Classroom allows you to create courses where students can access materials, complete assignments, and interact with the instructor and each other.*

Keywords: *Multimedia resources, Interactive platforms, Educational games and applications*

Методика преподавания русского языка с использованием цифровых технологий в старших классах общеобразовательной школы может значительно повысить эффективность обучения. Вот несколько ключевых аспектов и подходов: Интерактивные платформы Использование платформ, таких как Moodle или Google Classroom, позволяет создавать курсы, где учащиеся могут получать материалы, выполнять задания и взаимодействовать с преподавателем и друг с другом. Мультимедийные ресурсы Включение видео, аудио и презентаций в уроки помогает сделать материал более доступным и интересным. Это может быть использование видеоуроков, документальных фильмов или аудиокниг. Обучающие игры и приложения Использование приложений, таких как Quizlet или Kahoot, для создания интерактивных тестов и викторин. Это способствует вовлечению учащихся и помогает в закреплении материала. Виртуальные доски и редакторы Применение инструментов вроде Padlet или Jamboard для совместной работы над текстами. Учащиеся могут обсуждать, редактировать и комментировать работы друг друга в реальном времени. Онлайн-ресурсы для практики Использование сайтов с заданиями по грамматике, стилю и орфографии. Например, ресурсы типа «Грамота.ру» или «Русский язык.ру» предоставляют доступ к разнообразным материалам. Проектная деятельность Создание групповых проектов с использованием цифровых инструментов, таких как Canva или Prezi, для подготовки презентаций на темы, связанные с русским языком и литературой. Обратная связь и оценивание Использование цифровых инструментов для оценки знаний. Это может быть как автоматизированное тестирование, так и индивидуальные комментарии к работам студентов через электронные платформы. Инклюзивные подходы Применение технологий для создания доступных материалов для всех учащихся, включая тех, кто имеет особые образовательные потребности. Пример урока: Тема: Анализ произведения (например, "Преступление и наказание" Достоевского). Подготовка: Учащиеся читают текст в электронном виде и смотрят краткий видеообзор.

Основная часть: Дискуссия на виртуальной доске, где каждый добавляет свои мысли и вопросы. Заключение: Создание совместной презентации в Google Slides, где каждый участник группы отвечает за отдельный слайд.

Эти методы помогут сделать обучение более динамичным и интересным, а также развить навыки критического мышления и сотрудничества у старшеклассников. Методика использования мультимедийных и цифровых технологий в обучении русскому языку в 5-7-х классах может значительно повысить интерес учеников и эффективность усвоения материала. Вот несколько ключевых аспектов и методов: Интерактивные учебники

Использование электронных учебников, которые содержат интерактивные элементы, такие как задания, тесты и анимации. Это позволяет учащимся более активно вовлекаться в процесс обучения. Видеоуроки и презентации

Создание и использование видеоматериалов для объяснения новых тем. Презентации с визуальными элементами помогают лучше воспринимать информацию и делать уроки более интересными. Обучающие игры и приложения Использование образовательных игр и приложений, таких как Kahoot, Quizlet или Duolingo, для закрепления знаний. Игровые элементы способствуют повышению мотивации и интереса к учебе. Виртуальные доски и совместные проекты Применение инструментов, таких как Padlet или Jamboard, для организации коллективной работы над проектами или заданиями. Это способствует развитию коммуникативных навыков и командной работы. Онлайн-ресурсы и платформы Использование сайтов с заданиями и упражнениями по русскому языку. Например, ресурсы вроде

«Грамота.ру» могут быть полезны для практики и самоконтроля. Тестирование и обратная связь Применение онлайн-тестов для проверки знаний. Инструменты, такие как Google Forms, позволяют быстро и эффективно оценивать усвоение материала и предоставлять обратную связь. Интерактивные задания Создание заданий, в которых учащиеся могут использовать мультимедийные ресурсы. Например, подготовка презентации по прочитанной книге с использованием изображений и видео. Проектная деятельность Организация проектной работы, где учащиеся исследуют определенные темы, создают видеоролики, подкасты или блоги. Это развивает креативность и умение работать с информацией. Подготовка: Учащиеся смотрят видео о структуре рассказа. Основная часть: Работа в группах с использованием виртуальной доски для создания плана рассказа. Заключение: Каждый ученик создает свой рассказ в электронном формате и делится им с классом. Использование этих методов поможет сделать обучение более современным и увлекательным, а также подготовит учащихся к работе в цифровом мире. Развитие цифровой лингвистической компетенции — это важный аспект современного обучения языкам, включая русский. Эта компетенция включает в себя умение эффективно использовать цифровые технологии для изучения, анализа и практики языка. Вот несколько ключевых направлений для ее развития:

Использование онлайн-ресурсов Электронные словари и справочники: Учащиеся могут использовать ресурсы, такие как «Грамота.ру», для проверки правописания и грамматики. Онлайн-курсы: Платформы, такие как Coursera или edX, предлагают курсы по русскому языку и литературе. Интерактивные платформы Образовательные игры: Применение приложений и игр, например Duolingo или Quizlet, помогает в изучении новых слов и грамматических правил. Мультимедийные задания: Создание видеороликов или подкастов на изучаемом языке. Проектная деятельность Групповые проекты: Учащиеся могут работать над проектами, связанными с русским языком или культурой, используя цифровые инструменты для презентации результатов. Исследовательские работы: Использование интернет-ресурсов для сбора информации и написания статей. Социальные сети и онлайн-коммуникация Общение с носителями языка: Участие в онлайн-форумах, чатах или социальных сетях для практики языка с носителями. Ведение блогов: Создание личных блогов на русском языке для практики письма и взаимодействия с аудиторией. Развитие навыков критического мышления Анализ цифровых текстов: Учащиеся учатся критически оценивать информацию из интернет-источников, различать факты и мнения. Работа с различными форматами: Чтение статей, просмотр видео, анализ аудиозаписей для глубокого понимания языка. Обратная связь и самооценка Онлайн-тестирование: Использование тестов для самооценки и контроля прогресса в изучении языка. Кросс-проверка работ: Совместная оценка работ с одноклассниками через онлайн-платформы. Разработка цифровых проектов Креативные проекты: Создание презентаций, инфографики или интерактивных карт на тему изучаемого языка и культуры. Развитие цифровой лингвистической компетенции не только помогает учащимся лучше усваивать язык, но и готовит их к жизни в современном цифровом обществе.

Глава 1. Теоретические основы методики преподавания русского языка

• Основные подходы к преподаванию русского языка в старших классах.

• Особенности восприятия учебного материала подростками.

• Психолого-педагогические аспекты применения ИКТ.

Глава 2. Цифровые технологии в обучении русскому языку

• Обзор популярных цифровых инструментов:

○ **Интерактивные платформы:** «Яндекс.Учебник», «Российская электронная школа», «Учи.ру».

○ **Образовательные приложения:** Quizlet, Kahoot!, LearningApps, Mentimeter.

○ **Онлайн-сервисы для проверки грамотности:** «Тотальный диктант», «Грамота.ру», «Орфограммка».

○ **Социальные сети и мессенджеры:** Telegram-боты, образовательные каналы.

• Виды цифровых заданий:

○ Тесты, диктанты, лингвистические игры, интерактивные тексты.

○ Видеоуроки и подкасты по лингвистике и литературе.

• Плюсы и минусы цифрового подхода:

○

▪ Повышение мотивации, интерактивность, индивидуализация.

○ – Отвлекающие факторы, неравенство доступа, переутомление.

Глава 3. Практическая часть

• Анкетирование учителей и учеников о применении цифровых технологий.

• Анализ одного или нескольких уроков (сценарии, примеры заданий).

• Сравнение успеваемости/вовлечённости до и после внедрения ИКТ.

Выводы

1. **Цифровые технологии являются мощным инструментом** в обучении русскому языку, способным значительно повысить мотивацию учеников, их интерес к предмету и активность на уроках. Использование интерактивных платформ, образовательных приложений и онлайн-сервисов делает уроки более динамичными и разнообразными.

2. **Методика преподавания с применением цифровых ресурсов требует пересмотра традиционных подходов**. Учителю необходимо уметь грамотно сочетать цифровые и классические методы обучения, адаптируя учебный процесс под потребности конкретного класса и уровня подготовки учащихся.

3. **Наиболее эффективными формами цифрового обучения** в старших классах являются:

- Интерактивные упражнения и тесты;
- Онлайн-диктанты с автоматической проверкой;
- Видеоуроки и подкасты по орфографии, пунктуации, стилистике;
- Использование образовательных игр и квизов;
- Проекты и творческие задания с использованием цифровых инструментов (презентации, подкасты, интерактивные карты и др.).

4. **Цифровые технологии способствуют индивидуализации обучения**, так как позволяют каждому ученику двигаться в удобном темпе, получать обратную связь и повторять материал в любое время.
5. Вместе с тем, применение цифровых технологий **предполагает наличие технических и методических условий**: устойчивого интернета, доступа к устройствам, грамотной подготовки учителя, а также контроля за использованием технологий (чтобы избежать отвлечения и перегрузки).
6. Проведённый анализ показывает, что **интеграция цифровых технологий в преподавание русского языка требует системного подхода**: от методической подготовки педагогов до осознанного выбора цифровых ресурсов и разработки адаптированных учебных материалов.
7. Таким образом, **эффективное использование цифровых технологий может значительно обогатить процесс преподавания русского языка**, сделать его более доступным, интересным и продуктивным, особенно для старшеклассников, которые активно взаимодействуют с цифровой средой в повседневной жизни.

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ПРОБЛЕМНЫЕ КРЕДИТЫ В КОММЕРЧЕСКОМ БАНКОВСКОМ СЕКТОРЕ И ЭФФЕКТИВНЫЕ МЕТОДЫ ИХ УРЕГУЛИРОВАНИЯ

Аннотация:*В данной статье рассматриваются особенности проблемных кредитов и их значительная роль в системе макроэкономического регулирования. Отмечается влияние неработающих кредитов (NPL) на общее состояние экономики и стабильность банковской системы. Рост доли таких кредитов отражает уязвимые места в кредитной политике банков, снижает их ликвидность и может негативно сказаться на уровне доверия со стороны инвесторов и вкладчиков. Проблемные кредиты рассматриваются как один из ключевых индикаторов финансовой устойчивости банковского сектора.*

Ключевые слова: *“проблемный” кредит, возврат кредита, кредитный портфель, финансовое консультирование, юридические меры.*

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PROBLEM LOANS IN THE COMMERCIAL BANKING SECTOR AND EFFECTIVE METHODS OF THEIR REGULATION

Annotation:*This article examines the characteristics of problem loans and their significant role in the system of macroeconomic regulation. The impact of non-performing loans (NPL) on the general state of the economy and the stability of the banking system is noted. The growth in the share of such loans reflects vulnerabilities in the credit policy of banks, reduces their liquidity and can negatively affect the level of confidence on the part of investors and depositors. Problem loans are considered one of the key indicators of the financial stability of the banking sector.*

Key words: *“problem” loan, loan repayment, loan portfolio, financial consulting, legal measures.*

Введение

Управление проблемными (неработающими) кредитами является одной из важнейших задач для банковских систем во всём мире. Финансовые учреждения, независимо от уровня экономического развития, сталкиваются с рисками ухудшения качества кредитных портфелей, особенно в условиях нестабильной экономики и снижения платёжеспособности заёмщиков.

После кризиса 2008 года особое внимание стало уделяться раннему выявлению проблемной задолженности — через стресс-тестирование, реструктуризацию и другие инструменты. Международные организации, такие как МВФ, Всемирный банк и Базельский комитет, способствуют распространению эффективных практик в этой сфере.

С учётом усиливающейся конкуренции и внешнеэкономической нестабильности, совершенствование управления проблемными активами приобретает особую значимость. Эффективная работа в этом направлении позволяет снизить убытки банков и укрепить доверие клиентов и инвесторов.

В Узбекистане, несмотря на реформы в банковском секторе, проблема проблемных кредитов сохраняется. Рост их объема снижает устойчивость банков и ограничивает их кредитную активность. Это подчёркивает необходимость научного и практического пересмотра действующих подходов с учётом международного опыта и национальных особенностей.

Литературный обзор

Понятие «проблемные кредиты» в экономической литературе трактуется по-разному, и его содержание может варьироваться в зависимости от исследовательского подхода и контекста анализа. Тем не менее, большинство авторов сходятся во мнении, что под данной категорией следует понимать такие кредитные обязательства, по которым заёмщик не исполняет условия договора в установленные сроки, в результате чего возникает просроченная задолженность и повышается риск невозврата.

Ниже приведены некоторые определения, представленные в трудах отечественных и зарубежных исследователей:

Джон Мейнар Кейнс говорил, что дефолт или высокий уровень невозвратных долгов может вызвать экономический кризис, так как банки начинают ограничивать кредитование, что ведет к снижению инвестиций и замедлению экономического роста.

Экономист Джозеф Шумпетер подчеркивал, что наличие проблемных кредитов может привести к потере доверия к банковской системе, что в свою очередь ведет к отказу от инвестиций и кредитования, замедляя экономический рост.

Экономист Савельева Т.Н. (2017) считает что, проблемные кредиты — это кредиты, по которым заемщик не выплачивает основной долг и/или проценты в установленный срок, что приводит к образованию просроченной задолженности. Эти кредиты классифицируются как непогашенные в течение определенного периода времени, что может угрожать финансовой устойчивости банка.

Михайлова И.В. (2019) даёт определению на проблемные кредиты следующим образом: проблемные кредиты — это кредиты, по которым заемщик не исполнил свои обязательства в срок и не погасил долг в установленном порядке. Они могут включать в себя как кредиты с просроченной задолженностью, так и кредиты, по которым условия погашения были изменены или реструктурированы.

Финансовый деятель Денисенко В.С. (2017) считает что, проблемные кредиты представляют собой кредиты, по которым заемщик не выполняет обязательства по оплате долга или процентов в срок, что ведет к ухудшению финансового положения как заемщика, так и кредитной организации.

Козлов А.А. (2018) думает что, проблемные кредиты — это кредиты, которые не погашаются вовремя, и по которым заемщики не в состоянии выполнить свои обязательства. Эти кредиты могут привести к увеличению уровня рисков для банков, затруднять их ликвидность и угрожать стабильности финансовой системы в целом.[115]

Основная часть

Проблемные кредиты представляют одну из наиболее серьезных угроз для стабильности коммерческих банков и финансовой системы в целом. В условиях экономической неопределенности, геополитических рисков и изменчивости рыночной конъюнктуры вопросы эффективного управления кредитными рисками и урегулирования проблемной задолженности приобретают особую актуальность[116].

Проблемный кредит — это ссуда, по которой отсутствует регулярное погашение основного долга и/или процентов в течение установленного срока (чаще всего 90 дней и более). Они классифицируются по степени риска: сомнительные, безнадежные и реструктурированные кредиты. Также учитываются признаки: снижение платежеспособности заемщика, потеря ликвидности залога, ухудшение финансового положения и др.

Проблемные кредиты по степени риска бывает:

• Субстандартные кредиты-характеризуются первыми признаками ухудшения финансового состояния заемщика, но сохраняют потенциал полного погашения при условии принятия корректирующих мер.

• Сомнительные кредиты-демонстрируют серьезные нарушения в обслуживании долга, значительное ухудшение финансового положения заемщика, что ставит под сомнение возможность полного возврата средств.

• Безнадежные кредиты-представляют наивысшую степень риска, когда возврат задолженности крайне маловероятен или невозможен даже при реализации всех доступных мер воздействия[117].

Причины возникновения проблемных кредитов:

1. Макроэкономические факторы. Экономические кризисы, рецессии и периоды нестабильности создают системные риски для всей кредитной системы. Высокая инфляция снижает реальные доходы населения и увеличивает операционные расходы предприятий. Колебания валютных курсов особенно болезненно отражаются на заемщиках с валютными

[115] https://advice.uz/ru

[116] Кузнецов, А.В. Управление розничной просроченной задолженностью в кредитных организациях. / А.В. Кузнецов, Т.Е. Старикова // Вестник Международного института рынка. - 2017.

[117] Воробьева, Е. И. Оценка качества кредитного портфеля. / Е. И. Воробьева, Е. П. Кутьина // Научный вестник: финансы, банки, инвестиции. - 2014. - №2. - С. 67–71.

кредитами. Изменения процентных ставок влияют на стоимость обслуживания кредитов, особенно с плавающей процентной ставкой.

2. Микроэкономические причины. На уровне отдельных заемщиков проблемы могут возникать из-за неточной оценки кредитоспособности на этапе выдачи кредита, когда банк недооценивает реальные риски. Ухудшение финансового состояния заемщика может быть связано как с внешними факторами, так и с внутренними проблемами управления. Неадекватное кредитное планирование со стороны заемщика часто приводит к переоценке своих возможностей по обслуживанию долга.

3. Банковские факторы. Недостатки в системе риск-менеджмента, слабый андеррайтинг, неэффективный мониторинг кредитного портфеля и агрессивная кредитная политика банка могут способствовать росту проблемных кредитов. Концентрация кредитного портфеля в определенных отраслях или регионах увеличивает системные риски[118].

В последние годы банковская система Республики Узбекистан демонстрирует активное расширение кредитной деятельности, что сопровождается увеличением как общего кредитного портфеля, так и объёма проблемных кредитов (NPL — non-performing loans). По состоянию на март 2025 года совокупный объём выданных коммерческими банками кредитов достиг 540,0 трлн сум, тогда как объём проблемных ссуд составил 24,3 трлн сум, что эквивалентно 4,5% от общего портфеля. Для сравнения, в 2021 году доля проблемных кредитов составляла всего 2,8%, что свидетельствует о почти двукратном росте за рассматриваемый период.

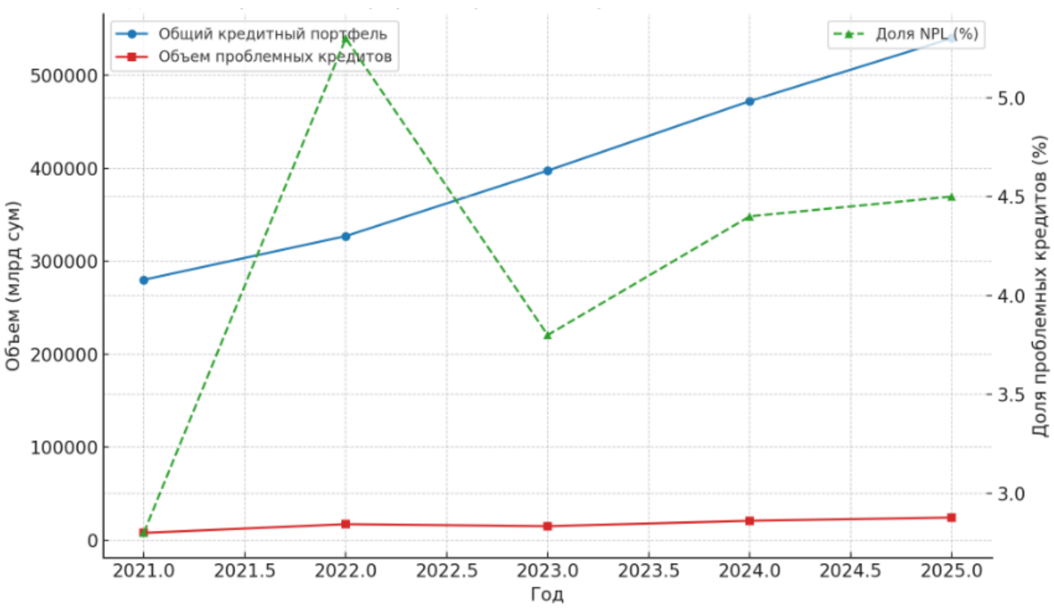

Рисунок-1. Динамика кредитного портфеля и проблемных кредитов в Узбекистане (2021-2025 гг.)[119]

[118] Бондарь, А. П. Управление проблемной кредитной задолженностью банками Украины. / А. П. Бондарь, А. О. Сорокина // Научный вестник: финансы, банки, инвестиции. - 2014.
[119] Составлено автором по данным сайта https://cbu.uz/ru/

За период с 2021 по 2025 годы банковская система Узбекистана продемонстрировала устойчивый рост общего кредитного портфеля. Объём выданных кредитов увеличился с 280,2 трлн сумов в 2021 году до 540,0 трлн сумов в 2025 году, что почти в два раза превышает показатель начала рассматриваемого периода. Такая динамика свидетельствует о расширении масштабов кредитования и активной роли банков в финансировании экономики.

Однако наряду с ростом общего объема кредитования наблюдается и увеличение объема проблемных кредитов (NPL). В 2021 году объём NPL составлял 7,8 трлн сумов, а к 2025 году он достиг 24,3 трлн сумов, увеличившись более чем в три раза. Особенно заметный скачок произошел в 2022 году, когда объём проблемных ссуд вырос до 17,2 трлн сумов — что, вероятно, связано с макроэкономическими трудностями, снижением платёжной дисциплины и другими внешними шоками.

Доля проблемных кредитов в структуре общего кредитного портфеля также претерпела изменения. С 2,8% в 2021 году данный показатель увеличился до 5,3% в 2022 году, затем снизился до 3,8% в 2023 году, что может свидетельствовать о временной стабилизации ситуации в результате реструктуризации задолженности и усиления работы по взысканию долгов. Однако уже в 2024 и 2025 годах наблюдается повторный рост доли NPL — до 4,4% и 4,5% соответственно, что вновь указывает на нестабильность в управлении кредитными рисками.

Рост проблемной задолженности обусловлен рядом внутренних и внешних факторов. Среди ключевых причин можно выделить снижение платёжной дисциплины заёмщиков, недостаточную глубину оценки кредитоспособности клиентов на стадии выдачи ссуд, а также макроэкономическую нестабильность, включая влияние инфляции, колебаний валютного курса и внешнеэкономических шоков. Немаловажную роль сыграли и структурные изменения в банковском регулировании, повысившие требования к качеству активов и прозрачности кредитных операций.

Анализ структуры проблемных кредитов по секторам экономики показывает, что наибольшая концентрация NPL приходится на отрасли, связанные с недвижимостью, строительством, розничной торговлей и малым бизнесом. Особенно уязвимыми оказались предприятия, работающие с низкой финансовой устойчивостью и слабым управлением рисками. Кроме того, в некоторых банках доля проблемных кредитов значительно превышает среднерыночные показатели. Так, в «Банке развития бизнеса» на май 2024 года уровень NPL составил 15%, тогда как в «Ипотека Банк» — около 8,8%.

Нарастание объёмов проблемной задолженности оказывает комплексное негативное влияние на банковскую систему. Оно снижает ликвидность банков, увеличивает требования к резервированию, ограничивает возможности по выдаче новых кредитов и приводит к снижению доходности. В конечном итоге это может тормозить инвестиционную активность и замедлять экономический рост. Кроме того, возрастает репутационный риск банков и доверие со стороны вкладчиков и инвесторов.

Для стабилизации ситуации необходима реализация целенаправленных и системных мер по управлению проблемными активами. Среди них важную роль играют развитие механизмов раннего выявления рисков, совершенствование процедур реструктуризации и взыскания задолженности, внедрение современных цифровых инструментов для анализа кредитного портфеля, а также повышение качества кадров в подразделениях по управлению рисками. Отдельное внимание следует уделить повышению финансовой грамотности заёмщиков и созданию мотивационной базы для добросовестного исполнения обязательств.

Таким образом, в условиях увеличения кредитных рисков в банковском секторе Узбекистана особое значение приобретает формирование устойчивых и адаптивных подходов к управлению проблемными кредитами. Эффективное решение данной задачи будет способствовать укреплению финансовой устойчивости банков, улучшению качества кредитного портфеля и обеспечению стабильности национальной экономики.

Заключение

Проблемные кредиты представляют неизбежный элемент банковской деятельности, требующий профессионального и комплексного подхода к управлению. Эффективное урегулирование проблемной задолженности зависит от сочетания превентивных мер, качественного риск-менеджмента, использования разнообразных методов взыскания и применения современных технологических решений.

Успех в управлении проблемными кредитами определяется не только техническими аспектами, но и способностью банка поддерживать баланс между защитой своих интересов и сохранением долгосрочных отношений с клиентами. В условиях усиливающейся конкуренции и повышенных регулятивных требований банки должны постоянно совершенствовать свои подходы к управлению кредитными рисками и разработке стратегий работы с проблемными активами.

Дальнейшее развитие банковского сектора будет во многом определяться способностью кредитных организаций адаптироваться к изменяющимся экономическим условиям, внедрять инновационные технологии и поддерживать высокие стандарты риск-менеджмента. Только комплексный подход, сочетающий лучшие международные практики с учетом местной специфики, позволит банкам эффективно управлять проблемными кредитами и обеспечивать устойчивое развитие финансовой системы.

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ВЫБОР ОРГАНИЗАЦИОННОЙ СТРУКТУРЫ СО СТРАТЕГИЧЕСКОЙ ТОЧКИ ЗРЕНИЯ

Аннотация: *Существует множество форм организационной структуры, и организационная структура предприятия не является статичной. Выбор организационной структуры должен соответствовать стратегическим требованиям. На основе обзора соответствующей литературы, посвященной организационной структуре и взаимосвязи между стратегией и организационной структурой, обобщаются варианты организационной структуры в рамках различных стратегий.*

Ключевые слова: *Корпоративная стратегия; организационная структура; взаимоотношения*

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CHOOSING AN ORGANIZATIONAL STRUCTURE FROM A STRATEGIC POINT OF VIEW

Summary:*There are many forms of organizational structure, and the organizational structure of an enterprise is not static. The choice of organizational structure must meet strategic requirements.Based on a review of relevant literature on organizational structure and the relationship between strategy and organizational structure, organizational structure options within various strategies are summarized.*

Keywords*:Corporate strategy; organizational structure; relationships*

С развитием времени и влиянием глобальной экономики и информационных технологий предприятия также пострадали во всех аспектах процесса развития.Глобальная экономическая тенденция открыла перед предприятиями возможности выхода на зарубежные рынки. Информационная платформа предоставляет предприятиям технологическую платформу для расширения зарубежных рынков. Наряду с тенденцией развития предприятий, это, вероятно, в определенной степени повлияет на стратегическое развитие предприятий.Стратегия предприятия не должна быть статичной, и организационная структура будет меняться соответственно с корректировкой стратегии. В условиях нынешней макроэкономической среды, характеризующейся экономической и информационной глобализацией, предприятия должны развиваться лучше. В соответствии со стратегией, подходящей для развития, заслуживает внимания вопрос о том, как скорректировать организационную структуру. Посредством обзора существующей модели организационной структуры, анализа факторов, влияющих на организационную структуру, особенно анализа организационной структуры стратегии, и обобщения взаимосвязи между стратегическим выбором и выбором организационной структуры можно сделать вывод об изменении организационной структуры предприятия[120].

1. Типы корпоративных стратегий

Термин стратегия впервые был использован в вооруженных силах, и он сыграл определенную роль в общем планировании в вооруженных силах, и постепенно он был применен к управлению предприятием в процессе развития управления предприятием. Согласно стратегии развития предприятия, ее можно условно разделить на четыре этапа. Первый этап - это, в основном, стратегия количественного расширения; после того, как количество достигает определенной стадии, предприятие приступает ко второму этапу, расширяясь с точки зрения географии; после занятия определенной доли рынка предприятие начинает рассматривать диверсификацию и развитие продукции, то есть к третьему этапу предприятия, на этапе разработки стратегии интеграции. Стратегия интеграции включает в себя стратегию вертикальной интеграции и стратегию горизонтальной интеграции. На четвертом этапе развития предприятия основное внимание уделяется стратегическому развитию нескольких видов деятельности. Различные бизнес-стратегии в основном направлены на разработку различных качественных продуктов и последующее расширение рынка. В четырехэтапной стратегии основным фактором стала рыночная доля компании. На более сегментированном уровне развития рынка ее можно разделить на стратегии интенсивного роста, также известные как стратегии расширенного роста, включающие три типа: стратегию проникновения на рынок, стратегию развития рынка и стратегию разработки продукта.В соответствии с конкурентным методом корпоративная стратегия делится на исследовательскую стратегию, оборонительную стратегию, аналитическую стратегию и реактивную стратегию. Исследовательские стратегии направлены на внедрение инноваций с целью открытия рынка; защитные стратегии также можно назвать стабильными стратегиями, которые отличаются от исследовательских стратегий главным образом сохранением существующей доли рынка и снижением рисков. Существует четыре типа стратегий: стратегия приостановки, стратегия без изменений, стратегия

[120] Гэ Цзин, Си Юмин.Теория организационной структуры многонациональных предприятий и их эволюция [J].Зарубежная экономика и менеджмент, 2001, 05:2-8+15.

сохранения прибыли и осторожная стратегия продвижения вперед.Особенностью аналитической стратегии является то, что для поддержания стабильной корпоративной среды и внедрения инноваций в смежных областях предприятиям необходимо использовать стратегию, расположенную между исследовательской стратегией и оборонительной стратегией, а ее организационная структура более диверсифицирована, чем у первых двух стратегий. Реактивная стратегия более пассивна, чем аналитическая, и является стратегией, которая реагирует только тогда, когда предприятие сталкивается с возможностью или угрозой. В соответствии с методами ведения бизнеса корпоративные стратегии можно разделить на отдельные бизнес-стратегии и несколько бизнес-стратегий. Единая бизнес-стратегия концентрирует ограниченные ресурсы предприятия в одном и том же направлении бизнеса, формируя сильную конкурентоспособность; диверсифицированная бизнес-стратегия относится к стратегии расширения предприятия, управляющего двумя или более отраслями одновременно, которую также можно назвать “многоотраслевым управлением”. Она в основном включает три формы, а именно концентрическая диверсификация, горизонтальная диверсификация и комплексная диверсификация[121].

2. Тип организационной структуры

Появление термина "организационная структура" официально предложено и стандартизировано в теории организаций и широко используется и изучается. Использование организационной структуры связано со способностью предприятия эффективно и непрерывно обеспечивать нормальную работу предприятия. На этом этапе форма организационной структуры также делится на различные формы в зависимости от степени централизации и децентрализации предприятия, степени стандартизации управления и других факторов. Организационная структура каждого предприятия выбирает различную организационную структуру в соответствии со своими собственными обстоятельствами и даже постоянно изменяет организационную структуру предприятия, чтобы соответствовать требованиям развития предприятия в соответствии со стратегическими требованиями развития различных периодов развития. В соответствии с характеристиками организационной структуры, она делится на традиционную организационную структуру и гибкую организационную структуру. Традиционная модель организационной структуры обычно включает линейную систему, функциональную систему, линейно-функциональную систему, систему подразделений и матричную структуру системы.Гибкая организационная структура обладает способностью постоянно адаптироваться к окружающей среде и саморегулироваться в динамичной среде. По сравнению с традиционной организационной структурой, гибкая организационная структура в большей степени учитывает

[121] Гэ Цзин, Си Юмин.Теория организационной структуры многонациональных предприятий и их эволюция [J].Зарубежная экономика и менеджмент, 2001, 05:2-8+15.

сложность окружающей среды и формирует трехмерные, многомерные, основанные на процессах и сетевые структуры для адаптации к ее динамике. Приведенная выше классификация в основном основана на статической и динамической среде, централизации и децентрализации, стандартизации, выравнивании или отсутствии таковых и других характеристиках.Линейная структура системы предложена на основе научной теории управления, которая характеризуется высокой степенью централизации и практична для предприятий с относительно единой технологией производства и меньшими масштабами; функциональная структура системы также известна как U-образная структура, которая основана на линейной системе. Разделение функций осуществляется на основе линейной системы, которая подходит для предприятий со сложной технологией производства; линейная функциональная система обладает как функциональным разделением труда, так и централизованными характеристиками; система разделения также называется структурой M-системы, основанной на расширении масштаба предприятия, линейной система и функциональная система оказались не в состоянии удовлетворить требованиям развития предприятия и появления многомерной, многоуровневой организационной структуры, структура типа M разделяет различные предприятия в разных регионах на различные бизнес-группы, каждая бизнес-группа создает организацию управления, основанную на ее собственной ситуации； Модель матричной структуры имеет как вертикальную систему управления, так и горизонтальную систему власти, образуя двуглавую систему командования.Трехмерная и многомерная структура представляет собой комбинацию традиционных организационных структур, включая систему разделения продукции, систему персонала функциональных подразделений и организацию управления географическими подразделениями; тип процесса, который представляет собой бизнес-структуру; сетевую структуру, также известную как виртуальная организация, использующую информационные технологии, бизнес-аутсорсинг, корпоративный симбиоз, соглашения о сотрудничестве, стратегические альянсы, виртуальные сети продаж и даже создание совместных предприятий для построения динамичной сетевой экономической организации с целью получения прибыли.

3. Исследование факторов, влияющих на организационную структуру

На формирование, развитие и изменение организационной структуры будет влиять множество факторов. Характеристики организационной среды предприятия, структура человеческого капитала в организации, технические требования, масштаб предприятия и различные этапы развития предприятия, а также все стратегии, реализуемые предприятием, будут оказывать влияние на организационную структуру.Организационная среда [122] - это среда, в которой существует организация, которую обычно можно разделить на

[122] Жэнь Хао, Лю Шилань.Разработка организационной структуры на основе стратегии [J].Наука и научно-технический менеджмент, 2005, 08:123-126.

внешнюю и внутреннюю.Ханнан и Фримен, ученые, изучающие организационную структуру на основе социальной систематики, считают, что организационная среда оказывает решающее влияние на организационную структуру. В своем исследовании Фан Вэйго обнаружил, что организационная среда и процесс принятия организационных решений оказывают определенное влияние на организационную структуру. В своем исследовании Джейсон обнаружил, что корпоративная культура, степень упорядоченности и стандартизации напрямую влияют на организационную структуру и эффективность работы организации, выбранные предприятием. Вудворд считает, что различные технологии требуют адаптации к ним различных организационных структур, а организационная структура, отвечающая техническим требованиям, может позволить предприятиям работать более эффективно. Корпоративные организации инвестируют в технические факторы и в конечном итоге преобразуют их в продукты или услуги. Различным техническим этапам должны соответствовать различные адаптированные организационные структуры. Существует также множество форм сотрудничества между предприятиями со сложной технологией производства, и соответствующая организационная структура будет более сложной, в то время как соответствующая организационная структура предприятий с простой технологией производства будет более эффективной. технология производства будет становиться все яснее и понятнее. Организационная структура должна меняться вместе с развитием технологий, и она не может быть статичной. Кроме того, если методы производства на предприятиях, ориентированных на производство, различны, то форма предприятия, выбранная предприятием, также изменится. Когда масштаб предприятия слишком велик, организационная структура, принятая на предприятии, соответственно, становится более формальной и сложной, что в основном отражается в повышении уровня организационного управления, совершенствовании подразделений и совершенствовании правил и регламентаций. Следуя за развитием организационной теории, факторы, влияющие на организационную структуру, также начали переходить от объективного и строгого уровня к открытому. С приходом экономики знаний структура человеческого капитала также оказывает влияние на выбор организационной структуры. В своем исследовании Хайек обнаружил, что распределение знаний и соотношение полномочий по принятию решений оказывают важное влияние на выбор организационной структуры. В своем исследовании Тао Цзюнь обнаружил, что на разных этапах роста предприятия будут соответствовать разным ролям. При изучении организационной структуры изучение стратегии выбора организационной структуры является ключевым моментом в изучении организационной структуры. В книге "Стратегия и структура: глава в истории американских промышленных предприятий" Чандлер описал, что выбор стратегии определяет выбор организационной структуры предприятия. Выбор организационной структуры меняется с изменением корпоративной стратегии, то есть стратегия определяет структуру, и структура соответствует стратегии. При анализе факторов, влияющих на организационную структуру, в соответствии с линией развития теории организаций исследовательский фокус факторов, влияющих на организационную структуру, также переместился с научной и закрытой направленности на уровень сложности и открытости, что значительно обогатило дальнейшие исследования теории организационной структуры.

4. Исследование взаимосвязи между стратегией и организационной структурой

В своем исследовании Чандлер считает, что стратегия определяет структуру, а структура следует за стратегией. Изучая транснациональные компании, Гэ Цзин и Си Юминь придерживались подхода, основанного на стратегии развития, а организационная структура была изменена от международного отдела к глобальному региональному департаменту, затем к глобальному продуктовому подразделению и, наконец, к глобальной матричной структуре. В своем исследовании Рен Хао и Лю Шилань пришли к выводу, что стратегия количественного расширения подходит для линейной структуры, этап региональной экспансии подходит для функциональной структуры, этап интеграции подходит для централизованной функциональной структуры, а этап множественной бизнес-стратегии подходит для децентрализованной структуры бизнес-единиц. При изучении бизнес-стратегий было обнаружено, что единая бизнес-стратегия подходит для функциональной системы, а связанные типы множественных операций подходят для системы бизнес-единиц. Изучая взаимосвязь между стратегией и организационной структурой, Тао Цзюнь привел в качестве примера технологическую компанию Wanwei и обнаружил, что от стадии запуска до стадии стратегии расширения организационная структура прошла путь от простой линейной системы к U-образной структуре, затем к M-образной структуре и, наконец, сформировалась матричная структура. В своих исследованиях Ло Минь считает, что защитные стратегии и стратегии реагирования подходят для механических структур, а аналитические стратегии и стратегии развития - для органических структур. В своем исследовании взаимосвязи между стратегией и структурой Huawei Су Чао обнаружил, что, когда Huawei была сосредоточена на местном рынке, ее организационная структура была централизованной и стандартизированной. Когда компания впервые освоила зарубежные рынки, она внедрила функциональную систему и, наконец, сформировала относительно законченную матричную структуру. В ходе своего исследования, посвященного Haier Group, Чэнь Хун разработал план развития структуры в соответствии со стратегией: в соответствии со стадией разработки стратегии, Haier имеет линейную структуру, структуру подразделения, матричную структуру и структуру зарубежного подразделения. Дальнейшее развитие Haier Group будет способствовать преобразуйте организационную структуру в плоскую.Цзинь Цзиньсинь и Лу Циань разделили стратегию в соответствии с конкуренцией и обсудили соответствующую организационную структуру.

Исследовательская стратегия подходит для гибкой стратегии децентрализации, низкой стандартизации и унификации, а гибкая структура аналитической стратегии может быть адаптирована как к традиционной структуре, так и к традиционной организации. При изучении взаимосвязи между стратегией и организационной структурой большинство ученых изучают взаимосвязь между ними на основе согласия с тем, что стратегия определяет организационную структуру и что организационная структура следует стратегии. В исследованиях большинства ученых нетрудно обнаружить, что по мере развития стратегии развития предприятия стратегия предприятия также развивалась от простой централизованной линейной структуры через функциональную систему и систему подразделений к матричной структуре. Предприятия обычно внедряют традиционные организационные структуры на стадии быстрого развития, а гибкие организационные структуры могут быть внедрены в период стабильности.

В настоящее время существует множество форм организации: от традиционной линейной, функциональной, основанной на подразделениях, матричной организационной структуры до сетевой структуры, виртуализированной структуры и так далее. Выбор правильной организационной структуры для предприятия стал одной из самых сложных проблем, с которыми сталкивается предприятие. Фактически, существование организационной структуры призвано помочь предприятию лучше достигать поставленных целей. Рациональность организационной структуры может позволить предприятию работать эффективно. Организационную структуру можно рассматривать как инструмент для достижения стратегических целей. Выбор организационной структуры в определенной степени зависит от текущего стратегического выбора предприятия. В разное время предприятия имеют разный стратегический выбор, что неизбежно повлияет на изменения в организационной структуре в то же время. Поэтому особенно важно разобраться с проектированием или выбором организационной структуры.

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ИССЛЕДОВАНИЕ СТРАТЕГИИ ДИВЕРСИФИКАЦИИ, ОРГАНИЗАЦИОННОЙ СТРУКТУРЫ И ЭФФЕКТИВНОСТИ ДЕЯТЕЛЬНОСТИ КОРПОРАЦИИ

Аннотация*: Когда предприятие накапливает определенный объем капитала, необходимый для дальнейшего расширения масштабов деятельности, лица, принимающие решения на предприятии, рассматривают возможность принятия стратегии диверсификации, чтобы добиться экономии за счет масштаба и усиления влияния на рынок для снижения бизнес-рисков предприятия В то же время ресурсы будут использоваться в полной мере, принося экономическую выгоду предприятию. Согласно мнению известного американского ученого Чандлера, он считает, что стратегия определяет структуру, а структура следует за стратегией. Это показывает, что когда предприятие разрабатывает организационную структуру, оно должно учитывать стратегию предприятия, а организационная структура должна соответствовать этой стратегии. С другой стороны, организационная структура определяет внутреннее разделение труда, распределение полномочий и ответственности, а также структуру процессов на предприятии. Только организационная структура, соответствующая корпоративной стратегии, позволяет организации эффективно достигать своих целей; более того, организационная структура, подходящая для развития бизнеса компании. диверсифицированная стратегия может укрепить внутреннюю коммуникацию, тем самым улучшив корпоративные показатели.*

Ключевые слова: *Стратегия диверсификации; организационная структура; корпоративные показатели*

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RESEARCH OF THE DIVERSIFICATION STRATEGY, ORGANIZATIONAL STRUCTURE AND EFFICIENCY OF THE CORPORATION

***Summary**: When an enterprise accumulates a certain amount of capital needed to further expand its operations, decision makers at the enterprise consider adopting a diversification strategy to achieve economies of scale and increase market influence to reduce the business risks of the enterprise, while at the same time resources will be fully utilized, bringing economic benefits to the enterprise. According to the famous American scientist Chandler, he believes that strategy determines structure, and structure follows strategy. It shows, that when an enterprise develops an organizational structure, it should take into account the strategy of the enterprise, and the organizational structure should correspond to this strategy. On the other hand, the organizational structure determines the internal division of labor, the distribution of powers and responsibilities, as well as the structure of processes in the enterprise. Only an organizational structure consistent with the corporate strategy allows the organization to effectively achieve its goals; moreover, an organizational structure suitable for the development of the company's business. A diversified strategy can strengthen internal communication, thereby improving corporate performance.*

***Keywords:** Diversification strategy; organizational structure; corporate performance*

1. Стратегия диверсификации

Когда компания может продавать продукт по цене, превышающей существующую на рынке, или, снижая основные и вспомогательные издержки, она может продавать продукты или предоставлять услуги по цене ниже, чем продукт, продаваемый на рынке, тогда компания оказывает влияние на рынок. Реализация предприятием стратегии диверсификации может в определенной степени увеличить влияние предприятия на рынок. Когда предприятие продает продукцию по более низкой цене, чем его конкуренты, или даже продает продукцию с прибылью, а затем вытесняет конкурентов с рынка, оно достигает цели наказания или даже вытеснение конкурентов с определенного товарного рынка[123].

Распределение внутреннего рынка капитала включает в себя внутренние транзакции и финансовую экономику. Когда предприятие реализует стратегию диверсификации, оно может интернализировать транзакции с капиталом, рабочей силой и другими факторами производства через рынок капитала и рынок труда, что может не только снизить затраты на финансирование и трансакционные издержки, но и служить в качестве это также может позволить сотрудникам переходить из одного подразделения в другое, что не только экономит затраты на наем и увольнение сотрудников, но и повышает их трудоспособность и способствует привлечению высококвалифицированных специалистов высшего звена для предприятия. В то время как рынок капитала приносит прибыль предприятиям за счет

[123] Гун Хуан.Корпоративное стратегическое управление - концепции, методы и кейсы.Издательство университета Цинхуа· Издательство Пекинского университета Цзяотун, 2008.

рационального распределения ресурсов, он также в определенной степени снижает операционные риски предприятий. Благодаря диверсификации предприятия могут эффективно объединять несколько независимых предприятий, потоки прибыли которых не связаны друг с другом. Хотя это может и не создавать дополнительных выгод, это может уменьшить колебания нормы прибыли предприятий.

2. Риски и проблемы стратегии диверсификации.

Диверсификация увеличивает диапазон управления и повышает уровень менеджмента, что приводит к негативным последствиям неэффективности. Исследования показали, что низкая норма прибыли предприятия часто связана с чрезмерной многоуровневой структурой компании. Когда уровень управления компанией повышается, эффективность работы компании снижается. эффективность работы предприятия будет улучшена, но после достижения определенного уровня эффективность работы предприятия снизится, поэтому эффективность чрезмерно диверсифицированного предприятия может быть ниже, чем у его конкурентов. С расширением масштабов организации также повысился уровень управления, что усложнило взаимодействие и передачу внутренней информации предприятия и повлияло на эффективность управления предприятием. В настоящее время легко получить показатель X-неэффективности, то есть уровень неэффективность распределения ресурсов на крупных предприятиях[124].

Ресурсы предприятия ограничены, включая материальные активы, такие как денежные средства, таланты, оборудование и земля, а также нематериальные активы, такие как деловая репутация, бренд, запатентованные технологии, управленческие возможности и каналы продаж. Предприятия реализуют стратегии диверсификации. При полном использовании оставшихся ресурсов и возможностей различные степени диверсификации неизбежно приводят к сокращению инвестиций в ресурсы и возможности определенных предприятий и даже важных бизнесов, а также к снижению уровня управления этими предприятиями, тем самым ослабляя их влияние на рынке и снижая скорость развития в целом. текущий рынок. Таким образом, предприятие может реализовывать стратегию диверсификации, но оно не может быть чрезмерно диверсифицированным. В противном случае, снижая бизнес-риски и надеясь добиться более высоких результатов с помощью стратегии диверсификации, это также может привести к неразумному использованию ресурсов и снижению стоимости компании.

Стратегии диверсификации должны окупать затраты на преодоление барьеров для выхода на рынок. Эти затраты могут быть связаны с капиталом, талантами, временем и т.д. Если предприятие хочет выйти на рынок, оно, прежде всего, должно обладать определенными способностями в этом

[124] Гун Хуан.Корпоративное стратегическое управление - концепции, методы и кейсы.Издательство университета Цинхуа· Издательство Пекинского университета Цзяотун, 2008.

отношении: понимать ли оно рынок, достаточны ли средства компании, степень понимания отрасли, производственные мощности продукта, уровень менеджмента и деловые возможности профессиональных талантов, а также конкурентная ситуация в отрасли, политика и нормативные акты страны в соответствующих аспектах и т.д. - все это требует от предприятий затрат времени, энергии, рабочей силы и средств на проведение углубленных исследований и понимание, а также принятие соответствующих решений. Трудности и противоречия, связанные с этим, требуют от бизнес-менеджеров отойти от ИТ и найти стратегическую взаимосвязь между существующими и новыми направлениями бизнеса[125].

Линейная организационная структура. Линейная организационная структура - это самая простая и базовая организационная структура. Это обычная форма организации малого бизнеса. Владелец отвечает за большинство прав организации, а также берет на себя большую часть управленческих обязанностей организации. Все должности в организации, от высшего руководства до низшего звена, расположены в вертикальной системе по прямой линии, образуя в высшей степени унифицированную командную структуру. Подчиненные должны подчиняться всем указаниям своего начальства и принимать надзор со стороны вышестоящих лиц, но подчиненные ответственны только перед своим непосредственным начальством. Такая структура отличается высокой жесткостью, а права и обязанности членов организации четко определены, что делает общую работу организации упорядоченной, а затраты на управление низкими, но это также приводит к тому, что предприятию не хватает креативности, а задача менеджера является тяжелой, так что менеджер делает все, что в его силах. не хватает времени и энергии на обдумывание и формулирование долгосрочных целей и стратегий развития предприятия. Такая структура, как правило, подходит для стратегии развития малых предприятий с небольшими масштабами производства, единичным ассортиментом продукции и простыми методами управления.

Функциональная организационная структура. Эта структура значительно улучшена по сравнению с линейной системой. Сохраняя преимущества линейной системы, она также преодолевает некоторые ее недостатки. Она разделена в соответствии с основными видами деятельности, осуществляемыми организацией. В настоящее время топ-менеджеры больше не рассматривают в полной мере все вопросы организации. Организация помогает менеджерам управлять определенными высокопрофессиональными предприятиями путем создания функциональных организаций. Предоставляя консультации и рекомендации, эти специалисты улучшили профессиональные управленческие возможности организации и

[125] Дэн Синьминь.Политическая принадлежность, стратегия диверсификации и эффективность деятельности частных предприятий в нашей стране [J].Обзор руководства Нанькай，2011，14（04）：4-15.

конкурентоспособность на рынке, что сократило задачи, стоящие перед организацией. менеджеры. В то же время, существует определенное понимание и осмысление направления развития предприятия, но у этой структуры также есть недостатки. Хотя в организации созданы функциональные отделы с четкими обязанностями, существует явление множественности руководителей, а также существуют определенные коммуникационные барьеры между функциональными отделами и другими подразделениями. бизнес-подразделения, которые менее склонны к сотрудничеству и которым труднее справляться с разнообразием в организации.

Организационная структура системы подразделений. Когда масштаб предприятия расширяется до определенной стадии, стратегическая бизнес-сфера предприятия постепенно развивается от первоначального единичного продукта к диверсифицированному управлению. Когда первые две модели организационной структуры не могут быть применены, предприятие должно внести изменения в организационную структуру, иначе это приведет к провалу реализации стратегии., и предприятию будет трудно добиться более высокой производительности. Организационная структура, основанная на подразделениях, может в некоторой степени компенсировать недостатки двух вышеперечисленных организационных структур. Организационная структура системы бизнес-подразделений основана на продуктах, регионах или клиентах и объединяет связанные функциональные отделы, такие как исследования и разработки, закупки, производство и продажи, в независимую организационную структуру подразделения.

Гибридный тип. Гибридный тип может представлять собой комбинацию двух или более структур, а может быть и комбинацию из трех. Когда предприятие выбирает способ объединения, оно должно выбрать организационную структуру, которая наилучшим образом соответствует стратегии в соответствии с его собственной стратегией развития. Кроме того, из этого может развиться больше типов организационных структур, но предприятиям не нужно выбирать, какая организационная структура подходит для корпоративной стратегии. До тех пор, пока разработанная организационная структура подходит для корпоративной стратегии, не обязательно, какая именно организационная структура, до тех пор, пока дизайн организационной структуры ориентирован на корпоративная стратегия, эффективная реализация корпоративной стратегии может быть достигнута[126].

Сравнивая и анализируя вышеперечисленные организационные структуры, можно увидеть, что линейная и функциональная организационные структуры подчеркивают профессиональное разделение труда и

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[126] Дэн Синьминь.Политическая принадлежность, стратегия диверсификации и эффективность деятельности частных предприятий в нашей стране [J].Обзор руководства Нанькай，2011，14（04）：4-15.

централизованное управление, которые более практичны для небольших предприятий с единым бизнесом и меньшим количеством разновидностей; а модель организационной структуры бизнес-подразделения позволяет руководителям высшего звена иметь больше времени и энергии на обдумывание стратегического направления развития предприятия, и каждое бизнес-подразделение отвечает за функционирование бизнеса. В то же время это обеспечивает основу для оценки менеджерами эффективности различных бизнесов. Степень централизации и децентрализации в большей степени соответствует стратегии диверсификации, что в большей степени способствует разделению и стандартизации должностей, отделов и процессов; и степень децентрализации выше. Данный тип компании не подходит для стратегий диверсификации из-за высокой степени децентрализации.

Организационная структура предприятия создается предприятием для достижения эффективной работы и управления компанией, поскольку она может эффективно гарантировать, что менеджеры и сотрудники работают в соответствии со стратегическими целями, установленными предприятием, и является основой управления предприятием для создания и повышения эффективности работы. Эффективная организационная структура позволяет руководителям иметь больше времени и энергии для обдумывания долгосрочного развития компании, а организационная структура, соответствующая стратегии, может эффективно обеспечить достижение компанией своих организационных целей.Стратегия определяет организационную структуру. Следовательно, структура контролирует эффективное проведение операций и процессов управления. Прямое воздействие заключается в том, чтобы помочь организации максимизировать прибыль, а косвенное - в том, чтобы облегчить общение между менеджерами и сотрудниками и добиться общего прогресса, тем самым улучшая корпоративные показатели.

Стратегия диверсификации является одной из корпоративных стратегий. Хотя это стратегия на уровне компании, она также может снизить риски и внутренние операционные издержки, связанные с использованием одного продукта, помочь предприятиям расширить масштабы своей организации и обеспечить экономию за счет масштаба. Достижение стратегических целей диверсификации в значительной степени определяется организационной структурой, выбранной предприятием, и организационной структурой, которая наилучшим образом соответствует стратегии диверсификации, как правило, является организационная структура бизнес-подразделения. Организационная структура бизнес-подразделения представляет собой единство централизации и децентрализации, что может помочь предприятиям достичь стратегических целей диверсификации и повысить экономические показатели предприятия, и эти показатели могут в некотором смысле оказать долгосрочное и глубокое влияние на предприятие.

Таким образом, организационная структура также может определять эффективность работы организации. Организационная структура влияет на производительность и в дальнейшем влияет на рыночное влияние продуктов и услуг компании, воздействуя на различные горизонтальные и вертикальные сети взаимоотношений внутри организации. Конечный результат отражается в виде различий в эффективности.

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ИСТОЧНИКИ ПРАВА ЕС В СФЕРЕ ЗАЩИТЫ ПОТРЕБИТЕЛЕЙ

Аннотация: *В статье рассматривается европейская система защиты прав потребителей, которая основана на Договоре о функционировании ЕС (TFEU), устанавливающем принцип высокого уровня защиты (статьи 12, 114, 169). Анализируются директивы и правила, гармонизирующие национальные законы (например, о возврате товаров в течение 14 дней). Изучается прецедентное право Суда ЕС.*

Ключевые слова: *европейское право, права потребителей, хартия, прецедентное право, онлайн-платформа.*

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SOURCES OF EU LAW IN THE FIELD OF CONSUMER PROTECTION

Annotation: *The article examines the European consumer protection system, which is based on the Treaty on the Functioning of the EU (TFEU), which establishes the principle of a high level of protection (Articles 12, 114, 169). Directives (e.g. on compensation for flights) and directives harmonising national*

laws (e.g. on the 14-day return of goods) are analysed. The case law of the Court of Justice of the EU is studied.
***Keywords**: European law, consumer rights, charter, case law, online platform.*

В Европейском Союзе защита прав потребителей регулируется многоуровневой системой правовых актов, включающей в себя:

– первичное право ЕС;

– договоры ЕС (Лиссабонский договор 2007 г.)[127] закрепляют принцип высокого уровня защиты потребителей (ст. 12, 114, 169 ДФЕС);

– хартия основных прав ЕС (ст. 38) [128] – гарантирует защиту потребителей в рамках политики Союза.

Договор о функционировании Европейского Союза (ДФЕС) является одним из ключевых учредительных документов Европейского Союза.[129] Этот основополагающий договор был подписан в Лиссабоне в 2007 году и вступил в силу в 2009 году, заменив собой ранее действовавший Договор об учреждении Европейского сообщества (также известный как Римский договор 1957 года).[130] ДФЕС составляет вместе с Договором о Европейском Союзе (ДЕС) правовую основу деятельности ЕС.[131]

В системе европейского права ДФЕС играет исключительно важную роль, так как именно он определяет конкретные механизмы функционирования Евросоюза, включая такие сферы как экономическая политика, формирование внутреннего рынка и защита прав потребителей. В отличие от ДЕС, который устанавливает общие политические цели и принципы интеграции, ДФЕС содержит детальные положения о реализации этих принципов на практике.

Особое значение ДФЕС имеет для защиты прав потребителей в ЕС. В статье 12 договора прямо закрепляется требование учитывать интересы потребителей при разработке любой политики Союза. Статья 114 предоставляет правовую основу для гармонизации национальных законодательств в области защиты потребителей, что позволяет принимать общеевропейские директивы и регламенты. Наиболее важной в этом контексте является статья 169, которая устанавливает в качестве цели достижение высокого уровня защиты потребителей в рамках единого рынка ЕС.

Именно, на основании этих статей ДФЕС были разработаны и приняты ключевые нормативные акты в сфере защиты прав потребителей, такие как Директива 2011/83/ЕС о правах потребителей (в частности,

[127] Право Европейского союза. https://eulaw.ru.
[128] Хартия Европейского союза об основных правах. https://www.applyhumanrights.com.ru.
[129] https://www.wipo.int/wipolex.ru.
[130] Европейское право. М., 2000. С. 553–699; Ниццский договор и хартия основных прав Европейского союза. С. 26–54.
[131] Право Европейского союза. https://eulaw.ru.

предусматривающая 14-дневный срок для возврата товаров при дистанционной торговле) и Директива 2005/29/ЕС о недобросовестных коммерческих практиках, запрещающая вводящую в заблуждение рекламу и агрессивные методы продаж.

Следует отметить, что ДФЕС не только устанавливает правовые основы для принятия конкретных актов по защите потребителей, но и определяет механизмы их реализации, включая контроль со стороны Европейской комиссии и возможность обращения в Суд ЕС в случае нарушений. Таким образом, Договор о функционировании Европейского Союза служит фундаментом для всей системы защиты потребительских прав в Евросоюзе, обеспечивая единство подходов и высокие стандарты защиты во всех государствах-членах.

Регламенты (прямое действие в странах ЕС) - регламент (ЕС) № 2017/2394 – о сотрудничестве в защите прав потребителей (создание сети Европейских центров потребителей - ECC-Net); регламент (ЕС) № 261/2004 – о компенсациях при задержке/отмене авиарейсов; регламент (ЕС) № 524/2013 – о платформе для онлайн-разрешения споров (ODR).

Директивы (требуют имплементации в национальные законы) Директива 2011/83/ЕС – о потребительских правах (право на 14-дневный возврат при дистанционных покупках, запрет скрытых платежей); директива 2005/29/ЕС – о недобросовестных коммерческих практиках (запрет агрессивного маркетинга, введения в заблуждение); директива 1999/44/ЕС – о гарантиях на товары (минимум 2 года на новые вещи); директива 93/13/ЕЭС – о несправедливых условиях в договорах (аннулирование кабальных пунктов).

Прецедентное право Суда ЕС: «дело C-168/05 (Mostaza Claro, 2006) – арбитражные оговорки в договорах с потребителями могут быть недействительными, дело C-497/13 (Faber, 2015) – продавец обязан компенсировать все убытки, включая моральный вред, дело C-61/20 (Amazon, 2021) – онлайн-платформы несут ответственность за безопасность товаров третьих продавцов».[132]

Международные соглашения:

- руководящие принципы ООН (1985) – базовые стандарты защиты;
- конвенции Совета Европы (например, о кибербезопасности).

[132]Суд европейского союза. https://www.refworld.org.ru.

Таблица 2

Сравнительная таблица: ключевые акты ЕС и их аналоги в РФ

Право потребителей	В ЕС	В РФ
Дистанционные покупки	14 дней на возврат (Директива 2011/83)	7 дней (ст. 26.1 ЗоЗПП)
Гарантия на товары	2 года (Директива 1999/44)	2 года (ст. 19 ЗоЗПП)
Штрафы за обман	До 4% от оборота компании (GDPR)	До 500 тыс. руб. (ст. 14.7 КоАП)
Ответственность маркетплейсов	Да (Дело Amazon)	Ограничена (ст. 12.1 ЗоЗПП)

Европейский Союз в своей политике защиты прав потребителей делает основной акцент на гармонизацию законодательства стран-членов через систему директив и регламентов. Этот подход позволяет создать единое правовое пространство с высокими стандартами защиты, при этом сохраняя определенную гибкость для национальных законодателей. Особую роль в этой системе играет Суд Европейского Союза, чьи прецедентные решения имеют обязательную силу для всех государств-участников и способствуют единообразному толкованию и применению норм права ЕС.[133]

В сравнении с российским законодательством европейские нормы обеспечивают более высокий уровень защиты потребителей. Это проявляется в более длительных сроках возврата товаров (14 дней против 7 в России), расширенной ответственности онлайн-платформ за товары третьих продавцов, а также в более жестких санкциях за нарушения. Российское законодательство пока отстает в этих аспектах, хотя и демонстрирует тенденцию к сближению с европейскими стандартами.

Перспективы развития законодательства ЕС в сфере защиты потребителей связаны, прежде всего, с ужесточением регулирования цифровых платформ. Это касается вопросов использования искусственного интеллекта, алгоритмов ценообразования, а также защиты персональных данных. Особое внимание уделяется развитию внесудебных механизмов разрешения споров, таких как онлайн-платформы ODR (Online Dispute Resolution) и процедуры медиации, которые позволяют урегулировать конфликты быстро и с минимальными издержками.

Для бизнеса работа на европейском рынке сопряжена с серьезной ответственностью. Нарушения потребительского законодательства могут повлечь за собой колоссальные штрафы, достигающие 10 миллионов евро или 4% от годового оборота компании. Такие жесткие санкции служат

[133]Европейское право. Право Европейского союза и правовое обеспечение защиты прав человека / рук. авт. колл. Л.М. Энтин. М., 2007. - С. 541–542.

действенным стимулом для предпринимателей строго соблюдать установленные правила и стандарты. В результате в ЕС формируется сбалансированная система, где высокий уровень защиты прав потребителей сочетается с развитием честной и прозрачной предпринимательской деятельности.

Использованные источники:

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ЭПИДЕМИОЛОГИЯ КОРИ И МЕТОДЫ БОРЬБЫ С НЕЙ

Аннотация. *Данная работа посвящена эпидемиологии кори и методам контроля над ней, исследуя уникальные черты этого высоко контагиозного вирусного заболевания. Изучаются признаки кори, такие как высокая температура, сыпь и воспаление конъюнктивы, а также потенциальные осложнения, в числе которых пневмония и энцефалит. Особое внимание уделяется распространению заболевания в Узбекистане, где достижения в вакцинации сталкиваются с локальными вспышками из-за низкого уровня охвата в отдельных регионах. Рассматривается жизнь пациентов с корью, в том числе физические и психосоциальные последствия. В статье подчеркивается важность эпидемиологического процесса для понимания путей передачи и восприимчивого населения, а также роли вакцинации и мониторинга в профилактике. Анализируются современные подходы к симптоматическому лечению и предлагаются меры по укреплению профилактических мероприятий, включая образовательные кампании и улучшение инфраструктуры. Сравнительные таблицы и ссылки в системе Ванкувера подтверждают необходимость коллективного иммунитета для ликвидации кори.*

Ключевые слова: *корь, эпидемиология, вакцинация, Узбекистан, профилактика, эпидемиологический процесс, осложнения, коллективный иммунитет, эпиднадзор, лечение.*

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EPIDEMIOLOGY OF MEASLES AND METHODS FOR ITS CONTROL

Abstract: *This work is dedicated to the epidemiology of measles and methods for controlling it, examining the unique features of this highly contagious viral disease. The symptoms of measles, such as high fever, rash, and inflammation of the conjunctiva, as well as potential complications, including pneumonia and encephalitis, are studied. Special attention is paid to the spread of the disease in Uzbekistan, where advances in vaccination face local outbreaks due to low coverage in certain regions. The lives of patients with measles are considered, including the physical and psychosocial consequences. The article emphasizes the* *importance of the epidemiological process for understanding transmission routes and susceptible populations, as well as the role of vaccination and monitoring in prevention. Modern approaches to symptomatic treatment are analyzed, and measures are proposed to strengthen preventive measures, including educational campaigns and infrastructure improvement. Comparative tables and references in the Vancouver system confirm the need for herd immunity to eliminate measles.*

Keywords: *Measles, Epidemiology, Vaccination, Uzbekistan, Prevention, Epidemiological Process, Complications, Herd Immunity, Epidemiological Surveillance, Treatment.*

Введение. Корь представляет собой крайне заразное вирусное заболевание, вызываемое вирусом кори (Morbillivirus), остающимся серьезной проблемой для здоровья общества, несмотря на наличие действенной вакцины. Передаваясь через воздух, корь в основном затрагивает детей, но может не пощадить и взрослых с недостатком иммунитета. По сведениям Всемирной организации здравоохранения (ВОЗ), в 2019 году корь привела к смертям порядка 140 000 человек, в основном детей младше пяти лет [1]. Несмотря на глобальные усилия в области вакцинации, вспышки кори продолжают иметь место в регионах с низкими показателями охвата прививками [2].

В Узбекистане корь находится под контролем благодаря национальным иммунизационным программам, однако локальные эпидемии все еще возникают, особенно в сельских местностях. Эпидемиологическая ситуация, включающая источник инфекции, способы передачи и восприимчивое население, определяет динамику распространения болезни. Данная статья исследует эпидемиологию кори, ее симптомы и последствия, положение в Узбекистане, методы борьбы, современные подходы к лечению и профилактике, акцентируя внимание на важности коллективного иммунитета [4].

Общая информация о кори, ее симптомах и последствиях

Корь вызывается вирусом из семейства парамиксовирусов и передается через капли слюны или слизи во время кашля, чихания или разговора. Инкубационный период составляет от 7 до 21 дня, после чего появляются первые симптомы. Классическая клиническая картина включает:

1.Высокую температуру (до 40°С);

2.Сухой кашель, насморк и конъюнктивит;

3.Пятна Коплика (белые пятна на слизистой рта);

4. Макулопапулезную сыпь, начинающуюся с лица и распространяясь по всему телу.

Симптомы обычно продолжаются 7–10 дней, однако осложнения могут быть серьезными, особенно у детей младше пяти лет и взрослых старше 20 лет. К ним относятся пневмония, энцефалит, подострый склерозирующий панэнцефалит (редкое, но фатальное неврологическое осложнение) и отит. По данным ВОЗ, примерно 30% случаев кори сопровождаются осложнениями, а уровень смертности в развивающихся странах может достигать 5–10% без лечения [3].

Дети с недоеданием или дефицитом витамина А особенно подвержены риску. Корь также временно ослабляет иммунную систему, увеличивая вероятность вторичных инфекций [5]. Вакцинация остается единственным надежным способом предотвращения этого заболевания.

Распространение кори среди населения Узбекистана

В Узбекистане корь контролируется благодаря обязательной вакцинации, включенной в национальный календарь прививок. Две дозы вакцины против кори, паротита и краснухи (КПК) вводятся в 12 месяцев и 6 лет. По информации Министерства здравоохранения, охват вакцинацией КПК достиг 97% к 2020 году, что значительно снизило заболеваемость [6]. Тем не менее, локальные вспышки также наблюдаются в районах с низким уровнем иммунизации, таких как удаленные области Ферганской и Кашкадарьинской областей.

В 2019 году в Узбекистане было зарегистрировано около 500 случаев кори, большинство из которых пришлись на невакцинированных детей и взрослых [7]. Высокая плотность населения в таких городах, как Ташкент, и активная миграция способствуют быстрому распространению вируса. Недостаточная осведомленность родителей и отказы от вакцинации по религиозным или культурным причинам увеличивают риск вспышек.

Таблица 1. Сравнение заболеваемости корью в Узбекистане (на 100 000 человек)

Год	Заболеваемость	Охват вакцинацией (%)
2015	12	94
2020	3	97

Источник: Министерство здравоохранения Республики Узбекистан, 2022 [3]; Всемирная организация здравоохранения, 2023 [1].

Пациенты, живущие с корью

Большинство пациентов с корью полностью выздоравливают без последствий при адекватной поддерживающей терапии. Однако дети, перенесшие осложнения, такие как пневмония или энцефалит, могут страдать от длительных проблем, включая нарушения слуха, когнитивные отклонения или хронические заболевания легких. Психосоциальные последствия также являются значительными: из-за карантинных мер дети пропускают школы, а семьи сталкиваются со стрессом и финансовыми трудностями [8].

Стигматизация, хотя и менее заметна, чем при других инфекциях, может возникать в малых сообществах, где случаи кори связываются с отказом от вакцинации. Пациенты нуждаются в всесторонней поддержке, включая медицинское обслуживание, питание и доступ к образовательным ресурсам после выздоровления [9].

Эпидемиология, профилактика и эпидемиологический контроль кори

Эпидемиология кори определяется ее высокой контагиозностью: индекс репродукции (R0) составляет 12–18, что означает, что один больной может заразить до 18 человек в восприимчивой популяции [10]. Эпидемиологический процесс включает:

Источник инфекции: Больной человек, заразный за 4 дня до и после появления сыпи.

Способ передачи: Воздушно-капельный, через аэрозоли или загрязненные поверхности.

Восприимчивое население: Невакцинированные дети и взрослые без иммунитета.

Профилактика кори основывается на вакцинации. Две дозы вакцины КПК обеспечивают иммунитет в 97% случаев [11]. Дополнительные меры включают:

Изоляцию больных для разрыва цепи передачи. Постконтактную профилактику (вакцинация или иммуноглобулин в течение 72 часов после контакта).

Санитарное просвещение для повышения доверия к вакцинам. Эпидемиологический контроль включает:

Мониторинг заболеваемости через системы эпидназдора.

Расследование вспышек для выявления источников.

Быструю вакцинацию в очагах инфекции.

В Узбекистане эпиднадзор осуществляется через региональные санитарно-эпидемиологические службы, которые следят за случаями и организуют кампании дополнительной иммунизации [12].

Значение эпидемиологического процесса

Эпидемиологический процесс определяет стратегии борьбы с корью. Высокая заразность требует охвата вакцинацией не менее 95% для формирования коллективного иммунитета [14]. Отказы от прививок, даже в небольших группах, создают "иммунные пробелы", способствуя вспышкам. Например, снижение охвата вакцинацией на 5% может увеличить заболеваемость в 3 раза [13]. Понимание путей передачи позволяет внедрять меры, такие как изоляция и улучшение вентиляции в учебных заведениях, что снижает риск заражения на 30–50% [15].

Методы борьбы с корью в Узбекистане

Борьба с корью в Узбекистане включает:

Вакцинацию: Национальная программа обеспечивает бесплатные прививки КПК.

Эпиднадзор: Лабораторное подтверждение случаев и мониторинг охвата вакцинацией.

Образовательные кампании: Работа с родителями для опровержения мифов о вакцинации.

Международное сотрудничество: Поддержка ЮНИСЕФ и Глобального альянса по вакцинам (GAVI) для поставок вакцин.

Среди проблем выделяются отказы от вакцинации, низкая осведомленность в сельской местности и ограниченные ресурсы для эпиднадзора. Вспышки 2017–2019 годов продемонстрировали необходимость усиления кампаний дополнительной иммунизации, которые охватили более 2 миллионов детей [3].

Современные подходы к терапии

Корь не имеет специфического противовирусного лечения, поэтому медицинская помощь ориентирована на облегчение симптомов и снижение риска осложнений:

Анальгетики (парацетамол, ибупрофен) для контроля температуры. Обеспечение жидкостью для предотвращения обезвоживания. Витамин А для уменьшения вероятности осложнений, особенно у детей с недостатком питания [7].

Антибиотики при сопутствующих бактериальных инфекциях, таких как пневмония.

Серьезные случаи, включая энцефалит, требуют интенсивной терапии в стационаре. Исследования подтверждают, что витамин А снижает уровень смертности от кори на 50% у детей младше двух лет [2]. Постконтактная профилактика (вакцинация или иммуноглобулин) эффективна в первые дни после контакта.

Меры по предотвращению

Для защиты от кори необходимо:

Достигнуть 95% охвата вакцинацией: Укрепить кампании в сельских районах.

Проводить образовательные инициативы: Информировать родителей о безопасности вакцин.

Улучшить эпидемиологический надзор: Внедрить цифровые системы для отслеживания случаев.

Обеспечить доступ к вакцинам: Расширить мобильные бригады в удаленных регионах.

Укрепить инфраструктуру: Повысить качество хранения вакцин и лабораторной диагностики.

В Узбекистане следует сосредоточиться на преодолении отказов от вакцинации через сотрудничество с религиозными лидерами и местными сообществами. Школьные программы и СМИ могут повысить осведомленность о важности иммунизации.

Таблица 2. Эффективность профилактических мер против кори

Мера	Эффективность (%)	Охват в Узбекистане (%)
Вакцинация КПК	97	97
Постконтактная вакцинация	90	50
Изоляция больных	70	60

Источник: Fine PEM et al., 2018 [4]; Dabbagh A et al., 2017 [5].

Заключение. Корь как и прежде требует строгого контроля посредством вакцинации и эпиднадзора, так как эта инфекция остается предотвратимой, но очень опасной. Эпидемиологический процесс именно подчеркивает необходимость высокого охвата иммунизацией с прививками для остановки передачи заболевания. В Узбекистане локальные вспышки свидетельствуют об недостаточном охвате и среднезнании о прививках. Надо отметить, что симптомы заболевания можно эффективно лечить, а профилактика — превентивные меры, остаётся единственным приоритетом. Наряду с другими комплексными подходами к контролю и с обучением людей, улучшением инфраструктуры, необходимо исключить эпиднадзор, дабы прекратить существование кори как проблемы здоровья нации.

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ЗНАЧЕНИЕ ЭПИДЕМИОЛОГИЧЕСКОГО ПРОЦЕССА В РАСПРОСТРАНЕНИИ КОКЛЮША У ДЕТЕЙ И ПОДРОСТКОВ

Аннотация. *Публикация рассчитана на изучение эпидемиологического процесса коклюша у детей и подростков с эмоциональным акцентом на его распространении в Центральной Азии, в частности в Узбекистане. Обсуждаются общие особенности коклюша, в том числе возбудитель, механизмы передачи и клинические проявления. Особое внимание уделяется эпидемиологической ситуации в Узбекистане, мероприятиям по борьбе с заболеванием и современным методам терапии. Кроме того, рассматривается ситуация с корью в Самаркандской области, включая эпидемиологическую статистику и рекомендации по профилактике. Сравнительные таблицы представляют эпидемиологические характеристики и меры контроля, а рекомендации рассчитаны на снижение коклющей и коревой заболеваемости. Издание подчеркивает важность вакцинации и эпидемиологического наблюдения для наиболее эффективного надзора над инфекционными болезнями.*

Ключевые слова: *Коклюш, эпидемиологический процесс, дети, подростки, Узбекистан, Центральная Азия, вакцинация, современное лечение, корь,*

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THE SIGNIFICANCE OF THE EPIDEMIOLOGICAL PROCESS IN THE SPREAD OF PERTUSSIS IN CHILDREN AND ADOLESCENTS

Abstract: *This publication focuses on the study of the epidemiological process of pertussis (whooping cough) in children and adolescents, with an emphasis on its spread in Central Asia, particularly in Uzbekistan. It discusses the general characteristics of pertussis, including the causative agent, transmission mechanisms, and clinical manifestations. Special attention is paid to the epidemiological situation in Uzbekistan, disease control measures, and modern treatment methods. Additionally, the situation with measles in the Samarkand region is examined, including epidemiological statistics and recommendations for prevention. Comparative tables present epidemiological characteristics and control measures, and the recommendations are designed to reduce pertussis and measles*

morbidity. The publication emphasizes the importance of vaccination and epidemiological surveillance for the most effective control of infectious diseases.

Введение. Коклюш — это острое инфекционное заболевание дыхательных путей, вызванное бактерией Bordetella pertussis, которое проявляется спазматическим, приступообразным кашлем. Эпидемиологическая ситуация с коклюшем определяется высокой контагиозностью, сезонностью и зависимостью от уровня вакцинации [1]. В Центральной Азии, особенно в Узбекистане, коклюш остается серьезной проблемой из-за недостаточного охвата вакцинацией и отказов от прививок. Параллельно вспышки кори в таких регионах, как Самаркандская область, создают дополнительные сложности для системы здравоохранения [2]. Как отмечает Елена Александровна Медведева, "эпидемиологический процесс инфекционных заболеваний требует комплексного подхода, включая вакцинацию и надзор" (Медведева ЕА. Эпидемиология инфекционных заболеваний. Москва: Медицина; 2019). Данная статья посвящена изучению эпидемиологии коклюша, ситуации в Узбекистане, мерам борьбы и лечения, а также проблеме кори в Самаркандской области, предлагая пути профилактики [3,].

Общая информация о коклюше и его эпидемиология

Коклюш вызывается грамотрицательной бактерией Bordetella pertussis, которая передается воздушно-капельным путем через кашель, чихание или близкий контакт. Патоген неустойчив в окружающей среде, быстро разрушается под воздействием ультрафиолетового света или дезинфицирующих средств [5]. Инкубационный период составляет от 3 до 14 дней, а риск заражения наиболее высок в катаральной стадии и в первые недели спазматического кашля. Заболевание представляет особую опасность для детей до года, у которых могут возникнуть апноэ, пневмония или даже летальный исход [6,].

Эпидемиологические особенности коклюша включают:

Высокая заразность: вероятность инфицирования непривитых людей достигает 90% при контакте с больным (Коклюш: проявления, диагностика, лечение. ЛабСтори; 2021).

Сезонные особенности: вспышки заболеваемости наблюдаются в осенне-зимний период.

Цикличные всплески: вспышки возникают каждые 4-6 лет благодаря снижению иммунитета у привитых.

Источники инфекции: пациенты, включая взрослых с атипичными формами, и бессимптомные носители [9]. До внедрения вакцинации коклюш поражал миллионы людей ежегодно, с высокой смертностью среди младенцев. Вакцинация с использованием цельноклеточных и бесклеточных вакцин значительно снизила заболеваемость, однако не устранила её полностью из-за недостаточного охвата и ослабления иммунитета со временем [10].

Распространение коклюша в Центральной Азии и Узбекистане

В Центральной Азии коклюш продолжает оставаться значительной проблемой, особенно среди детей и подростков. В Узбекистане эпидемиологическая ситуация довольно стабильна, однако наблюдаются отдельные случаи, в основном среди невакцинированных детей. Нурмат Содикович Атабеков, заместитель главы Комитета санитарно-эпидемиологического благополучия, отметил, что "коклюш в большей степени поражает детей, не получивших полный курс вакцинации" [7]. Согласно данным Минздрава Узбекистана, в 2023 году охват пентавалентной вакциной (против коклюша, дифтерии, столбняка, гепатита B и Hib-инфекции) составил 97,6–98,9% среди детей в возрасте 2, 3, 4 и 16 месяцев [11].

Несмотря на высокий уровень вакцинации, отказ от прививок по религиозным или личным причинам способствует локальным вспышкам. Бахтиёр Бегматов, инфекционист, подчеркнул, что "антипрививочные настроения являются ключевым фактором увеличения заболеваемости" [12].

Основные группы риска в Узбекистане включают:

Дети младше одного года, которые не завершили свой цикл вакцинации. Подростки с ослабленным иммунитетом после прививки. Непривитые малыши по медицинским или иным причинам.

Лечение коклюша в Узбекистане проводится в инфекционных стационарах, таких как Городская инфекционная клиника №3 в Ташкенте. Эпидемиологический контроль осуществляется СЭС, которая мониторит случаи и предотвращает панику в социальных медиа [8]. В таблице 1 представлены сопоставительные эпидемиологические особенности коклюша в Центральной Азии.

Таблица 1: Эпидемиологические характеристики коклюша в Центральной Азии

Страна	**Охват вакцинацией (%)**	**Заболеваемость (случаев/100 тыс.)**	**Основные группы риска**	**Источник**
Узбекистан	97,6–98,9 (2023)	Низкая, спорадические случаи	Дети до года, непривитые	Атабеков, 2023
Казахстан	95–97 (2022)	Умеренная, вспышки в регионах	Младенцы, подростки	ВОЗ, 2023
Кыргызстан	90–93 (2022)	Высокая в сельских районах	Непривитые дети	ВОЗ, 2023

Методы борьбы с коклюшем основаны на вакцинации, эпидемиологическом мониторинге и своевременной диагностике: **1. Вакцинация:** Пятикомпонентная вакцина вводится в 2, 3 и 4 месяца, с повторной иммунизацией в 16 месяцев. Бесклеточные подгузники (например, Инфанрикс) рекомендуются для повторных прививок из-за меньшего числа побочных проявлений. Вакцинация снижает тяжесть заболевания, но не гарантирует пожизненного иммунного ответа.

2. Эпидемиологический мониторинг: Включает изоляцию пациентов на 25 дней, карантин в детских учреждениях и бактериологическое обследование контактировавших лиц. СЭС Узбекистана активно следит за случаями, уменьшая дезинформацию.

3. Своевременная диагностика: Диагноз подтверждается клиническими проявлениями, ПЦР или мазком из горла. Своевременная диагностика помогает предотвратить осложнения, такие как пневмония. Ломоносова Алена Вячеславовна акцентирует внимание, что “оптимизация эпиднадзора подразумевает своевременную идентификацию заболевших и контроль за вакцинацией” [13].

Современные подходы к лечению коклюша

Лечение коклюша зависит от стадии заболевания и возраста пациента. Основные методы включают:

Антибиотикотерапия: Макролиды (азитромицин, эритромицин) эффективны в катаральной стадии, уменьшая заразность. Курс длится 5–7 дней. **Симптоматическое лечение:** Антигистаминные препараты, спазмолитики и ингаляции увлажненным кислородом облегчают кашель. Противокашлевые препараты центрального действия не рекомендуются

Госпитализация: Обязательна для детей до 6 месяцев или при тяжелом течении. **Поддерживающая терапия:** Легкое питание, проветривание и прогулки на свежем воздухе (при температуре выше -10°C) способствуют улучшению состояния [4].

Вакцинированные дети переносят коклюш в более легкой форме, с меньшей частотой осложнений [6]

Ситуация с корью в Самаркандской области

Коревая инфекция, вызванная вирусом РНК из семейства морбилли, продолжает представлять собой серьезную угрозу в Узбекистане. В 2023–2024 годах в Самаркандской области зафиксированы вспышки кори, связанные с низким уровнем вакцинации и преобладанием антивакцинаторских настроений Данные о масштабах проблемы ограничены, но регион подчеркивает общий всплеск заболеваемости в Центральной Азии, где в 2024 году было зарегистрировано 127 тысяч случаев, среди которых 40% составляют малыши до 5 лет (ВОЗ, 2024).

Корь передается воздушно-капельным путем и имеет контагиозность около 100%. Симптомы включают жар, высыпания и возможные осложнения, такие как пневмония или воспаление мозга [15].

В Самаркандской области факторы риска включают:

Низкий уровень вакцинации: в 2023 году охват детей 6 лет составил около 73%.

Антипрививочные убеждения: религиозные и культурные факторы препятствуют иммунизации.

Распространение среди взрослых: непривитые взрослые с атипичными формами способствуют передаче вируса.

Антонина Валерьевна Обласова отмечает, что “дезинформация снижает доверие к вакцинации, увеличивая риск вспышек”. Таблица 2 сравнивает эпидемиологические характеристики кори и коклюша.

Таблица 2: Сравнение эпидемиологии кори и коклюша

Характеристика	**Корь**	**Коклюш**
Возбудитель	РНК-вирус	*Bordetella pertussis*
Контагиозность	~100%	~90%
Путь передачи	Воздушно-капельный	Воздушно-капельный
Группы риска	Дети до 5 лет, непривитые взрослые	Младенцы, непривитые дети
Осложнения	Пневмония, энцефалит	Пневмония, апноэ, судороги
Вакцинация	1 год, 6 лет	2, 3, 4, 16 месяцев

Стратегии по недопущению кори.

В Самаркандской области для управления уровнем кори предлагаются следующие действия:

1. Для создания коллективного иммунитета, необходимо обеспечить вакцинацию КПК (корь, краснуха, паротит) у 95% детей в возрасте 1 года и 6 лет, как подчеркивается в источнике "Корь у взрослых. Урайская городская клиническая больница; 2023". Для устранения пробелов в иммунитете важны программы вакцинации, направленные на молодежь и лиц до 35 лет.

2. В рамках информационных кампаний, развернутых в СМИ и среди религиозных организаций, необходимо подробно освещать вопросы безопасности вакцинации. Сейдали Аблятифов отмечает, что "две дозы вакцины обеспечивают 97% защиты" от кори.

3. Мониторинг эпидемиологической ситуации: более точная регистрация случаев заболевания и контроль над процессом вакцинации позволят выявлять очаги инфекции.

4. Изоляция заболевших и ограничение контактов в школах и других учебных заведениях являются важными мерами карантина, которые способствуют снижению распространения вируса.

5. Лабораторные методы диагностики, такие как ПЦР и ИФА, позволяют выявлять заболевание на ранних стадиях, что способствует изоляции больных [9].

Заключение. Эпидемиологический процесс коклюша отмечается высокой уровнем заразности, сезонными колебаниями и зависимостью от вакцинации. В Узбекистане отдельные случаи среди невакцинированных детей подчеркивают необходимость усиления иммунизационных мероприятий и эпидемиологического мониторинга. Современные методы терапии, включая макролиды и поддерживающее лечение, демонстрируют эффективность при оперативном вмешательстве. В Самаркандской области вспышки кори, связанные с низким уровнем вакцинации, требуют немедленных действий, включая иммунизационные кампании и образовательные инициативы. Сравнительные таблицы выявляют сходства и различия в эпидемиологии коклюша и кори, подчеркивая значение коллективного иммунитета. Будущие исследования должны ориентироваться на противодействие антивакцинальным настроениям и совершенствование диагностических методов. Комплексный подход, объединяющий вакцинацию, контроль и обучение, поможет сократить уровень заболеваемости и защитить население Узбекистана от инфекционных рисков.

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ПРИВЛЕЧЕНИЕ И УДЕРЖАНИЕ ПОТРЕБИТЕЛЕЙ: ОПЫТ КОМПАНИИ XIAOMI

Аннотация. *Новые технологические, цифровые возможности маркетинговых коммуникаций, особенно – со стороны компаний-производителей современной электроники, бытовой техники – обусловливают интерес исследователей, менеджеров к поиску новых форм, методов, механизмов привлечения и удержания клиентов. Одновременно в деловой среде, по мере роста конкуренции, возрастает значение программ лояльности потребителей, в значительной мере опирающихся на использование корпоративных экосистем. Эмпирические исследования в этой области позволяют изучить лучшие практики компаний реального сектора, тенденции и проблемы развития маркетинга взаимоотношений. Механизмы, инструменты привлечения, удержания потребителей быстро прогрессирующей китайской компании Xiaomi отличает высокая степень оригинальности, особенно в части развития корпоративных цифровых платформ обширной интегрированной экосистемы.*

Ключевые слова: *потребители, лояльность, маркетинг взаимоотношений, ценообразование, компания Xiaomi, экосистема.*

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ATTRACTING AND RETAINING CONSUMERS: XIAOMI'S EXPERIENCE

Abstract. *New technological, digital opportunities of marketing communications, especially from the side of companies-manufacturers of modern electronics, household appliances, determine the interest of researchers, managers in searching for new forms, methods, mechanisms of attracting and retaining customers. At the same time, in the business environment, as competition grows, the importance of consumer loyalty programs increases, largely based on the use of corporate ecosystems. Empirical research in this area allows us to study the best practices of companies in the real sector, trends and problems of relationship marketing development. The mechanisms, tools for attracting and retaining customers of the rapidly progressing Chinese company Xiaomi are distinguished by* *a high degree of originality, especially in terms of developing corporate digital platforms of an extensive integrated ecosystem*

Keywords: *consumers, loyalty, relationship marketing, pricing, Xiaomi, ecosystem.*

Проблемы привлечения и удержания потребителей – актуальное направление современных исследований. Практики и теоретики пытаются найти новые механизмы взаимодействия корпораций с потребителями продукции.

Так, И.С. Боков утверждает: «..компаниям крайне важно формировать у потребителей наилучший опыт взаимодействия на каждом этапе жизненного цикла клиента, тем самым формируя их лояльность и приверженность конкретному бренду» [2].

Г.Н. Магеррамова исследовала проблемы «..перехода от концепции классического маркетинга к маркетингу взаимоотношений, который основывается на потребительской лояльности», и на этой основе предложила авторское определение «потребительской лояльности». Г.Н. Магеррамова детально проанализировала «пирамиду мотивов» потребителей в контексте классического маркетинга и маркетинга взаимоотношений [4].

Е.И. Макринова, Т.Н. Байбардина, В.В. Лысенко определили, что «..программа лояльности представляет собой комплекс мер, направленных на поощрение клиентов с целью привлечения новых клиентов и установления долгосрочных отношений с лояльно настроенными потребителями. В основе любой такой программы лежит принцип поощрения потребителей». На этой основе Е.И. Макринова, Т.Н. Байбардина, В.В. Лысенко разработали оригинальную авторскую «модель стратегии повышения лояльности клиентов организаций» [5].

А.В. Храмова, С.В. Овчинникова, Е.Е. Попова особо рассматривают «кросс-продажи – не только как способ повышения среднего чека за счет рекомендации сопутствующих товаров, но и как стратегический подход к управлению лояльностью потребителей». А.В.Храмова, С.В. Овчинникова, Е.Е. Попова разработали оригинальную методику оценки лояльности потребителей компании. Авторы утверждают, что «..традиционные программы лояльности (например, системы скидок и бонусов) становятся все менее действенными. Технология кросс-продаж помогает осуществлять коммуникацию с потенциальными потребителями максимально эффективно, задействуя множество форматов и каналов» [8].

О.В. Юдакова уточнила классификацию лояльности клиентов, разработала алгоритм «отбора выгод» для клиента, эмпирически оценила степень удовлетворенности потребителей [9].

Е.М. Алябьева исследует проблему «..совершенствования механизма программ лояльности, приспособления их к потребностям потребителей, и гармоничного сочетания с целями предприятия». Она утверждает: «В настоящее время как в России, так и за рубежом идет активное развитие различных видов программ лояльности, ранее запущенные программы эволюционируют, становятся более таргетированными (ориентированными на конкретного потребителя), с акцентом на снижение оттока клиентов» [1].

М.К. Ильясова, М.К. Сохтаев исследовали структуру и роль «..современных моделей и методов взаимодействия с потребителями; базируясь на их типологии с позиций маркетинга. М.К. Ильясова, М.К. Сохтаев акцентируют связь лояльности и прибыли компании, процессы взаимодействия компании и потребителей, и предлагают авторскую систему показателей оценки эффективности взаимодействия [3].

М.А. Папикян исследовал программы управления лояльностью, удовлетворенностью клиентов, а также «..факторы, оказывающие влияние на удовлетворённость и лояльность потребителя». Автор подчеркивает отличия «поведенческой и воспринимаемой лояльности, которые связаны с поведением потребителя и его эмоциональной составляющей» [7].

В данной статье нами предпринята попытка эмпирического исследования взаимодействия крупной китайской корпорации с потребителями. Xiaomi – китайская технологическая компания-производитель – была основана в 2010 году. Компания прошла листинг Гонконгской фондовой биржи в 2018 году. Помимо смартфонов и электромобилей, компания выпускает широкую номенклатуру гаджетов, устройств «умного дома», «интернета вещей». Компания присутствует в десятках стран, в том числе на рынках Юго-Восточной Азии, но основная часть продаж осуществляется в материковом Китае. Онлайн-продажи Xiaomi удачно дополняются офлайн-продажами [6].

Компания реализует стратегию «прорывного» ценообразования, фокусируясь на низкорентабельных, крупномасштабных продажах. Xiaomi продает «топовые» смартфоны, иные гаджеты, устройства для «умного» дома по ценам, которые часто значительно ниже, чем у конкурентов. Это делает продукцию Xiaomi привлекательной для экономных потребителей. Кроме того, компания нередко предлагает флагманские функции продукта по средним ценам. Компания ориентирована на доступные по цене инновационные продукты, без ущерба их качеству. Один из принципов ценообразования компании – низкая маржа для «первых» покупок потребителя. «Фокус» получения прибыли сосредоточен на аксессуарах, приложениях, услугах, привязанных к проданному продукту. Такая ценовая стратегия способствует быстрому росту доли рынка.

Уникальная программа Xiaomi «Just For Fans» («Только для фанов») позволила привлечь активных лояльных потребителей к разработке новых продуктов, последовательно, на всех этапах. Многие действующие сотрудники Xiaomi также вышли из числа лояльных клиентов, и стали частью команды.

Xiaomi сосредоточена на интеграции экосистемы и инновациях. Создав широкую экосистему, предлагая качественные продукты по конкурентоспособным ценам, Xiaomi смогла масштабировать производство.

Xiaomi разработала взаимосвязанную экосистему продуктов, которая позволяет клиентам управлять широким спектром устройств с единой платформы, улучшая общий пользовательский опыт. Через приложение Mi Home компания позволяет пользователям управлять интеллектуальными устройствами, включая освещение, камеры безопасности, очистители воздуха, кухонные приборы. Смартфоны Xiaomi выступают в качестве центрального узла для управления другими устройствами, позволяя пользователям управлять системами «умного» дома, фитнес-трекерами, другими гаджетами. Такая совместимость между устройствами упрощает пользовательский опыт, позволяя легко интегрировать новые продукты [6].

Предлагая многоязычную поддержку и региональные услуги, Xiaomi создает локализованные команды поддержки клиентов, которые понимают и удовлетворяют уникальные требования каждого из специфических рынков.

Xiaomi отдает приоритет онлайн-продажам через официальный сайт и корпоративные платформы (Mi.com, и др.). Это снижает зависимость компании от посредников, и нерациональной логистики.

Xiaomi регулярно проводит распродажи (типа Flash), предлагая ограниченные выпуски продукции, специальные скидки на платформах электронной коммерции. Это активизирует внимание потребителей, обеспечивает «быстрые» продажи и ажиотаж, что приводит к высокой вовлеченности клиентов и повышению их лояльности.

Xiaomi создала базу лояльных клиентов, развивая сильное чувство общности с помощью своей платформы Mi Community. Сообщество Mi позволяет пользователям Xiaomi взаимодействовать друг с другом, делиться советами по продуктам и функциям, публиковать обзоры. Это формирует устойчивые каналы обратной связи для менеджеров компании. Такое взаимодействие помогает Xiaomi улучшать продукты и услуги, одновременно дав клиентам почувствовать, что их мнение важно для компании.

Xiaomi использует средства событийного маркетинга, проводит онлайн- и офлайн-мероприятия, «вечеринки по запуску продуктов», технические испытания, где пользователи могут принять участие в конкурсах, выигрывать призы, получать «ранний доступ» к новым продуктам. Это углубляет взаимодействие с клиентами, укрепляет взаимоотношения.

Xiaomi обеспечивает «быстрый» цикл разработки продукции, часто представляет обновленные версии существующих продуктов, что поддерживает актуальность ассортиментной линейки. Компания широко использует идеи из сообщества Mi, а также обзоры продуктов, отзывы для корректировки дизайна и функций устройств следующего поколения [6].

Таким образом, обогащение клиентского опыта – это результат маркетинговых и технологических инноваций Xiaomi, эффект интеграции участников на базе экосистемы. Предлагая высококачественные продукты, инвестируя в персонализированную поддержку, обучение клиентов, компания сформировала, умело использует, развивает базу лояльных клиентов, активно участвующих не только в планировании и проведении мероприятий, но и в совершенствовании продуктов, устранении недостатков, развитии ассортимента.

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РАЗРАБОТКА МАРКЕТИНГОВОЙ ПРОГРАММЫ ПОВЫШЕНИЯ ЛОЯЛЬНОСТИ ПОТРЕБИТЕЛЕЙ ПРОДУКЦИИ МЕЖДУНАРОДНОЙ КОМПАНИИ (КОМПАНИЯ XIAOMI)

Аннотация: *В статье рассматриваются подходы к повышению потребительской лояльности на примере международной компании Xiaomi. Лояльность клиентов рассматривается как стратегический ресурс, обеспечивающий стабильный рост и конкурентоспособность бренда. Исследование основано на анализе профильной литературы, корпоративной отчётности и практик, применяемых на различных рынках. По итогам работы предложена программа маркетинговых мероприятий, направленных на укрепление клиентской базы и развитие устойчивых отношений с потребителями.*

Ключевые слова: *потребительская лояльность, маркетинговая стратегия, клиентский опыт, международная компания, брендовая приверженность*

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DEVELOPING A MARKETING PROGRAM TO ENHANCE CONSUMER LOYALTY TO THE PRODUCTS OF AN INTERNATIONAL COMPANY (XIAOMI)

Abstract: *This article explores strategies for enhancing consumer loyalty using the case of the international company Xiaomi. Customer loyalty is viewed as a strategic asset that contributes to sustained growth and strengthens brand competitiveness. The study is based on an analysis of relevant academic literature, corporate reports, and best practices across various markets. Based on the findings, a comprehensive marketing program is proposed, aimed at reinforcing the customer base and fostering long-term relationships with consumers.*

Keywords: *consumer loyalty, marketing strategy, customer experience, international company, brand commitment*

Введение

Потребительская лояльность играет ключевую роль в обеспечении стабильного роста и конкурентоспособности международных компаний. Она способствует увеличению повторных покупок, распространению позитивного восприятия бренда и укреплению его позиций на глобальном рынке.

Компания Xiaomi, основанная в 2010 году в Пекине, зарекомендовала себя как производитель инновационной и доступной техники. Высокий уровень удовлетворенности пользователей, активное сообщество потребителей и устойчивые показатели повторных покупок указывают на сформированную лояльность аудитории.

Настоящая статья направлена на разработку маркетинговой программы, способствующей укреплению потребительской лояльности на примере компании Xiaomi. Рассматриваются типология лояльности, определяющие факторы и комплекс практических мероприятий, ориентированных на долгосрочное взаимодействие с клиентами.

Методы и исследования

В рамках исследования использован качественный аналитический подход, основанный на изучении научной литературы по теме потребительской лояльности, а также на анализе вторичных данных компании Xiaomi. Были проанализированы годовые отчёты, маркетинговые обзоры и открытые источники, отражающие практики формирования лояльности. Также проведён сравнительный анализ применяемых стратегий на различных международных рынках. Такой подход позволил выявить ключевые факторы лояльности и подтвердить обоснованность разработанной маркетинговой программы.

1. Компания Xiaomi Corporation

Корпорация Xiaomi (Xiaomi) была основана в 2010 году Лэй Цзюнем, Линь Бинем, Чжоу Гуанпином, Ван Чуанем и Лю Дэ, а ее штаб-квартира находится в Пекине, Китай. Руководствуясь корпоративной концепцией «создание лучшей жизни», компания Xiaomi стремится создавать высококлассные смарт-устройства и инновационные технологии и постепенно превратилась в ведущую мировую компанию по производству бытовой электроники и смарт-устройств.

Продукция Xiaomi пользуется высокой степенью лояльности потребителей. Согласно соответствующим исследованиям, показатели удовлетворенности пользователей и повторных покупок продукции Xiaomi занимают одно из первых мест в отрасли. Любовь потребителей к продукции Xiaomi отражается не только в ее характеристиках и экономичности, но и в хорошей репутации бренда и пользовательском опыте. Xiaomi успешно поддерживает большое количество лояльных пользователей благодаря постоянному обновлению продукции и отличному послепродажному обслуживанию. Например, сообщество Xiaomi «Mi Fan» активно работает по всему миру, пользователи активно участвуют в отзывах о продукции и обмениваются опытом, что еще больше укрепляет эмоциональную связь между брендом и потребителями.

Лояльность потребителей - один из ключевых факторов устойчивого роста компаний, особенно таких международных компаний, как Xiaomi, где формирование стабильной лояльности потребителей не только помогает увеличить доходы, но и повышает конкурентоспособность бренда и его долю на рынке. Лояльные потребители с большей вероятностью совершают повторные покупки, дают рекомендации бренду из уст в уста и терпимо относятся к определенной степени колебания цен. Поэтому повышение лояльности потребителей является важной стратегической целью для долгосрочного развития Xiaomi.

2. Лояльность клиентов

Лояльность - это готовность клиента продолжать покупать товары или услуги бренда и рекомендовать их другим. Xiaomi удалось завоевать доверие и предпочтение потребителей благодаря высококачественной продукции и хорошему пользовательскому опыту, что повышает лояльность.

Тип лояльности:

- **Эмоциональная лояльность:** эмоциональная связь между покупателем и брендом. Xiaomi укрепила свою эмоциональную связь с потребителями благодаря сообществу «Mi Fan» и офлайн-магазинам, сделав пользователей не только потребителями, но и преданными сторонниками бренда.
- **Рациональная лояльность:** выбор бренда из-за его качества или ценовых преимуществ. Основная стратегия Xiaomi - «экстремальное соотношение цены и качества» - заключается в предоставлении экономичных продуктов, что привлекает большое количество рациональных потребителей.
- **Поведенческая лояльность:** покупка по привычке или удобству. Xiaomi обеспечила удовлетворенность пользователей в процессе использования своих продуктов и услуг за счет качественных продуктов и услуг, формируя привычное покупательское поведение потребителей.

На лояльность потребителей влияет множество факторов, таких как качество продукции, цена, обслуживание клиентов, общение и личный опыт. Xiaomi преуспела во всех этих областях, повышая лояльность потребителей благодаря высокому качеству продукции, разумным ценам, отличному обслуживанию клиентов, своевременной связи и отличному пользовательскому опыту. Качество продукции всегда было одной из основных компетенций Xiaomi, и она удовлетворяет спрос потребителей на высококачественную продукцию благодаря постоянным инновациям и совершенству производственных процессов; разумная ценовая стратегия позволяет потребителям наслаждаться высококачественной продукцией, получая хорошее соотношение цены и качества; а отличное обслуживание клиентов и своевременная связь позволяют потребителям получать быстрые ответы и помощь при возникновении проблем, что укрепляет их чувство доверия и лояльности. Доверие и лояльность.

Бренды играют важнейшую роль в формировании лояльности потребителей. Сильный бренд создает глубокую эмоциональную связь с покупателями, что приводит к долгосрочной лояльности. Xiaomi еще больше укрепила свой имидж благодаря последовательному маркетингу бренда и пользовательским кампаниям, которые не только завоевали доверие потребителей, но и сделали бренд символом доверия в сознании покупателей. Благодаря хорошо спланированным коммуникационным кампаниям и инновационным маркетинговым стратегиям Xiaomi постепенно сделала свой бренд синонимом молодого поколения потребителей, что способствует дальнейшему укреплению лояльности.

Влияние эмоциональных связей на лояльность нельзя игнорировать. Взаимодействуя и взаимодействуя с потребителями, компании могут построить глубокие эмоциональные связи, которые повышают доверие и предпочтения потребителей. Xiaomi понимает важность эмоциональной связи и, активно взаимодействуя и создавая эмпатию со своими пользователями, заставляет потребителей не только идентифицировать себя с ценностью своих продуктов, но и с ценностями и культурой, которые пропагандирует бренд. Потребители постепенно формируют эмоциональную привязанность к бренду, что еще больше укрепляет их лояльность.

3. Разработка маркетингового плана

Основная цель этой маркетинговой программы - увеличить число постоянных клиентов, повысить количество повторных покупок и улучшить вовлеченность клиентов с помощью ряда инновационных маркетинговых мероприятий. Цели программы включают увеличение числа постоянных клиентов на 20 % в год за счет привлечения большего числа потенциальных клиентов в число постоянных клиентов посредством точного профилирования пользователей и постоянного стимулирования лояльности; увеличение числа повторных покупок за счет мотивации существующих клиентов к совершению повторных покупок посредством персонализированных рекомендаций и регулярных рекламных акций, тем самым увеличивая стоимость жизненного цикла клиентов; и повышение вовлеченности клиентов за счет улучшения взаимодействия с клиентами и предоставления персонализированных услуг для дальнейшего повышения лояльности к бренду и вовлеченности клиентов, а также укрепления эмоциональной связи между брендами и потребителями.

При выборе целевых рынков планируется сосредоточиться на основных рынках, где Xiaomi уже занимает значительную долю, а также активно осваивать развивающиеся рынки для укрепления конкурентных позиций на мировом рынке. Что касается существующих рынков, то Xiaomi будет наращивать маркетинговые усилия на рынках, где она уже занимает значительную долю, таких как Китай, Индия и Юго-Восточная Азия, для дальнейшего укрепления своей доли рынка и повышения лояльности клиентов. На развивающихся рынках Xiaomi будет расширяться в Северной Америке и Европе, чтобы завоевать новую долю рынка, адаптируя свои стратегии в отношении продуктов и услуг к потребностям и предпочтениям местных потребителей.

Для создания более эффективных связей и расширения взаимодействия с потребителями были разработаны различные коммуникационные стратегии. На платформах социальных сетей, таких как Facebook, Instagram и Weibo, регулярно публикуются истории бренда, обновления продукции и материалы, посвященные взаимодействию с пользователями, для улучшения взаимодействия с потребителями и повышения узнаваемости бренда. Персонализированные электронные рассылки регулярно отправляются клиентам, предлагая специальные предложения, акции и рекомендации новых продуктов на основе истории их покупок и предпочтений, что повышает вовлеченность и желание покупать. Удобные мобильные приложения также могут быть разработаны для улучшения взаимодействия пользователя с брендом и обеспечения более удобного опыта покупок за счет использования таких функций, как push-уведомления, оповещения о сообщениях и системы баллов.

Для повышения лояльности клиентов будет разработана комплексная система поощрения. Баллы будут накапливаться за каждую покупку клиента, и их можно будет обменять на товары или услуги, чтобы стимулировать дальнейшие расходы. Постоянным клиентам будут предоставляться эксклюзивные скидки и эксклюзивные предложения, чтобы побудить их тратить больше.

Чтобы обеспечить бесперебойную реализацию маркетингового плана, будет использовано несколько инструментов и технологий, способствующих его выполнению. Системы управления взаимоотношениями с клиентами (CRM) используются для централизованного управления данными о клиентах, точного анализа их потребностей и предоставления им персонализированных услуг. Во-вторых, инструменты анализа данных используются для отслеживания поведения клиентов и определения тенденций покупок, предпочтений и вовлеченности для дальнейшей оптимизации маркетинговых стратегий и обслуживания клиентов. Повышение качества обслуживания клиентов путем разработки сложных мобильных приложений, обеспечивающих такие функции, как управление баллами, рассылка рекламной информации и обратная связь с пользователями. Используйте платформу управления программой лояльности для отслеживания баллов, вознаграждений и активности клиентов в режиме реального времени, чтобы обеспечить бесперебойную работу программы лояльности.

Благодаря эффективному сочетанию и реализации вышеперечисленных стратегий Xiaomi сможет продолжить укреплять лояльность потребителей и стимулировать долгосрочное развитие бренда.

Заключение

Повышение лояльности потребителей является важным стратегическим направлением для международной компании Xiaomi, так как лояльные клиенты обеспечивают устойчивый рост бизнеса, повторные продажи и положительные рекомендации. Реализация маркетинговой программы, включающей программы вознаграждений, улучшение обслуживания клиентов, персонализацию предложений, использование социальных сетей и сбор обратной связи, позволит компании укрепить свои позиции на международных рынках.

Эти меры не только повысят удовлетворенность клиентов, но и усилят их приверженность бренду, превратив их в послов Xiaomi. Учитывая международный масштаб компании, важно адаптировать программы к местным рынкам, что обеспечит их эффективность и соответствие различным культурам. В результате можно ожидать увеличения продаж, укрепления бренда и роста числа лояльных клиентов, что в конечном итоге способствует устойчивому развитию компании.

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ОСОБЕННОСТИ КЛИНИЧЕСКОГО ТЕЧЕНИЯ ВИРУСНО-БАКТЕРИАЛЬНОЙ ФОРМЫ НОРОВИРУСНОЙ ИНФЕКЦИИ У ДЕТЕЙ РАННЕГО ВОЗРАСТА

Резюме: *В ходе нашего исследования у 629 детей заболевших с острой кишечной инфекцией в возрасте от 1 месяца до 1 года являлись микст варианты норовирусной инфекции в 212 (33,7%) случаях. Из них 90 (42,5%) случаев вирус+бактериальными, у 122 (57,5%) больных норовирус в сочетании с другими кишечными вирусами. У остальных 303 (48,2%) обследованных больных патогенных агентов не были выявлены, в связи с этим им поставлен диагноз по МКБ: 009. Острая кишечная инфекция. Неустановленной этиологии. Тот факт, что клинические признаки микст инфекций не отличаются от моноинфекции, в связи с этим необходимо индивидуальный подход лечению таких больных к каждому пациенту. В клиническом течение при микст варианте норовирусной инфекции с бактериальными инфекциями в раннем детском возрасте у детей в отличие от моноинфекции превалирует синдром колита. В ходе исследования у детей раннего возраста по сравнению с моноинфекции у лиц с вирусно-вирусной и вирусно-бактериальной этиологией заболевание отличается тяжестью, затяжным течением и длительностью.*

Ключевые слова: *норовирусная инфекция, микст формы, вирус+бактерия, УПФ.*

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FEATURES OF THE COURSE OF VIRUS + BACTERIAL MIX VARIANTS OF NOROVIRUS INFECTION IN YOUNG CHILDREN

Resume: *In the course of our study, in 629 children with acute intestinal infection aged from 1 month to 1 year, the pathogens were combined variants of norovirus infection in 212 (33.7%) cases. Of these, 90 (42.5%) cases are virus+bacterial, 122 (57.5%) patients have norovirus in combination with other intestinal viruses. The remaining 303 (48.2%) of the examined patients had no pathogenic agents identified, and therefore they were diagnosed according to International classification of diseases: 009. Acute intestinal infection. Of unknown etiology. The fact that the clinical signs of mixed infections differ from monoinfection, therefore, an individual approach to the treatment of such patients is necessary for each patient. In the clinical course of a mixed variant of norovirus infection with bacterial infections in early childhood, colitis syndrome prevails in children, unlike monoinfection. In the course of the study in young children, compared with monoinfection in persons with viral-viral and viral-bacterial etiology, the disease differs in severity, protracted course and duration.*

Keywords: *norovirus infection, mixed forms, virus+bacterium, conditionally pathogenic flora*

Введение. Заболеваемость острыми кишечными инфекциями среди детей раннего возраста составляет от 48% до 63% от общего числа детей и что это заболевание является значимой причиной смерти в раннем детском возрасте, подтверждает актуальность этой проблемы в нашей республике [1,2,3]. В последние годы применение в практике молекулярно-генетических исследований позволило идентифицировать многие вирусы, вызывающие острые кишечные инфекции, что в свою очередь требует внедрения оптимальных методов точной диагностики и лечения этих больных, основанных на вирусологических и бактериологических данных [4, 5].

В последние годы в литературе отмечается рост числа микст инфекций. При микст кишечных инфекциях клиническая картина, характерная для каждой инфекции, изменяется и приводит к утяжелению течения заболевания

[9,10]. Благодаря развитию молекулярно-генетических методов диагностики стало возможным определить, что в ряде случаев одновременно превалировали несколько микроорганизмов. По данным разных авторов, доля микст кишечной инфекции в нашей стране составляет от 26 до 32% [6,7,8].

Цель исследования: изучить особенности клинического течения вирусно-бактериальной микст формы норовирусной инфекции у детей раннего возраста.

Материалы и методы исследования: В ходе исследования исследованы фекалии 629 больных, поступивших в Самаркандскую областную инфекционную клиническую больницу с диагнозом «Острая кишечная инфекция (ОКИ)». Выявление вирусов в фекалиях проводилось совместно с сотрудниками лаборатории научно исследовательского института вирусологии МЗ РУз методом полимеразной цепной реакции (ПЦР) с использованием тест-системы «Ампли Сенс» (Москва). При обследовании пациентов методом ПЦР, помимо норовирусной инфекции, обращалось внимание на наличие других вирусных и бактериальных возбудителей ОКИ. Для выявления бактериальных возбудителей у детей с ОКИ, находящихся под наблюдением, проводились иммуноферментный анализ (ИФА) и бактериологические исследования в лаборатории облстной инфекционной клиинческой больнице.

Обсуждение исследования: В ходе проведенного нами исследования у 629 детей в возрасте от 1 месяца до 1 года с диагнозом «Острая кишечная инфекция» моноинфекция норовирусной этиологии выявлена в 114 (18,1%) случаях, а микст-инфекция – в 212 (33,7%). В группе больных с микст формой заболевания у 90 (42,5%) пациентов наблюдалась микст вирусно+бактериальная форма заболевания (таблица № 1).

В нашем исследовании заболевание у детей микст инфекцией норовируса с Salmonella spp. имело острое начало. Заболевание характеризовалось лихорадкой (38,5-39°С), недомоганием (98,5%), потерей аппетита (98,5%), рвотой (85,5%) и диареей. У детей этой группы лихорадка сохранялась 4 дня и более, стул был коликообразным, рвота 8-10 раз в сутки, признаки интоксикации, слабость, потеря аппетита, признаки геморрагического колита.

Клинические варианты микст формы норовирусной инфекции среди детей, находящихся под наблюдением

Таблица 1.

№	Название возбудителя	Частота встречаемости
1.	*Norovirus, salmonella tiphymurium (*Salmonella spp)	4 (2,3%)
2.	*Norovirus, campylobacter spp*	12 (13,3%)
3.	*Norovirus, stafilococcus aureus*	12 (8,9%)
4.	*Norovirus, proteus mirabilis*	13 (13,3%)
5.	*Norovirus, citrobacter*	13 (17,7%)
6.	*Norovirus, enterobacter*	14 (13,3%)
7.	*Norovirus, proteus mirabilis*	10 (12,3%)
8.	*Norovirus, proteus mirabilis, S. Epidermidis*	6 (6,7%)
9.	*Norovirus, candida spp.*	6 (6,7%)
	ИТОГО	100%

Norovirus, salmonella tiphymurium в основном наблюдались у детей в возрасте 6-9 месяцев, при изучении эпидемиологического анамнеза установлено, что они контактировали с детьми, инфицированными ОКИ. В результате частой диареи у больных выявлено уменьшение диуреза (38,0%).

Повторные случаи ОКИ наблюдались у детей с микст формой *Norovirus, salmonella tiphymurium* в течение года. При микст форме норовируса и кампилобактера симптомы заболевания у 80% больных начинались в 1-е сутки болезни, у 20% больных заболевание начиналось подостро (недомогание и интоксикация на 1-2-е сутки болезни), на 2-3-и сутки отмечались диарея, рвота, лихорадка. При этой форме заболевания даже на фоне нормальной лихорадки недомогание, интоксикация и эксикоз (1-2-й степени) наблюдались у 25% детей. При *Norovirus, campylobacter spp* длительность диареи составляла 5-6 суток. Гемоколит наблюдался у 12% больных.

Для исключения внутрибольничного инфицирования у детей с норовирусной инфекцией в сочетании с условно-патогенной флорой (Norovirus, proteus mirabilis; Norovirus, citrobacter; Norovirus, enterobacter; Norovirus, proteus mirabilis; Norovirus, proteus mirabilis, S. Epidermidis; Norovirus, candida spp) через 1-2 дня после поступления в стационар производился забор кала на бактериологический посев. Диагноз микст формы условно-патогенной флоры с норовирусной инфекцией устанавливался при количестве бактерий в бактериологическом исследовании выше 10^5 КОЕ/г кала.

Норовирусная инфекция в сочетании с условно-патогенными возбудителями сопровождалась интоксикационным, диспептическим, кишечным синдромами, развитием эксикоза. Длительность госпитализации больных составила 4-11 дней, средняя продолжительность пребывания в стационаре – 7,9±2,8 дня. У 5 (17,8%) больных фебрильная лихорадка отмечена на 1-2-е сутки заболевания (вирус+бактерии). У 9 (32,1%) больных со смешанной диареей наблюдалась субфебрильная лихорадка. У 93,3% больных лихорадка отмечалась с первых суток заболевания. Характер стула был: энтерит у 36,6% больных, энтероколит у 56,7% больных, гемоколит у 6,7% больных. Тяжесть течения заболевания у больных детей зависела от развития интоксикационного синдрома и степени обезвоживания. Обезвоживание отмечено у всех больных со смешанной (вирусно+бактериальной) формой.

У 88,3% больных выявлен эксикоз I степени, у 11,7% - эксикоз II степени. Легкие формы заболевания наблюдались у 4,4%, средней тяжести - у 75,6%, тяжелые - у 20% больных.

Среди детей с микст формой норовирусной инфекции, находящихся под наблюдением, преморбидный фон определялся в 186 (87,7%) случаях (искусственное питание - 43,4%, гипотрофия I-II степени - 25,6%, атопический дерматит - 19,1%, рахит - 11,9%). Анемия выявлена у 90,9% пациентов. Следует отметить, что в группе детей в возрасте от 6 до 12 месяцев на смешанном вскармливании находились 25,7% детей, на искусственном - 85,3% детей.

Сопутствующие заболевания отмечены у 49,8% больных: пневмония - (2,4%), ОРВИ - (9,4%), острый бронхит - (3,3%), стоматит - (0,8%), конъюнктивит - (0,5%), отит - (0,2%), экссудативно-катаральный диатез - (0,8%). Удельный вес сопутствующих заболеваний был выше при вирусно-бактериальном смешанном типе, чем при вирусно-бактериальном смешанном типе.

В нашем наблюдении у 80,5% детей со смешанной вирусно-бактериальной формой заболевания наблюдалась умеренная дегидратация, у 16,5% – тяжелая. Отсутствие дегидратации у 3% детей объясняется, прежде всего, тем, что таким детям первая помощь была оказана в амбулаторных или домашних условиях. Установлено, что норовирусная инфекция, протекающая в смешанной форме, имеет тяжелое течение за счет быстрого развития дегидратации.

Норовирусная инфекция наблюдалась также в сочетании с Staphylococcus aureus и Candida spp. Длительность пребывания больных с этой формой заболевания в стационаре составила 8-14 дней, в среднем - 10,3±1,4. У большинства больных наблюдалась среднетяжелая форма заболевания (68,7%).

Доля бактериальных возбудителей при смешанном течении норовирусной инфекции в раннем детском возрасте существенно ниже, и это связано, прежде всего, с ростом преобладания вирусных возбудителей в патогенезе ОКИ в раннем детском возрасте. Следует отметить, что микст формы норовирусной инфекции наиболее распространены среди детей в возрасте от 6 месяцев до 1 года. По нашему мнению, одним из основных факторов является изменение питания детей, т. е. прекращение грудного вскармливания и переход на искусственное вскармливание.

Частота вирусно-бактериальной диареи, наоборот, увеличивается по мере повзросления ребенка.

Заключение: В Самаркандской области среди детей раннего возраста отмечены микст формы норовирусной инфекции (33,7%). В частности, бактериально-вирусные типы составили 66,4%, а вирусно-вирусные типы – 33,6%. Также течение заболевания в виде микст инфекции в 49,5% случаев оценивалось как тяжелое, а в остальных случаях – как среднетяжелое (50,5%). Установлено, что у детей раннего возраста, микст бактериально-вирусной формой норовирусной инфекции, заболевание преимущественно протекало в тяжелой форме.

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ЛАБОРАТОРНАЯ ДИАГНОСТИКА НОРОВИРУСНОЙ ИНФЕКЦИИ У ДЕТЕЙ: СОВРЕМЕННЫЕ ТЕНДЕНЦИИ

Резюме: *в данной статье рассказывается о современных методах лабораторной диагностики, необходимых для качественного и быстрого обследования, которые используются при диагностике норовирусной инфекции. Кроме того, представлены современные данные, отражающие статистику частоты регистрации единичных случаев норовирусной инфекции. Методы лабораторного обследования для выявления норовирусов в биологических материалах пациентов приведены современные данные о молекулярно-биологических и серологических методах диагностики. Метод ИФА раскрывает процедуру выявления антигенов норовирусов геногруппы I и II, иммунохроматографического анализа и применения полимеразной цепной реакции с обратной транскрипцией в режиме реального времени. Широкий спектр аналитических методов обусловливает необходимость их широкого внедрения в клиническую практику.*

Ключевые слова: *норовирусная инфекция, норовирусный гастроэнтерит, методы диагностики, ИФА*

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LABORATORY DIAGNOSIS OF OF NOROVIRUS INFECTION IN INFANTS

Resume: *this article describes modern methods of laboratory diagnostics necessary for high-quality and rapid examination, which are used in the diagnosis of norovirus infection. In addition, modern data reflecting statistics on the frequency of registration of single cases of norovirus infection are presented. Methods of laboratory examination for the detection of noroviruses in the biological materials of patients, modern data on molecular biological and serological diagnostic methods are presented. The ELISA method reveals the procedure for detecting antigens of noroviruses of genogroup I and II, immunochromatographic analysis and the use of polymerase chain reaction with reverse transcription in real time. A wide range of analytical methods necessitates their widespread introduction into clinical practice.*
Keywords: *norovirus infection, rotavirus gastroenteritis, diagnostic methods, ELISA*

Выедение. Норовирусы относятся к семейству Caliciviridae, которое поражает широкий круг позвоночных, включая человека. Калицивирусы были выделены из семейства Picornaviridae в 1979 году. В современной таксономии семейство Caliciviridae включает 6 родов вирусов: Lagovirus, Vesivirus, Norovirus, Sapovirus, Recovirus и Nebovirus. Патогенными для человека являются представители двух родов - Sapovirus (род Sapovirus, штамм типа вируса Саппоро) и норовирусы (род Norovirus, штамм типа вируса Норволк). Геногруппа I норовирусов (G-1) чаще всего выявляется в спорадических случаях и редко выявляется при диссеминированных норовирусных инфекциях. Геногруппа II норовирусов является наиболее распространенной (G-II). Доля норовирусов второй геногруппы при норовирусном гастроэнтерите составляет 80%-90%. Источником и резервуаром инфекции является больной человек или бессимптомный вирусоноситель. В настоящее время на основании сравнительного анализа нуклеотидной последовательности генома норовирусы подразделяют на семь геногрупп (GL-GVII), из которых представители геногрупп L, VI и VII выделены только от человека, а типы III и V - от животных и человека. Генотипы норовирусов, в свою очередь, делят на субгенотипы или геноварианты [1,5,7].

Норовирус группы I (NvGL) обнаруживается у 0,6% - 17% детей с острым гастроэнтеритом [1,3,7]. Среди NvGL разные авторы выделяют 8-16 генотипов [2,9]. NvGL обычно выявляется при спорадической форме заболевания и редко вызывает эпидемии гастроэнтеритов норовирусной этиологии [5].

Наиболее распространенной геногруппой норовирусов является геногруппа II, среди которой различные авторы признают, что генотипы 19-23 также распространены [8,9]. Исследования, проведенные в разных географических регионах и в разное время года, показали, что разные генотипы норовирусов встречаются одновременно [2,4,11].

Наиболее распространенной геногруппой норовирусов являются норовирусы группы II (GII). Различные эпидемические геноварианты сменяют друг друга, вызывая глобальные эпидемии острого гастроэнтерита. Человеческие норовирусы не культивируются в лабораторных условиях [14, 15].

Отсутствие специфических клинических проявлений острого гастроэнтерита норовирусной этиологии обусловливает необходимость проведения лабораторных исследований для диагностики. Чувствительность электронной микроскопии для диагностики норовирусной инфекции низкая - 35-50%. Норовирусы в кале обнаруживаются только в течение первых 24-48 часов от начала заболевания. В редких случаях заболевание выявляется клинически спустя 72 часа после начала рвоты или диареи [6,10]. Для выявления антигенов норовирусов геногрупп GI и GII используют иммуноферментный анализ (ИФА), при этом тест-система ИФА имеет чувствительность 60-90% и специфичность 100%. Однако на практике чувствительность этого метода не превышает 70% [12, 13].

Цель исследования: проанализировать методы лабораторной диагностики норовирусной инфекции, применяемые в настоящее время.

Современная диагностика в медицине немыслима без высокочувствительных лабораторных тестов. Разработаны также иммунохимические методы диагностики, экспресс-тесты на выявление антигенов норовирусной инфекции, специфичность которых составляет 100%, а время анализа не более 15 минут [10]. Выявление норовируса в образцах кала с помощью молекулярных методов в настоящее время является основным методом тестирования [13, 14].

В последнее десятилетие метод полимеразной цепной реакции с обратной транскрипцией (ОТ-ПЦР) для выявления РНК норовируса стал широко использоваться для диагностики норовирусной инфекции у пациентов, а также для обнаружения вируса в продуктах питания и объектах окружающей среды. Несмотря на высокую чувствительность и специфичность метода ОТ-ПЦР, следует отметить, что такие факторы, как низкая концентрация вируса в фекалиях, неправильное хранение образцов, неэффективность выделения вирусной РНК, наличие ингибиторов обратной транскриптазы в фекалиях [11, 12], ограничивают обнаружение норовирусов в фекалиях [13]. За последние годы достигнут значительный прогресс в разработке диагностических методов выявления норовирусов человека. Сегодня для подтверждения или опровержения первоначального диагноза достаточно одного метода тестирования, например, ИФА. В качестве биологического материала в основном используют образцы кала, поскольку в кале содержится большое количество вируса. Точность результатов диагностических тестов на норовирус зависит от качества образцов, предоставленных для анализа. Биологический материал, предоставленный для анализа, должен быть собран в специальный закрытый контейнер в течение 48-72 часов после появления симптомов. Перед тестированием образцы следует охладить до 4 °C или заморозить до -20 °C для длительного хранения. Рвотные массы пациентов являются альтернативным биологическим материалом для выявления норовирусной инфекции и могут использоваться в качестве дополнения к анализу кала для диагностики заболевания во время эпидемических вспышек [15]. Тест иммунофлюоресценции (ИФА) широко используется для выявления антигенов норовируса GI и GII в образцах кала. Чувствительность этого метода оценивается в 60-90%, а специфичность близка к 100%. Чувствительность метода зависит от вирусной нагрузки в биологическом материале и генотипов вируса в образце. В ряде исследований показана эффективность ИФА в выявлении норовирусов при спорадическом норовирусном гастроэнтерите [11, 14]. Иммуноферментный анализ (ИФА) - метод лабораторной диагностики, позволяющий выявлять специфические антитела и антигены при различных патологиях. ИФА - более современный и дорогой вариант ИФА. В качестве биологического материала для ИФА/ИФА используют различные образцы плазмы или сыворотки крови, а также суточную мочу (например, для определения кортизола).

Быстрое обнаружение антигена норовируса в образцах кала с помощью иммунохроматографических анализов может быть альтернативой IFT (когда IFT недоступен). Чувствительность этого быстрого анализа составляет 17-92%. Этот анализ имеет приблизительно 100% специфичность. Учитывая эти характеристики, положительные результаты теста надежны, но отрицательные результаты теста могут потребовать подтверждения с помощью полимеразной цепной реакции с обратной транскрипцией [3, 4]. Полимеразная цепная реакция с обратной транскрипцией (ОТ-ПЦР) является золотым стандартом для обнаружения и типирования норовируса. Чувствительность обычных анализов ОТ-ПЦР составляет 52-73%, что указывает на то, что этот метод недостаточно эффективен в некоторых случаях. Этот недостаток был преодолен с разработкой ОТ-ПЦР в реальном времени для обнаружения и генотипирования норовирусов.

Многие современные анализы используют специфичные для группы генов олигонуклеотидные праймеры и люминесцентные зонды, обычно нацеленные на один регион генома. Доступны мультиплексные анализы, которые могут одновременно обнаруживать присутствие нескольких генотипов норовируса. Например, можно одновременно обнаруживать штаммы GI и GII [6,7,15].

За последние 50 лет методы диагностики норовирусов значительно усовершенствовались. В современную эпоху спектр аналитических методов расширяется. К новым разработкам в области молекулярной лабораторной диагностики норовирусной инфекции относятся биосенсоры (моноклональные антитела, аптамеры), их способность концентрировать норовирусы, микрочиповые и омиксные тесты [4, 9].

Заключение: Текущая тенденция широкого распространения норовирусной инфекции и рост заболеваемости создают угрозу возникновения масштабной эпидемии. Для быстрой и эффективной диагностики норовирусной инфекции необходимо внедрение универсальных тест-систем в повседневную клиническую практику. Быстрая диагностика и идентификация подтипов норовируса имеет решающее значение для предотвращения распространения вируса по всему миру, а также для улучшения своевременного лечения.

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ПРОБЛЕМА АРАЛЬСКОГО МОРЯ: НАПРАВЛЕНИЯ ДОСТИЖЕНИЯ ЭКОЛОГИЧЕСКОЙ УСТОЙЧИВОСТИ В ДЕЛЬТЕ АМУДАРЬИ

Аннотация. *В статье проанализировано влияние высыхания Аральского моря на экосистемы дельты Амударьи и рассмотрены основные направления достижения экологической устойчивости. Исследовано воздействие осушенного дна моря на природную среду дельты, включая проблемы опустынивания, аккумуляции солей и песков. Предложены меры по обеспечению экологической устойчивости, в том числе создание защитных лесных зон и управляемых водоёмов в прибрежной части.*

Ключевые слова: *субаквальный, экосистема, аккумуляция, дефляция, дифференциация, микроклимат, фитомелиорация.*

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THE ARAL SEA PROBLEM: APPROACHES TO ACHIEVING ECOLOGICAL SUSTAINABILITY IN THE AMU DARYA DELTA

Abstract. *This article analyzes the impact of the Aral Sea desiccation on the ecosystems of the Amu Darya Delta and discusses the main approaches to achieving ecological sustainability. The study examines the influence of the dried sea bed on* *the natural environment of the delta, including issues of desertification, salt and sand accumulation. Measures aimed at ensuring ecological stability are proposed, such as the establishment of protective forest zones and managed water bodies along the coastal areas.*

Keywords: *subaqueous, ecosystem, accumulation, deflation, differentiation, microclimate, phytomelioration.*

Введение. Проблема Аральского моря является одной из крупнейших экологических катастроф XX века и оказывает серьёзное влияние на природную среду дельты Амударьи и жизнь местного населения. Высыхание Аральского моря привело к таким проблемам, как опустынивание, аккумуляция солей и песков, утрата биологического разнообразия, что сделало достижение экологической устойчивости в регионе актуальной задачей. В засушливых регионах мира, включая Центральную Азию, опустынивание признано глобальной проблемой, и в Цели 15 Повестки дня ООН по устойчивому развитию до 2030 года определены задачи по охране наземных экосистем, борьбе с опустыниванием и смягчению последствий изменения климата [10; с. 5–6]. В условиях дельты Амударьи ключевыми направлениями стабилизации природной среды являются ликвидация экологических последствий высыхания Арала, рациональное использование водных ресурсов, фитомелиорация и создание защитных лесных зон. Настоящая статья направлена на анализ воздействия высыхания Аральского моря на природную среду дельты и предлагает научно обоснованные решения для достижения экологической устойчивости.

Основная часть. Проблема Аральского моря является одной из актуальных задач достижения экологической устойчивости в дельте Амударьи. Необходимо выявить участки, подвергшиеся опустыниванию, обеспечить рациональное использование водных ресурсов, реализовать фитомелиоративные мероприятия на осушенном дне моря и создать защитные лесные зоны для улучшения природной среды. Для этого требуется разработка научно обоснованных мер.

Методы и степень изученности. По проблеме Аральского моря было разработано ряд научных концепций (Глазовский [2; с. 120–128]; Духовный, Разаков [3; с. 37–32]; Хосровянс [10; с. 2–10]; Концепция спасения и восстановления Аральского моря [4; с. 73]; Антонов, Нейман [1; с. 4–7]). В данной статье основное внимание уделяется достижению экологической устойчивости в опустыненной северной зоне дельты Амударьи, с предложением стабилизации уровня Аральского моря и улучшения природной среды. В отличие от других концепций, здесь применяется более широкий подход с учетом местных природных условий и ресурсов.

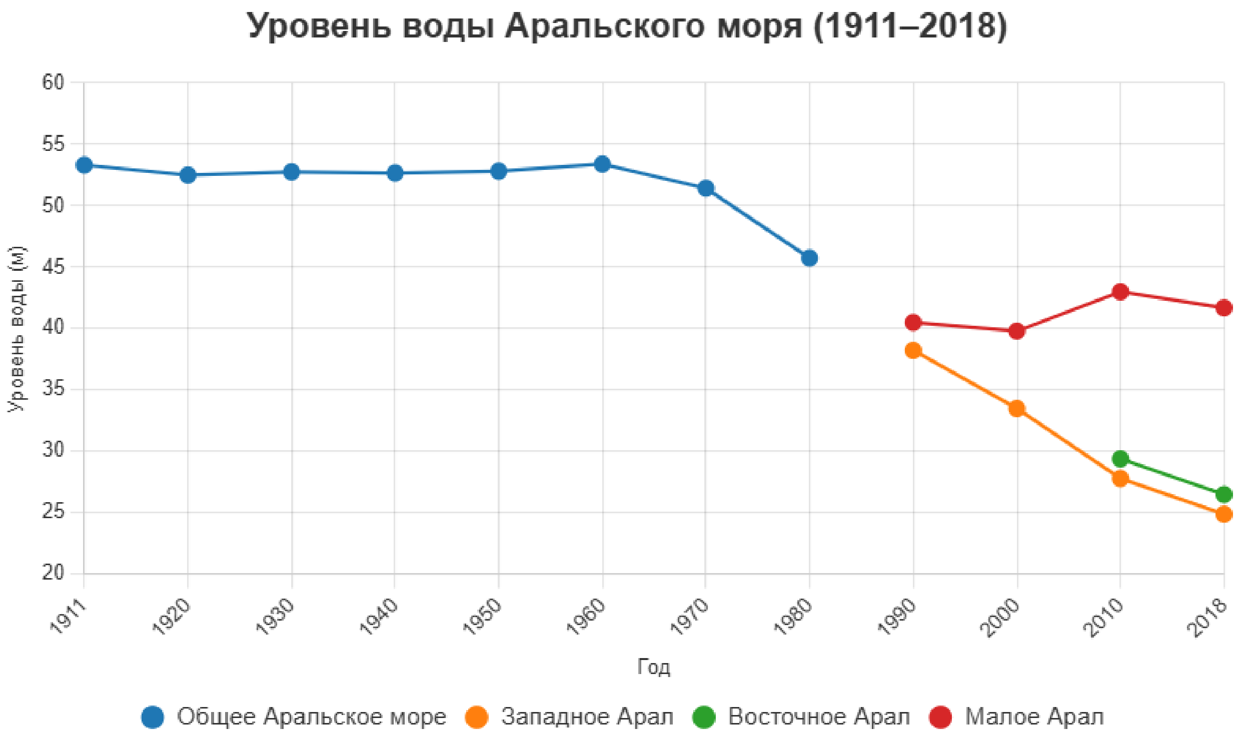
Создание фитомелиоративных и почвозащитных лесных зон вдоль дельты Амударьи является одним из важнейших направлений в борьбе с опустыниванием. Эффективность лесов в предотвращении ветровой эрозии почв доказана на практике и в других регионах Узбекистана. Наличие тугайных лесов вдоль русел рек служит надежным барьером против сильных ветров и дефляции. Однако на многих участках русел рек отсутствует водный поток, в результате чего древесная растительность погибла. При обеспечении этих русел водой возможно восстановление тугаев, но технически невозможно обеспечить водоснабжение всех участков хотя бы один раз в год. Поэтому создание лесных зон целесообразно только в тех местах, где существует возможность их периодического орошения.

Кроме того, необходимо увеличить долю засухо- и солеустойчивых древесных пород в составе лесных насаждений. Основные массивы защитных лесов следует размещать вблизи населенных пунктов, вдоль дорог, каналов, вокруг озер и водоёмов [6; с. 165–172].

Дефицит воды, используемой для орошения, требует строгого соблюдения установленных нормативов водопользования при обеспечении экосистем водой, а также минимизации бесполезного испарения воды. В связи с этим объёмы воды, расходуемые на лиманное орошение камышовых зарослей, озёра, водоёмы и русла, должны быть заранее определены и нормативно закреплены. Для водоснабжения дельты необходимо строго придерживаться установленных лимитов.

Кроме того, в северной части дельты в перспективе следует расширить площади орошаемых земель с целью обеспечения местного населения сельскохозяйственной продукцией — в первую очередь пшеницей, овощами, фруктами, бахчевыми культурами, виноградом и другими. Для этого также потребуется определённое количество пригодной для орошения воды [9; с. 74–98].

Анализ и результаты. Высыхание Аральского моря оказывает серьёзное воздействие на природную среду дельты Амударьи, вызывая такие проблемы, как опустынивание, аккумуляция солей и песков. На приведённом ниже графике показаны изменения уровня воды в Аральском море в период с 1911 по 2018 годы, что отражает историческую динамику развития данного экологического кризиса.



Осушенная территория дна Аральского моря, которая ежегодно увеличивается в размерах, рассматривается как резервный земельный фонд. Однако из-за высокой засоленности почв, низкой продуктивности пастбищ и недостаточной водообеспеченности на сегодняшний день отсутствуют реальные возможности для её практического использования в сельском хозяйстве.

С целью ограничения поступления песчаных и солевых частиц в дельту Амударьи необходимо принять системные и устойчивые меры противодействия этому опасному процессу. Одним из наиболее эффективных решений в данном направлении является проведение фитомелиоративных мероприятий на осушенном дне Арала.

Фитомелиорация полезна для всех песчаных массивов, расположенных вдоль берегов высохшего моря на разной ширине. На оголённых участках дна моря можно использовать солончаковые такыры и прибрежные песчаные массивы для выращивания галофитов. В настоящее время верхний слой песчаных равнин, следующих за солончаками, содержит большое количество солей, что делает невозможным произрастание каких-либо растений. Со временем станет возможным проведение фитомелиоративных работ на этих песках.

На засоленных участках естественным образом произрастают однолетние солянки (Salsola), а местами — полукустарниковый юльгун (Ulidineum). В целом, на осушенной части моря фитомелиоративные работы могут проводиться после предварительного промывания верхнего слоя солончака [7; с. 22–30].

Одним из наиболее важных методов защиты дельты Амударьи от песка и соли является создание специальных водоёмов на отдельных участках высохшего дна Аральского моря. В настоящее время такие водоёмы функционируют в районах заливов Муйнак, Рыбаский и Жилтирбос. Они служат объектами рыбного хозяйства, а в их прибрежных зонах (например, в Жилтирбосе) за счёт камышей заготавливаются корма. Кроме того, вокруг водоёмов формируется благоприятный микроклимат для населения города Муйнак.

Из-за мелководности существующих водоёмов общий показатель испарения воды весьма высок. При проектировании новых инженерных водоёмов необходимо учитывать эту особенность и свести испарение к минимуму. Каждый создаваемый водоём должен выполнять функции по сдерживанию эоловых процессов и переноса солей, обеспечивая при этом максимальную эффективность и смягчение острой экологической ситуации. Также необходимо учитывать потенциал таких водоёмов для массового разведения рыбы [7; с. 22–30].

Поддержание уровня Аральского моря в равновесии представляет собой достаточно сложную задачу, зависящую в первую очередь от стока Амударьи. Существуют мнения о целесообразности управления акваторией моря в виде отдельных водоёмов (Малое море, западная и восточная части Большого моря). Малое море с середины 1980-х годов стало самостоятельным водоёмом и регулируется стоком Сырдарьи, уровень которого на несколько метров выше, чем у Большого моря. В дальнейшем контроль всех уровней, по сути, будет касаться только Большого моря.

По вопросу стабилизации уровней западной и восточной частей моря также отсутствует единое мнение. Некоторые исследователи считают необходимым сохранить соединённые участки через проливы, другие же настаивают на сохранении восточной части. Восточная часть представляется более целесообразной для сохранения, поскольку она более глубокая и испарение здесь происходит в меньших объёмах, а для её устойчивого существования требуется не менее 10 км^3 воды в год. Кроме того, восточная часть служит объектом для сброса солёных вод из западной части Большого и Малого морей (Малое море наполняется за счёт стока Сырдарьи), что в перспективе может привести к постепенному увеличению солёности обоих водоёмов.

Таким образом, минерализация, качество воды и возможности её использования в рыбном хозяйстве, рекреации и других целях требуют глубокого научного обоснования всех решений, касающихся стабилизации уровня моря.

Заключение. Решение проблемы Аральского моря заключается в разработке комплекса мер, направленных на достижение экологической устойчивости в дельте Амударьи. Эти меры должны быть ориентированы на смягчение последствий высыхания Арала, борьбу с опустыниванием, эффективное управление почвенными и водными ресурсами с целью улучшения природной среды. Предлагаемые мероприятия (водоёмы, фитомелиорация, защитные лесные зоны) должны быть научно обоснованными, высокоэффективными и соответствовать местным природным условиям. Проектирование и управление отдельными водоёмами является более экономически и экологически целесообразным решением, не требующим больших затрат на текущее обслуживание. Применение данных подходов позволит обеспечить устойчивую экологическую обстановку в дельте Амударьи.

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МАРКЕТИНГОВЫЕ ПРИОРИТЕТЫ АВТОПРОИЗВОДИТЕЛЯ BYD

Аннотация. *Компании-производители современных авто- и электромобилей функционируют на конкурентном рынке, которому придают остроты торговые войны, динамика импортных пошлин, геополитические факторы. В таких условиях реальные конкурентные преимущества и недостатки компаний соседствуют с имиджевыми, виртуальными, маркетинговыми минусами и плюсами. Комплекс маркетинга автопроизводителей имеет ряд особенностей, связанных с инновациями, технологиями, изменениями, оказывающими существенное влияние на объемы реализации продукции и финансовые результаты деятельности. На основе применения эмпирического метода автор пытается доказать, что маркетинговые коммуникации, во взаимодействии с глубокой и точной сегментацией рынка позволяют автопроизводителю обеспечивать высокий экономический эффект.*

Ключевые слова: *автопроизводители, маркетинг, приоритеты, онлайн-каналы, офлайн-каналы, компания BYD.*

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MARKETING PRIORITIES OF THE AUTOMAKER BYD

Abstract. *Companies producing modern cars and electric vehicles operate in a competitive market, which is made more acute by trade wars, import duty dynamics, and geopolitical factors. In such conditions, real competitive advantages and disadvantages of companies coexist with image, virtual, and marketing disadvantages and advantages. The marketing mix of car manufacturers has a number of features related to innovations, technologies, and changes that have a significant impact on sales volumes and financial performance. Based on the application of the empirical method, the author tries to prove that marketing communications, in interaction with deep and accurate market segmentation, allow the car manufacturer to ensure a high economic effect.*

Keywords: *automakers, marketing, priorities, online channels, offline channels, BYD.*

Приоритеты и особенности маркетинговой деятельности автопроизводителей являются предметом исследования многих теоретиков и практиков. Так, А.А. Исаев исследовал «методологию маркетингового планирования деятельности автомобильной корпорации, и ноу-хау, связанных с использованием надежных индикаторов, характеризующих эффективность работы по производству, маркетингу и продажам автомобильной продукции». А.А.Исаев особо выделяет «..оценку ситуации с продажами и позиционированием автомобильной корпорации, постановку системы ее целей развития, выбор и обоснование целевых рыночных сегментов, с точки зрения максимального соответствия корпорации выбранному позиционированию». Он утверждает, что «..процесс маркетингового планирования предполагает высокий уровень координации, взаимодействия функциональных подразделений корпорации» [3].

Я.С. Матковская, К.А. Мишина, А.В. Орехова детально исследовали «..особенности управления изменениями в компаниях автомобильной отрасли, на основе выделения причинно-следственных связей между тенденциями развития окружающей маркетинговой среды и процессами управления изменениями в автомобильных компаниях в исторической ретроспективе, и в условиях новых реалий потребительского поведения. Авторы в том числе обосновали вывод о том, что, современные автокомпании находятся под влиянием «..развития инновационных технологий». Главное, – утверждают Я.С. Матковская, К.А. Мишина, А.В. Орехова – «..автомобильным компаниям сегодня необходимо создавать такие бизнесы-модели, которые окажутся понятными и востребованными партнерами, потребителями, и быть более гибкими и чувствительными к изменениям потребностей на рынке, применять маркетинговые стратегии на опережение» [4]. По нашему мнению, такой подход особенно важен для производителей электромобилей.

Д.М. Эткин в свою очередь делает акцент на «анализе возможностей конкретной фирмы – изготовителя полнокомплектных автомобилей и поставщиков комплектующих, их ресурсов, тенденций развития спроса на автомобили под влиянием факторов социально-экономического и демографического характера» [7].

Ю.А. Григорьева глубоко исследовала проблемы «..выбора коммуникационных каналов автодилерами, их воздействие на результативные показатели». Она утверждает: «Компании должны добиваться более высоких результатов за счет повышения эффективности плана и бюджета маркетинговых коммуникаций. ..Применение омниканального подхода позволяет снизить уровень затрат компании, поскольку омниканальность тщательно координирует и взаимосвязывает использование всех каналов коммуникации» [2].

Исследователь Ю.Го в свою очередь обратил внимание на «..важность PR-деятельности по формированию имиджа компании – она обусловлена тем, что конкуренция между автомобильными предприятиями очень жесткая. Для того, чтобы победить на рынке, предприятия должны полагаться не только на техническую конкуренцию, конкуренцию качества, цен, предоставляемых услуг, но и на информационно-коммуникационную конкуренцию». При этом важно «..повышать узнаваемость предприятия, его товарных марок, завоевывать понимание и одобрение общественности» [1].

Ю.В. Шляпина, Ю.И. Авадэни, Г.А. Гайнуллина сосредоточены «на решении проблем продвижения мировых брэндов легковых автомобилей, путем повышения эффективности системы маркетинговых коммуникаций как концепции выживания участников автомобильного рынка в нестабильных условиях». Авторы исследуют «..взаимоотношения автосалонов с потребителями, использование коммуникационных инструментов брэндинга, в том числе – событийный маркетинг, переход на новый формат подачи информации., генерацию творческих идей и возможность зафиксировать приверженность покупателей» [6].

Объект данного исследования – BYD Company Ltd. (далее – BYD). Основанная в 1995 году как производитель аккумуляторов, компания со временем стала сильным игроком на мировом рынке электромобилей. BYD сосредоточена на производстве электромобилей на аккумуляторных батареях (BEV), подключаемых гибридных электромобилей (PHEV) и коммерческих автомобилей. Такая линейка позволяет широко охватить рынок [8].

Опыт создания современных аккумуляторов, владение соответствующими патентами, ноу-хау, технологиями обеспечивает компании конкурентные преимущества, и позволяет успешно конкурировать с Tesla, и другими автопроизводителями.

Важным приоритетом маркетинга компании является актуальное и точное сегментирование рынка, а также стратегия таргетирования, нацеленная прежде всего на такие сегменты:

1. экологически сознательные потребители, люди, которые признающие приоритеты устойчивого развития;

2. потребители, стремящиеся принять новые технологии и тенденции; технически грамотные люди, интересующиеся передовыми технологиями и интеллектуальными функциями электромобилей;

3. юридические лица, стремящиеся минимизировать свой углеродный след за счет электрификации автопарка.

Компания использует сложный комплексный подход к сегментации рынка, учитывая географические, демографические, поведенческие и иные факторы. Целевая аудитория компании включает преимущественно молодежь, а также людей среднего возраста, со средним и высоким доходом, зачастую – с высшим образованием, чаще проживающих в городах.

На развивающихся рынках компания делает акцент на доступных электромобилях для поездок на работу горожан. В экономически развитых странах компания продвигает преимущественно премиальные модели электромобилей.

Компания ориентирована на технологические инновации, осуществляет значительные инвестиции в НИОКР. Компания владеет технологией «e-Platform 3.0», и серьезными достижениями по инициативе «Интеллектуальное вождение для всех». Кроме того, фирменный аккумулятор «Blade», зарекомендовавшая себя безопасностью и долговечностью, обеспечивает компании дополнительное конкурентное преимущество [5].

Важным приоритетом компании является интеграция онлайн- и офлайн-каналов коммуникации. Компания широко использует возможности цифрового маркетинга, в том числе социальных сетей, контент-маркетинга, кампаний и акций по электронной почте, сотрудничества с влиятельными лицами. Существенные результаты дает SEO (англ. Search Engine Optimization), –процесс оптимизации сайтов для повышения позиции в результатах поисковых систем.

Вместе с тем маркетологи BYD применяют инструменты традиционного офлайн-маркетинга. Открытие дилерских центров, выставочных залов, участие в автошоу, использование традиционной печатной и медийной рекламы, в совокупности с онлайн-инструментами, такими как онлайн-бронирование тест-драйвов, дает синергетический эффект.

Хороший эффект дают «вовлекающие» кампании в социальных сетях, использование интерактивного контента, хэштегов, в том числе для создания сообщества, повышения узнаваемости бренда.

BYD широко применяет рекламные предложения, поощрения, такие как предоставление скидок, расширенных гарантий, бонусов, в том числе – за обновление технологий со стороны потребителя. Компания не только активно присутствует в социальных сетях, но и организует интерактивное взаимодействие с клиентами на международных и страновых платформах.

Одним из приоритетов маркетинга BYD является проведение интерактивных кампаний, создание увлекательного контента, в том числе с целью формирования сообщества; прямые трансляции, на базе партнерства с влиятельными лицами.

Большое сообщество сформировано по проблемам и перспективам использования мобильного приложения компании для удаленного управления транспортным средством, доступа к соответствующей корпоративной информации.

Компания активно осваивает персонализированный маркетинг, в том числе использование персонализированных сообщений, а также инструментов микро-сегментации для целевой рекламы – в разных рыночных нишах.

Другим приоритетом компании является применение дифференцированной ценовой политики. На отдельных рынках компания не то, чтобы демпингует, но активно использует методы конкурентного ценообразования, ценовой дифференциации, скидок и акций. На других (преимущественно зарубежных) рынках BYD, напротив, применяет способы «премиального» ценообразования и соответствующее позиционирование.

Таким образом, четкое определение целевых сегментов рынка, позиционирование бренда, активное использование разнообразных каналов коммуникации обеспечивает повышение рыночной доли BYD, способствует быстрому росту объемов на рынке электромобилей и гибридных автомобилей. Адаптивность компании во многом обеспечивают конкурентоспособные цены и, особенно – технологические инновации.

Изучение опыта применения комплекса маркетинга автопроизводителя BYD позволяет резюмировать: успешная конкуренция на рынке современных гибридных и электромобилей требует не только осуществления технологических инноваций, но и их рациональной и активной «подачи» на целевом рынке. Маркетинговые коммуникации, во взаимодействии с глубокой и точной сегментацией рынка позволяют современным автопроизводителям обеспечивать высокие темпы роста продаж, усиливать конкурентные преимущества, наращивать рыночную долю.

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СВОБОДА И ОТВЕТСТВЕННОСТЬ В РАБОТЕ ЖАНА-ПОЛЯ САРТРА "БЫТИЕ И НИЧТО"

Аннотация: *Данная статья посвящена исследованию свободы и ответственности как экзистенциальной проблемы в работе Жана-Поля Сартра. Основное внимание здесь уделяется радикальному пониманию Сартром человеческой свободы как абсолютной и неотъемлемой характеристики сознания. Статья раскрывает диалектическую связь между свободой как фундаментальным условием человеческого существования и бременем ответственности, которое порождает экзистенциальную тревогу и стремление к "недобросовестности" как попытке избежать этой ответственности. Делается вывод о том, что концепция Сартра представляет свободу и ответственность как две неразрывные стороны одного онтологического основания человеческого бытия в мире, лишенном предзаданного смысла или божественного провидения.*

Ключевые слова: *свобода, ответственность, человек, экзистенциализм*

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FREEDOM AND RESPONSIBILITY IN THE WORK OF JEAN-PAUL SARTRE "BEING AND NOTHING"

Abstract: *This article is devoted to the study of freedom and responsibility as an existential problem in the work of Jean-Paul Sartre. The main focus here is on Sartre's radical understanding of human freedom as an absolute and integral* *characteristic of consciousness. The article reveals the dialectical connection between freedom as a fundamental condition of human existence and the burden of responsibility, which generates existential anxiety and the desire for "bad faith" as an attempt to avoid this responsibility. It is concluded that Sartre's concept represents freedom and responsibility as two inseparable sides of the same ontological foundation of human existence in a world devoid of predetermined meaning or divine providence.*

Keywords: *freedom, responsibility, man, existentialism*

Проблема свободы всегда являлась актуальной для философии. Ее анализировали и сравнивали относительно других философских понятий: свобода и ответственность, свобода и смерть, свобода и одиночество. Также это практически ко всему применяемый термин, например: свободный человек или свободное общество, внутренняя свобода, свободный полет птицы и т. д.

Жан-Поль Сартр, один из самых влиятельных и провокационных мыслителей XX века, он преподнес человечеству парадоксальную истину: абсолютную свободу, неразрывно связанную с абсолютной ответственностью. В его экзистенциалистской философии, пронизанной идеями работ «Бытие и ничто» и «Экзистенциализм - это гуманизм», где человек обречен быть свободным. Он отвергает некую предрешенность в любых его формах (божественный, биологический, социальный), Сартр провозглашает человека существом радикально свободным.

В своем труде «Бытие и Ничто» Сартр возводит свою концепцию свободы и ответственности на фундаменте онтологии. Она (свобода) – не атрибут или возможность, а способ бытия сознания. Автор в труде категоричен, утверждает, что человек не обладает свободой, он и есть свобода. Эта свобода безусловна не потому, что она всемогуща и безгранична в своих возможностях, ведь некоторые факты уже предопределены: наше рождение, тело, история, а потому, что ее невозможно убрать как саму структуру сознания. Даже в самой крайней несвободе, в плену или под пыткой, человек, по Сартру, сохраняет свободу разъяснения своего положения, свободу выбора отношения к нему, свободу придания ему смысла и в конечном счете, свободу выбора своего ответа: будь то сопротивление, смирение или самоубийство. Отказ от выбора или пассивное подчинение - не отсутствие свободы, а выбор не выбирать. Человек «осужден на свободу»; он не может не быть свободным, даже когда от нее бежит. Именно из этой свободы с неумолимой логикой вытекает ответственность. Поскольку не существует Бога, задуманной «человеческой природы», неотвратимой судьбы или объективных ценностей, которые могли бы определить наш выбор или служить ему оправданием, человек оказывается единственным автором своих поступков и самого себя. «Существование предшествует сущности»- этот ключевой тезис экзистенциализма означает, что мы сначала существуем, обреченные на свободу, и лишь затем, через бесчисленную череду наших выборов и действий, конституируем свою сущность, то есть «творим» себя. Мы не можем сослаться на гены, воспитание, социальные условия или «судьбу»."Человек есть не что иное, как то, чем он делает себя сам". Эта ответственность не бремя, налагаемое миром; она неотъемлема свободе, как тень - свету. Быть свободным - значит быть ответственным за свое бытие в мире.

Но ответственность у Сартра в «Бытии и Ничто» идет дальше индивидуальной жизни. Поскольку, выбирая себя, человек выбирает не только свою индивидуальность, но и определенный образ человека, который он полагает желательным или истинным, его выбор неявно утверждает ценность этого образа для всех. Выбирая стать художником, а не революционером, или солдатом, а не дезертиром, человек не просто решает свою личную судьбу; он провозглашает, что такой способ бытия в мире обладает высшей ценностью. «Таким образом, наша ответственность гораздо больше, чем мы могли бы предполагать, ибо она затрагивает все человечество... Выбирая себя, я выбираю человека». Мы ответственны не только за свою жизнь, но и за тот образ человека, который творим своим существованием, и, следовательно, в каком-то смысле - за всех.

Осознание этой двойной бездны - свободы и ответственности - порождает фундаментальную тревогу. Это не страх перед конкретной опасностью, а ужас перед самим собой как ничем не определенным источником решений, имеющих универсальное значение. Тревога - переживание своей голой свободы, отсутствия предустановленных ориентиров и невозможности свалить вину ни на кого и ни на что. Это знак подлинного осознания своего положения. Чтобы избежать этой мучительной тревоги, человек часто бежит в «дурную веру» - изощренную форму самообмана. В «дурной вере» человек пытается отрицать либо свою свободу, маскируясь под вещь, под объект с предопределенной сущностью, как официант, который «есть» только официант, либо свою ответственность, приписывая свои поступки внешним силам, «природе», обстоятельствам или Другому. «Дурная вера» - попытка спрятаться от экзистенциальной правды о себе, отрицая либо свою свободу, либо своюситуацию, либо их философское напряжение.

В «Бытии и Ничто» Жан-Поля Сартра свобода и ответственность предстают как две стороны одной медали. В его труде свобода - не дар, а проклятие и величие человеческих возможностей, коренящихся в самой «дырявой» природе сознания как «ничто». Ответственность - не моральная категория, а неизбежное следствие этой свободы в мире, лишенном Бога и предзаданного смысла. Принять эту свободу со всей ее сопутствующей тревогой и безграничной ответственностью - значит жить «подлинно», в полном осознании своего удела творца самого себя. Отвергнуть ее - значит погрузиться в «дурную веру», предав свою природу как свободного и ответственного существа. Сартр не предлагает утешения, он обнажает бездну, в которой рождается подлинно человеческое достоинство - достоинство того, кто, будучи «ничем», несет ответственность за все.

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АНАЛИЗ КОРПОРАТИВНОЙ СТРАТЕГИИ ДИВЕРСИФИКАЦИИ

Аннотация: *С момента разработки стратегии диверсификации предприятия и по настоящее время, с учетом изменений времени и окружающей среды, существуют относительно зрелые модели и теории. То, как предприятие выбирает стратегическую модель, как осуществлять диверсифицированное развитие, как анализировать окружающую среду и свои собственные условия, как избежать рисков, чтобы разработка диверсифицированных стратегий приносила предприятию устойчивые выгоды, - это сложная проблема, которую предприятиям необходимо решить сегодня.*

Ключевые слова: *Диверсифицированное развитие; стратегические типы; возможности; риски*

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ANALYSIS OF CORPORATE DIVERSIFICATION STRATEGY

Summary: *From the moment the company's diversification strategy was developed to the present, taking into account changes in time and the environment, there are relatively mature models and theories.How an enterprise chooses a strategic model, how to carry out diversified development, how to analyze the environment and its own conditions, how to avoid risks so that the development of diversified strategies brings sustainable benefits to the enterprise is a complex problem that enterprises need to solve today.*

Keywords:*Diversified development; strategic types; opportunities; risks*

Развитие предприятий в 21 веке сталкивается с различными жесткими соревнованиями и испытаниями, подъемом и упадком отраслей, развитием глобализации, изменениями в национальной экономической политике и влиянием глобальных экономических колебаний. Если предприятие хочет идти против течения в конкурентной борьбе и хочет продолжать развиваться, разработка диверсифицированной стратегии стала важным способом для предприятия расширить свои возможности. Предприятия могут распределять ресурсы между различными продуктами или отраслями промышленности, распределять и снижать операционные риски в рамках одного бизнеса, повышать устойчивость к рискам и сокращать потери от рисков.Конкурентоспособность многих предприятий, которые выросли в результате диверсифицированного развития, повысила их статус и позволила им лучше избегать рисков[134].

1. Модель стратегии диверсификации предприятия

Типы корпоративных стратегий диверсификации：

Стратегия концентрической диверсификации, также известная как централизованная диверсификация или концентрическая диверсификация.Относится к добавлению компанией новых продуктов или услуг, аналогичных существующим продуктам или услугам компании.При рассмотрении вопроса о реализации централизованной и диверсифицированной стратегии новые продукты или услуги должны соответствовать существующим знаниям и техническому опыту компании, ассортименту продукции, каналам сбыта или клиентской базе. Когда отрасль, в которой расположено предприятие, находится на стадии подъема, централизованная диверсификация очень полезна и осуществима для укрепления собственных позиций в области знаний и опыта.

Стратегия вертикальной интеграции. Это стратегия роста, которая расширяет существующий бизнес предприятия в прямом и обратном направлениях. Прямая интеграция означает расширение бизнеса организации за счет отрасли, которая потребляет ее продукцию или услуги, а обратная интеграция означает расширение бизнеса предприятия за счет продукта или отрасли, которые предоставляют ее текущую продукцию в качестве сырья.

Комплексная стратегия диверсификации. Это стратегия роста, направленная на внедрение новых продуктов, которые существенно отличаются от существующих продуктов или услуг компании.

2. Возможности, открываемые диверсифицированной стратегией развития предприятий

Синергетические эффекты[135]. Это означает, что эффективное сочетание нескольких факторов может дать больший эффект, чем индивидуальное действие каждого фактора. Для предприятия, реализующего стратегию диверсификации, при наличии определенной внутренней связи между различными продуктами и предприятиями в различных областях, таких как управление производством, маркетинг, кадровые технологии и т.д., благодаря взаимному сотрудничеству различные бизнес-подразделения могут оказывать синергетический эффект, что приводит к снижению затрат, повышению

[134] Ли Боян.Исследование инвестиционной и финансовой стратегии Dashang Group в Дацине [D].Харбинский коммерческий университет, 2014.

[135] Ли Боян.Исследование инвестиционной и финансовой стратегии Dashang Group в Дацине [D].Харбинский коммерческий университет, 2014.

эффективности, совершенствованию процессов и т.д. другие эффекты, так что общая стоимость предприятия оказывается больше, чем простое суммирование стоимости каждого независимого компонента.

Повысить или приобрести основную конкурентоспособность. Основная конкурентоспособность - это конкурентное преимущество, формируемое за счет ресурсов предприятия в процессе накопления. Обычно оно проявляется в двух формах: во-первых, за счет использования существующей основной конкурентоспособности в новых отраслях для повышения основной конкурентоспособности; во-вторых, для получения новой основной конкурентоспособности в новых отраслях и интеграции существующих и новых в одну для повышения основной конкурентоспособности.

Улучшить рыночные позиции предприятий. Компании, которые стремятся занять более высокое положение на рынке и увеличить долю рынка, часто используют диверсифицированную бизнес-модель, поскольку группы компаний, работающие в смешанных отраслях, имеют больше преимуществ, чем компании, работающие в одиночку[136].

Предотвращение рисков.Многие компании применяют стратегии диверсификации, чтобы снизить бизнес-риски и тем самым обеспечить устойчивое и стабильное развитие своих компаний. Если компания использует только один продукт, когда продукт незаметно вступает в период спада жизненного цикла или меняются потребительские предпочтения клиентской базы, компания, скорее всего, столкнется с неудачным исходом.

3. Условия для реализации стратегии диверсификации

Внутренние условия предприятия. Прежде всего, предприятие должно располагать оставшимися ресурсами и выбрать соответствующую степень диверсификации, исходя из оставшихся ресурсов. Одновременное участие в слишком большом количестве проектов приведет к распылению корпоративных ресурсов, особенно если это превышает возможности руководства, легко привести к неправильному управлению и провалу проекта. Во-вторых, необходимо, чтобы первоначальный бизнес находился в хорошем состоянии и мог обеспечивать непрерывный и стабильный приток денежных средств.Наконец, диверсификация и расширение деятельности предприятия зависит от его сильных сторон. Типичная форма расширения масштабов деятельности предприятия при диверсифицированном управлении и модель развития предприятия, придерживающегося диверсифицированного управления, имеют глубокие внутренние закономерности.Внутренний рост предприятия способствует диверсификации значимости и противодействует развитию диверсификации, не имеющей отношения к делу.

Внешние условия деятельности предприятия. Концентрация рынка очень высока. В компаниях с высокой концентрацией рынка несколько

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[136] Ци Иньфэн, Ван Маньшу, Хуан Фугуан, Ли Ли, Ли Сян, Ли Шэннань, Хэ Цин, Гу Чжихуэй, Сян Гуаньчунь. Исследование инвестиционного и финансового поведения китайских предприятий - анализ, основанный на результатах опроса с помощью анкеты [J]. Управление миром, 2005, 03:94-114.

компаний имеют преимущество с точки зрения рынка сбыта и затрат. Если предприятие хочет достичь более высоких темпов роста, чем темпы промышленного роста, оно может выйти только на новые рынки, отличные от своего собственного. Высокая концентрация рынка удорожает для компаний увеличение темпов роста в их собственной отрасли, что побуждает их к диверсификации с целью развития в других отраслях.

Существует множество компаний, которые внедрили стратегии диверсификации и добились успеха. Эти компании могут добиться экономии за счет масштабов и синергетического эффекта при разработке стратегий диверсификации. Существуют определенные внутренние связи между различными продуктами и предприятиями в различных областях, таких как управление производством, маркетинг, кадровые технологии и т.д. Благодаря взаимному сотрудничеству различные бизнес-подразделения могут оказывать синергетический эффект, обеспечивая экономию затрат, повышение эффективности, совершенствование процессов и другие эффекты, так что общая ценность предприятия будет больше, чем простое суммирование ценности каждого независимого компонента.Однако, в то же время, есть и такие компании, которые не учли недостатки при разработке своих стратегий диверсификации, научно не проанализировали свои собственные условия и условия внешней среды и без разбора расширили масштабы своей деятельности. В то же время они были вовлечены в слишком большое количество отраслей, управление перегружено, основная конкурентоспособность предприятия снижается, ресурсы предприятия расходуются впустую, эффективность их использования низкая, а оборачиваемость капитала не может быть восстановлена, что в конечном итоге приводит к банкротству.

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АНАЛИЗ ТЕКУЩЕЙ СИТУАЦИИ И ПЕРСПЕКТИВ СТРАТЕГИЧЕСКОГО УПРАВЛЕНИЯ КИТАЙСКИМИ ПРЕДПРИЯТИЯМИ

Аннотация: *С ускорением экономической глобализации и усилением рыночной конкуренции все больше и больше китайских компаний начинают осознавать важность стратегического управления. Однако в процессе практики все еще возникают некоторые проблемы и затруднения. В этой статье будет проанализирован стратегический менеджмент китайских предприятий с двух точек зрения: текущая ситуация и перспективы.*

Ключевые слова: *Экономическая глобализация; стратегический менеджмент.*

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ANALYSIS OF THE CURRENT SITUATION AND PROSPECTS OF STRATEGIC MANAGEMENT OF CHINESE ENTERPRISES

Summary: *With the acceleration of economic globalization and increased market competition, more and more Chinese companies are beginning to realize the importance of strategic management. However, there are still some problems and difficulties in the process of practice. This article will analyze the strategic management of Chinese enterprises from two perspectives: the current situation and prospects.*

Keywords:*Economic globalization; strategic management.*

1. Анализ текущей ситуации

1）Постепенное повышение осведомленности о корпоративном стратегическом управлении

В последние годы, в связи с постоянными изменениями в бизнес-среде предприятий и усилением рыночной конкуренции, все больше и больше китайских компаний начали осознавать важность стратегического управления. Все больше и больше предприятий начинают уделять больше внимания стратегическому управлению, создают отделы стратегического управления, формулируют долгосрочные планы развития, устанавливают корпоративные стратегические цели и усиливают реформу организационной структуры и процессов управления[137].

2) Постоянное совершенствование основных возможностей и возможностей внедрения инноваций

Будущее развитие предприятия неотделимо от постоянного совершенствования его основных возможностей и внедрения инноваций. В условиях непрерывного развития экономики и постоянного повышения уровня жизни людей все больше и больше предприятий начинают уделять внимание совершенствованию технологических исследований и разработок, а также инновационного потенциала. В то же время, благодаря стратегическому сотрудничеству, слияниям и поглощениям и т.д., основные возможности и конкурентоспособность предприятий на рынке постоянно повышаются.

3）Ускорение реализации стратегии интернационализации и выхода на международный уровень

С ускорением глобальной экономической интеграции и непрерывной экспансией китайских компаний все больше и больше китайских компаний приступают к реализации стратегий трансграничной и интернационализации.Например, Huawei, Alibaba, Zte и другие компании одна за другой выходили на зарубежные рынки и расширяли масштабы своего бизнеса и влияния в глобальном масштабе. Благодаря стратегии интернационализации предприятия могут более эффективно использовать глобальные ресурсы, распределять риски и добиваться быстрого развития[138].

2. Анализ перспектив

1) Широкое применение больших данных и искусственного интеллекта

Благодаря постоянному развитию и применению технологий больших объемов данных и искусственного интеллекта стратегическое управление предприятиями в будущем будет более точным и эффективным. Благодаря анализу и обобщению огромных объемов данных предприятия могут лучше понимать рыночный спрос и отзывы клиентов, быстро реагировать на изменения рынка и разрабатывать более целенаправленные и дальновидные стратегические планы.

2) Непрерывная трансформация и инновации конкурентного преимущества

В будущем корпоративная конкуренция станет более интенсивной и сложной, а традиционные конкурентные преимущества станут препятствием для долгосрочного развития предприятий. В этом случае компаниям

[137] Ван Юэсинь.Обсуждение вопросов, связанных с финансовым управлением предпринимательскими группами [J].Журнал Ляонинского финансового института，2022，07（18）：41-42.
[138] Ли Яньбо, Чжан Сяофэн..Как улучшить реализацию корпоративных финансовых стратегий [J].Ежемесячный журнал учета，2020，21（14）：56-57.

необходимо уделять больше внимания преобразованиям и инновациям, а также находить новые точки роста бизнеса и модели получения прибыли. Например, с помощью технологических инноваций и усовершенствования продуктов можно укрепить основные возможности и дифференцированные конкурентные преимущества, повысить добавленную стоимость продуктов и услуг и добиться прибыльного роста.

3）Тенденция диверсификации и глобализации постоянно усиливается

С усилением глобальной экономической интеграции и рыночной конкуренции все больше и больше компаний приступают к реализации стратегий развития диверсификации и глобализации.Благодаря развитию диверсификации и глобализации предприятия могут лучше противостоять рискам, достигать синергии в бизнесе, повышать эффективность распределения ресурсов и расширять масштабы рынка и сферы деятельности.

Таким образом, осознание и практика стратегического управления китайскими предприятиями на данном этапе достигли значительного прогресса. В будущем, в связи с изменениями в экономической и рыночной среде, корпоративное стратегическое управление столкнется с большими вызовами и возможностями. В этом контексте предприятиям необходимо постоянно оптимизировать и корректировать свою модель стратегического управления, уделять внимание совершенствованию основных производственных и инновационных возможностей, уважать законы рынка и потребности клиентов, использовать новые стратегические возможности и передовые технологические тенденции и добиваться устойчивого развития.

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АНАЛИЗ СТРАТЕГИЧЕСКОГО УПРАВЛЕНИЯ ПРЕДПРИЯТИЕМ

Аннотация: *Корпоративное стратегическое управление - это метод управления для разработки и реализации долгосрочных стратегий для достижения целей корпоративного развития. В современных условиях растущей конкуренции на рынке, если предприятие хочет сохранить свое конкурентное преимущество на рынке и стабильно развиваться в течение длительного времени, оно должно обладать способностью к стратегическому управлению. Цель этой статьи - проанализировать и обсудить стратегическое управление предприятиями, чтобы помочь предприятиям лучше понять и применять стратегическое управление.*
Ключевые слова: *Корпоративное стратегическое управление; конкурентное преимущество*

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ANALYSIS OF STRATEGIC ENTERPRISE MANAGEMENT

Summary: *Corporate strategic management is a management method for developing and implementing long-term strategies to achieve corporate development goals. In today's increasingly competitive market, if an enterprise wants to maintain its competitive advantage in the market and develop steadily for a long time, it must have the ability to manage strategically. The purpose of this article is to analyze and discuss strategic enterprise management to help enterprises better understand and apply strategic management.*
Keywords*: Corporate strategic management; competitive advantage*

1. Определение корпоративного стратегического управления

Стратегическое управление предприятием - это процесс, посредством которого предприятие формулирует и реализует долгосрочную стратегию, анализирует внешнюю среду и внутренние ресурсы предприятия, определяет направление развития и цели предприятия и принимает соответствующие стратегические меры для достижения долгосрочных целей развития предприятия. Стратегическое управление предприятием[139] - это ядро и душа управления предприятием, которое определяет статус и конкурентоспособность предприятия в условиях рыночной конкуренции.

2. Важность корпоративного стратегического управления

Направлять долгосрочное развитие предприятий

Стратегическое управление предприятием анализирует внутреннюю и внешнюю среду предприятия, формулирует долгосрочный стратегический план и указывает направление долгосрочного развития предприятия.

Повышение конкурентоспособности предприятий

Корпоративное стратегическое управление позволяет предприятиям получать информацию из рыночной среды и своевременно корректировать свои стратегии в соответствии с изменениями на рынке, что позволяет предприятиям сохранять конкурентное преимущество в условиях жесткой рыночной конкуренции.

Оптимизировать распределение ресурсов

Корпоративное стратегическое управление позволяет разумно планировать корпоративные ресурсы, в полной мере использовать внутренние ресурсы, интегрировать внешние ресурсы и повышать эффективность использования ресурсов.

3. Основные этапы корпоративного стратегического управления

Формулировать корпоративные стратегические цели

Первой задачей корпоративного стратегического управления является формулирование четких корпоративных стратегических целей и определение целей и ожидаемых результатов, которых компания надеется достичь в ближайшие несколько лет.

Проанализировать внешнюю среду предприятия

Корпоративное стратегическое управление требует анализа внешней среды, в которой находится предприятие, включая рыночную конкуренцию, экономическую среду, политическую среду, социальную среду и другие факторы, для получения базовых данных и аналитической поддержки при разработке корпоративной стратегии[140].

Анализировать внутренние ресурсы предприятия

Стратегическому менеджменту предприятия необходимо проанализировать ресурсы, которыми владеет предприятие, включая человеческие ресурсы, финансовые ресурсы и технические ресурсы, чтобы определить основную конкурентоспособность предприятия и сформулировать соответствующие стратегии[141].

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[139] Ли Яньбо, Чжан Сяофэн..Как улучшить реализацию корпоративных финансовых стратегий [J].Ежемесячный журнал учета，2020，21（14）：56-57.

[140] Ли Яньбо, Чжан Сяофэн..Как улучшить реализацию корпоративных финансовых стратегий [J].Ежемесячный журнал учета，2020，21（14）：56-57.

[141] Мяо Женя.Рассказываем о бюджетной модели предпринимательской группы с точки зрения стратегического управленческого учета [J].Журнал бизнес-школы Чунцина，2021，14（12）：76-77.

Разработать стратегический план

Стратегическому руководству предприятия необходимо сформулировать соответствующие стратегические планы, основанные на стратегических целях компании и состоянии ресурсов, включая маркетинговые стратегии, стратегии исследований и разработок продукции, а также стратегии управления человеческими ресурсами.

Реализовывать стратегии и контролировать их

Корпоративному стратегическому менеджменту необходимо внедрять стратегический план и контролировать его выполнение, своевременно корректировать и изменять стратегический план, чтобы адаптироваться к изменениям на рынке и внутренней среде предприятия.

4. Практические примеры корпоративного стратегического управления

Alibaba - это интернет-компания, специализирующаяся на электронной коммерции. На ранних этапах развития Alibaba сформировала корпоративную культуру, основанную на “открытости, прагматизме, инновациях и преданности делу”, и выдвинула концепцию “превращения электронной коммерции в бизнес, которым может наслаждаться каждый”, а также миссию “быть крупнейшей и самой надежной интернет-компанией в мире”. Alibaba получила конкурентное преимущество и устойчивое развитие благодаря инновационным бизнес-моделям и эффективным управленческим возможностям в условиях рыночной конкуренции.

В целом, корпоративное стратегическое управление является важной гарантией и основой конкурентоспособности предприятий для достижения долгосрочного стабильного развития. Только повышая конкурентоспособность и возможности предприятий с помощью научных и обоснованных методов стратегического управления, они могут стать непобедимыми в условиях жесткой рыночной конкуренции.

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КОРПОРАТИВНАЯ ФИНАНСОВАЯ СТРАТЕГИЯ

Аннотация: *Финансовая стратегия предприятия играет жизненно важную роль в процессе его развития и функционирования. Эффективная финансовая стратегия может помочь компаниям достичь финансовых целей, улучшить экономические показатели и повысить свою конкурентоспособность. В этой статье мы обсудим важность корпоративной финансовой стратегии и некоторые распространенные методы разработки финансовой стратегии.*

Ключевые слова: *Корпоративная финансовая стратегия; корпоративная конкурентоспособность*

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CORPORATE FINANCIAL STRATEGY

Summary: *The financial strategy of an enterprise plays a vital role in the process of its development and functioning. An effective financial strategy can help companies achieve financial goals, improve economic performance, and increase their competitiveness. In this article, we will discuss the importance of corporate financial strategy and some common methods of developing a financial strategy.*

Keywords:*Corporate financial strategy; corporate competitiveness*

1. Важность финансовой стратегии

Общее планирование и стратегическое позиционирование: Корпоративная финансовая стратегия является важной частью общего планирования и стратегического позиционирования предприятия. Сформулировав разумную финансовую стратегию, предприятие может прояснить свои бизнес-цели, спланировать использование средств, распределить ресурсы и обеспечить стратегическое руководство долгосрочным развитием предприятия[142].

[142] Чжан Юань, Чжао Юн, Лю Юменг.Корпоративная стратегия с точки зрения бухгалтерского баланса [J].Финансы и бухгалтерский учет, 2024.12.

Управление капиталом и контроль рисков: Финансовые стратегии помогают компаниям эффективно управлять своими средствами и контролировать риски. Благодаря разумному планированию движения капитала и операционной деятельности предприятия могут снизить финансовые риски, повысить эффективность использования капитала, обеспечить нормальную работу предприятий и занять выгодное положение в конкурентной борьбе на рынке.

Принятие инвестиционных решений и распределение ресурсов: Финансовая стратегия является важной основой для принятия предприятием инвестиционных решений и распределения ресурсов. Анализируя рыночный спрос, отраслевые тенденции и состояние капитала, предприятия могут разрабатывать разумные инвестиционные планы, оптимизировать распределение ресурсов и максимизировать экономические выгоды и финансовую отдачу.

Эффективность бизнеса и финансовые показатели: Финансовая стратегия имеет большое значение для повышения эффективности бизнеса и финансовых показателей предприятий. Благодаря разработке научно обоснованной финансовой политики и мер предприятия могут повысить операционную эффективность, снизить затраты и увеличить выручку, чтобы добиться более высоких финансовых показателей и прибыльности.

2. Общие методы финансовой стратегии

Управление структурой капитала: Предприятие может достичь целей своей финансовой стратегии, скорректировав структуру своего капитала, то есть соотношение долга и собственного капитала. Разумная структура капитала может сбалансировать риск и доходность, снизить финансовые издержки и увеличить акционерную стоимость[143].

Управление движением капитала: Предприятия могут эффективно управлять движением капитала, то есть от привлечения капитала до его использования и реинвестирования, для достижения целей своей финансовой стратегии.Разумное управление движением капитала может повысить ликвидность предприятий, снизить затраты на финансирование и повысить норму прибыли на капитал.

Управление активами и пассивами: Предприятие может достичь целей своей финансовой стратегии, скорректировав структуру и соотношение активов и пассивов. Разумное управление активами и пассивами может снизить финансовые риски, повысить эффективность использования активов и увеличить стоимость предприятия.

Оценка эффективности бизнеса: Предприятия могут оценивать эффективность бизнеса и направлять ее, формулируя разумные показатели и показатели оценки эффективности. Эффективная оценка эффективности

[143] Хуан Шичжун.Теория, основы, методы и кейсы анализа финансовой отчетности [M].Пекин: Издательство "Финансы и экономика Китая", 2024.2.

бизнеса может помочь компаниям выявить проблемы, улучшить управление бизнесом и оптимизировать процесс принятия финансовых решений.

Корпоративная финансовая стратегия имеет важное значение для развития и успеха предприятия. Разработав эффективную финансовую стратегию, компании могут достичь финансовых целей, улучшить экономические показатели, повысить конкурентоспособность и заложить основу для устойчивого развития. В процессе реализации финансовых стратегий предприятиям необходимо всесторонне учитывать рыночный спрос, экономическую среду, отраслевые особенности и другие факторы, применять соответствующие методы и меры, гибко корректировать стратегии и постоянно оптимизировать процесс принятия финансовых решений для достижения долгосрочных целей развития.

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РОЛЬ ЭКОЛОГИЧЕСКОГО ОБРАЗОВАНИЯ В ФОРМИРОВАНИИ ЭКОЛОГИЧЕСКОГО СОЗНАНИЯ СТУДЕНТОВ

Аннотация: *В данной статье анализируется значение экологического образования в формировании экологической сознательности и ответственности у учащихся. Развитие экологической сознательности имеет важное значение для устойчивого развития общества и охраны окружающей среды. В исследовании в основном рассматриваются возможности повышения экологической ответственности у детей школьного возраста посредством экологического образования.*

Ключевые слова: *экологическое образование, экологическое сознание, экологическая культура, учащиеся, ответственность*

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THE ROLE OF ENVIRONMENTAL EDUCATION IN THE FORMATION OF ENVIRONMENTAL CONSCIOUSNESS OF STUDENTS

Abstract: *This article analyzes the importance of environmental education in the formation of environmental awareness and responsibility in students. The development of environmental awareness is important for the sustainable development of society and environmental protection. The study mainly examines the possibilities of increasing environmental responsibility in school-age children through environmental education.*

Keywords: *environmental education, environmental awareness, environmental culture, students, responsibility*

Введение

В настоящее время одной из актуальных проблем XXI века является глобальное обсуждение экологических рисков и загрязнений. Для эффективного решения этих экологических проблем большое значение имеет развитие экологической культуры и сознания у подрастающего поколения, особенно у школьников. Поскольку формирование экологической культуры у подрастающего поколения и воспитание у них ответственного отношения к окружающей среде является одним из важных факторов обеспечения устойчивого будущего.

Экологическое образование имеет важное значение как средство развития экологического сознания учащихся и формирования их как экологически ответственных личностей. В образовательном процессе особое внимание должно уделяться усвоению экологических понятий, бережному отношению к природе и формированию осознанных взглядов на охрану окружающей среды. Поэтому для развития экологического сознания учащихся экологическое образование должно осуществляться с раннего возраста.

и ответственности учащихся посредством экологического образования , а также проанализировать методы и приемы, влияющие на этот процесс.

Материалы и методы

были созданы экспериментальные и контрольные группы для оценки эффективности экологического образования в развитии экологической осведомленности и ответственности у студентов. Экспериментальной группе было предоставлено экологическое образование, и их уровень экологической осведомленности и ответственности сравнивался с контрольной группой.

Для сбора данных использовались несколько методов:

1. Анкета. Вопросы были разработаны для оценки общего понимания учащимися вопросов экологической сознательности и экологической ответственности.

2. Интервью. Интервью проводились со студентами с целью изучения их личных взглядов на проблемы окружающей среды, их отношения к окружающей среде и ее сохранению.

Наблюдалась деятельность учащихся на уроке и практических занятиях, их действия, направленные на сохранение природы, а также их отношение к этой проблеме.

Несколько экологических проектов и практических занятий по экологической тематике. Данные проекты были направлены на формирование экологической ответственности и развитие экологического сознания у студентов, что способствовало формированию у них ответственного отношения к природным ресурсам. В экспериментальной группе регулярно проводились эколого-просветительские мероприятия и отслеживались их результаты.

Результаты

Результаты исследования показали, что студенты, которые активно занимались экологическим образованием, значительно повысили свою экологическую осведомленность и ответственность. Было обнаружено, что студенты экспериментальной группы улучшили свои экологические знания и понимание, а также возросло их чувство уважения и заботы об окружающей среде.

Полученные результаты оценивались по следующим показателям:

1. Повышение осведомленности и понимания вопросов окружающей среды. Учащиеся экспериментальной группы глубже понимали экологические темы и продемонстрировали большее чувство ответственности за защиту окружающей среды, чем учащиеся контрольной группы.

2. Уровни интереса и вовлеченности – Экологическое образование, как было показано, значительно повышает интерес учащихся к экологии. Многие учащиеся с энтузиазмом участвовали в природоохранных проектах и общественных мероприятиях.

3.Формирование ответственного отношения. Учащиеся экспериментальной группы глубоко осознали важность сохранения природы и стали уделять этому вопросу внимание в своей повседневной жизни.

Результаты показывают, что экологическое образование эффективно повышает экологическую осведомленность и ответственность учащихся, способствует укреплению социальной активности и ответственного отношения к окружающей среде.

Обсуждение

В ходе исследования в результате анализа влияния экологического образования на учащихся было выявлено, что для повышения эффективности этого процесса следует использовать больше интерактивных и практических методов. Когда учащиеся непосредственно вовлечены в экологические проекты и практическую деятельность, их экологическая осведомленность и ответственность еще больше повышаются. Эти методы повышают интерес учащихся к экологии и побуждают их защищать окружающую среду.

Также необходимо вовлекать в этот процесс родителей и членов местного сообщества с целью более широкого внедрения экологического образования. Родители играют важную роль в оказании влияния на формирование экологического сознания у своих детей, поскольку, подавая пример ответственного отношения к природе дома, можно сформировать у детей экологические ценности. В свою очередь, участие местного сообщества способствует активному участию школьников в экологических проектах и мероприятиях, что повышает социальную активность и помогает формировать их как ответственных граждан в будущем.

В целом, проведение экологического образования в интерактивной и комплексной форме способствует дальнейшему развитию экологической сознательности и чувства ответственности у учащихся. Это служит обеспечению активного и ответственного участия молодого поколения в снижении экологических проблем.

Заключение

Результаты данного исследования показывают, что экологическое образование имеет большое значение в формировании экологического сознания у учащихся и повышении их чувства ответственности по отношению к окружающей среде. В процессе экспериментального исследования было выявлено, что получение экологических знаний является важным инструментом в формировании экологической ответственности у учащихся.

Более широкое внедрение экологического образования в образовательных учреждениях позволяет сформировать молодых людей как экологически ответственных граждан. Также существует возможность сделать этот процесс более эффективным, обеспечив экологические проекты, интерактивные мероприятия и активное участие родителей и местного сообщества. Поэтому внедрение экологического образования с раннего возраста является ключевым фактором защиты окружающей среды и обеспечения устойчивого будущего.

Предложения и рекомендации

эффективной организации процесса экологического образования, формирования экологической культуры, ответственности и социальной активности подрастающего поколения разработаны следующие рекомендации:

1. Расширение программ экологического образования: Экологическое образование в образовательных учреждениях должно быть расширено за счет специальных программ для всех возрастных групп. Особое внимание следует уделять развитию экологической сознательности и ответственности с дошкольного и начального уровня.

2. Широкое использование интерактивных и практических методов: Использование интерактивных методов обучения в экологическом образовании, таких как лабораторные занятия, экологические проекты и экскурсии, повышает интерес учащихся и укрепляет их экологическую ответственность.

3. Повысить родительское и общественное участие: Вовлечение родителей в экологическое образование важно для того, чтобы помочь учащимся укрепить экологические ценности дома. Сотрудничество с местными сообществами и экологическими организациями может стимулировать социальную активность среди учащихся.

Организация экологических проектов и мероприятий: Организуя экологические проекты, мероприятия и выставки в школах и колледжах, можно побудить учащихся к активному участию в охране природы. Например, посадка деревьев, мероприятия по переработке отходов и другие экологические инициативы будут эффективными в этом отношении.

5. Включение предметов по охране окружающей среды в учебные программы: включение предметов по охране окружающей среды в учебные

программы или расширение изучения экологических тем в рамках существующих предметов повысит экологическую грамотность среди молодого поколения.

6. Внедрить систему мониторинга и оценки: Для оценки эффективности экологического образования в развитии экологической осведомленности и ответственности среди учащихся следует создать регулярную систему мониторинга и оценки. Этот процесс может отслеживать изменения учащихся, экологические концепции, которые они развивают , и их практическую деятельность.

Данные рекомендации помогут эффективно организовать процесс экологического образования и послужат развитию экологической культуры, ответственности и социальной активности у подрастающего поколения.

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ОБЩАЯ ХАРАКТЕРИСТИКА ПЕСЧАНЫХ ТЕРИТОРЕЙ ФЕРГАНСКОЙ ДОЛИНЫ

Аннотация: *В данной статье дается общая характеристика песчаных территорий, расположенных в юго-западной части Ферганской долины. Изучаются геоморфологические особенности, климатические условия и биоразнообразие песчаных территорий. Также рассматриваются экологические проблемы, возникающие в результате антропогенного воздействия . Результаты исследования указывают на необходимость принятия необходимых мер по устойчивому управлению песчаными территориями, усилению экологического мониторинга и борьбе с эрозией почв. Поддержание естественного баланса этих территорий важно с экологической и экономической точки зрения.*

Ключевые слова: *Ферганская долина, песчаные территории, геоморфология, экологическое равновесие, антропогенное воздействие, эрозия почв, экологический мониторинг, устойчивое управление.*

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GENERAL CHARACTERISTICS OF SANDY AREAS OF THE FERGANA VALLEY

Abstract.: *This article provides a general description of the sandy areas located in the southwestern part of the Fergana Valley. Geomorphological features, climatic conditions and biodiversity of the sandy areas are studied. Environmental problems arising from anthropogenic impact are also considered. The results of the study indicate the need to take the necessary measures for sustainable management* *of sandy areas, strengthen environmental monitoring and combat soil erosion. Maintaining the natural balance of these areas is important from an environmental and economic point of view.*

Keywords. *Fergana Valley, sandy areas, geomorphology, ecological balance, anthropogenic impact, soil erosion, environmental monitoring, sustainable management.*

Введение

Ферганская долина — один из крупнейших и густонаселенных регионов Узбекистана. Она занимает уникальное в географическом отношении положение в Средней Азии и имеет множество геоморфологических особенностей. Песчаные массивы Ферганской долины считаются одним из интереснейших природных объектов региона, их формирование и развитие происходит под влиянием природных процессов, климата и антропогенной деятельности.

Песчаные массивы в основном расположены в южной и юго-западной части долины, и эти районы характеризуются сухими пустынными экосистемами. Они образовались в результате эрозионно-дефляционных процессов в условиях аридного климата . Целью данной статьи является общая характеристика песчаных массивов Ферганской долины, изучение их природных, географических и экологических особенностей, а также анализ воздействия человека на эти районы.

В статье также рассматриваются изменения экологического равновесия в песчаных районах и изменения, происходящие в результате этих процессов. В этом исследовании освещаются важные аспекты песчаных районов Ферганской долины и предлагаются рекомендации по их будущему экологическому и экономическому развитию.

Материалы и методы

Для данного исследования были выбраны песчаные пустынные зоны, расположенные в южных и юго-западных районах Ферганской долины. Эти территории образовались в результате эрозионно - дефляционных процессов в условиях аридного климата. Целью исследования является изучение природных и экологических особенностей песчаных территорий, а также того, как они изменяются в результате антропогенного воздействия. В процессе исследования были использованы следующие методы:

Важен для выявления песчаных территорий и понимания их геоморфологических характеристик. Используя этот метод, определено, что песчаные территории Ферганской долины в основном расположены в южной и юго-западной части. В данном исследовании использовались топографические и геоморфологические карты местности.

- Топографические карты используются для определения рельефа песчаных территорий, т. е. возвышенностей, впадин, хребтов и песчаных дюн. С их помощью получены сведения о ширине и мощности песчаных территорий, а также о распределении отложений.

- Геоморфологические карты позволили изучить процессы, влияющие на формирование песчаных территорий (например, эрозия, дефляция). Эти карты позволяют определить, как формировались песчаные зоны, какие стадии формирования они прошли, а также изменения в природном ландшафте.

С помощью картографического анализа прослеживаются границы песчаных массивов, их морфологическое строение и экологические изменения, что служит основным источником для создания естественно-географического описания региона.

- Анализ климатических данных является ключом к пониманию природных процессов в песчаных районах Ферганской долины. Песчаные районы характеризуются в основном засушливыми и полузасушливыми климатическими условиями, которые тесно связаны с такими показателями, как ветер, температура и осадки. В ходе исследования были изучены следующие климатические показатели, влияющие на песчаные районы Ферганской долины:

- Температура: Среднегодовая температура очень высокая в песчаных районах Ферганской долины, превышая 40°C в летние месяцы. Резкое повышение температуры летом снижает содержание влаги в почве и способствует образованию песчаных барханов. В зимние месяцы температура может опускаться ниже 0°C, но даже в этот период пустынные районы обычно остаются сухими.

- Осадки: Песчаные районы Ферганской долины получают очень мало осадков, годовое количество осадков не превышает 150-200 мм. Большая часть осадков выпадает в весенние и осенние месяцы. Малое количество осадков сохраняет почву сухой и подверженной эрозии, что приводит к образованию и распространению песчаных дюн.

- Скорость ветра: Ветер играет значительную роль в формировании песчаных массивов. Средняя скорость ветра в Ферганской долине составляет 3-5 м/с, но время от времени случаются и сильные ветры. Ветер перемещает песок, изменяет его местоположение и ускоряет динамические процессы формирования песчаных массивов. Этот процесс приводит к рассеиванию слоев песка в результате дефляции.

Этих климатических параметров помогает составить более широкую картину формирования и развития песчаных массивов Ферганской долины. Засушливый и жаркий климат способствует непрерывному образованию песчаных барханов, а ветры являются важным фактором перераспределения песков и ускорения эрозии.

Направленных на изучение состояния биоразнообразия и растительного покрова песчаных территорий Ферганской долины. Песчаные территории обычно являются средой обитания растений и животных, приспособленных к засушливым климатическим условиям, и экологическое равновесие в них очень чувствительно. Благодаря этому мониторингу наблюдались естественные экосистемы в данной местности и связанные с ними изменения.

Биоразнообразие песчаных территорий Ферганской долины в значительной степени состоит из видов, адаптированных к экосистеме сухой пустыни. Животные и растения, встречающиеся в этих районах, адаптированы к суровым климатическим условиям, но антропогенное воздействие на территорию отрицательно сказывается на условиях их обитания.

- Фауна: Песчаные районы населяют в основном рептилии, мелкие грызуны и некоторые виды пустынных птиц. Среди рептилий широко распространены ящерицы и змеи, которые хорошо приспособлены к жарким и сухим условиям. Грызуны живут в норах под почвой, которая защищает их от экстремальных температур и засухи.

- Флора: Растения, растущие в песчаных районах, должны быть устойчивы к засухе и солености. Сахарские акации, дикая полынь, пустынные осоки и ряд других пресноводных пустынных растений широко распространены в этой области. Они могут выживать в засушливых условиях, извлекая воду из глубоких слоев через свои корневые системы.

Результаты

Имеют уникальные геоморфологические особенности, сформированные в результате эоловых (ветровой эрозии) процессов. Расположенные на юго-западе долины песчаные территории динамично развиваются под воздействием природных и антропогенных факторов. Ниже описаны основные геоморфологические и экологические особенности этих песчаных территорий.

- Геоморфологические особенности: Основные геоморфологические особенности песчаных территорий Ферганской долины формируются в результате ветровой эрозии. На этих территориях широко распространены крупные песчаные барханы, подвижные песчаные дюны и выдувания. В зависимости от силы и направления ветра местоположение песчаных массивов меняется из года в год. Этот процесс зависит от природно-климатических условий, в частности, скорости и направления ветра. Менее устойчивые к эрозии территории покрыты более подвижными песками, что может нанести ущерб окружающей среде.

- Характеристики почвы: Почвы песчаных участков в основном песчаные и имеют очень низкую водоудерживающую способность. Из-за песчаного состава почвы и недостатка воды растительный покров ограничен. Процесс засоления усилился в некоторых районах, что еще больше затрудняет рост растений. Деградация почвы продолжается, наряду с процессами эрозии и дефляции.

- Изменение климата: Песчаные районы очень чувствительны к климатическим условиям, с резкими колебаниями температуры в течение года и очень малым количеством осадков. Из-за низкого среднегодового количества осадков эти районы состоят из засушливых и полупустынных экосистем. Жаркое лето и холодная зима оказывают значительное влияние на почвенный и растительный покров.

Являются экологически уязвимыми и требуют специальных мер по управлению природопользованием для обеспечения устойчивости флоры и фауны.

Заключение

Являются одним из важнейших регионов, отличающихся уникальными геоморфологическими и экологическими особенностями. Эти территории сформировались в условиях аридного климата, а их флора и фауна ограничены в развитии. В связи с изменением климата и усилением антропогенного воздействия на этих территориях нарушается природный баланс. Поэтому важны такие меры, как экологический мониторинг песчаных территорий, борьба с эрозией почв, внедрение устойчивых технологий для повышения плодородия земель.

Сохранение песчаных массивов Ферганской долины имеет большое значение не только для сохранения экологической среды, но и для обеспечения экономической стабильности. Сохранение экосистем вокруг песчаных массивов служит обеспечению плодородия почв, повышению эффективности сельского хозяйства и рациональному использованию природных ресурсов.

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ВНЕДРЕНИЕ СИСТЕМ АВТОМАТИЗАЦИИ НА БАЗЕ RTU-ТЕРМИНАЛОВ FB3000 ДЛЯ ОПТИМИЗАЦИИ ПРОЦЕССОВ ГАЗОПОТРЕБЛЕНИЯ КРУПНЫХ ПРОМЫШЛЕННЫХ ПРЕДПРИЯТИЙ

Аннотация: *Настоящее исследование посвящено анализу эффективности внедрения автоматизированных систем управления технологическими процессами на базе RTU - терминалов FB3000 компании Emerson для крупных газопотребляющих предприятий. В ходе исследования применялись методы сравнительного анализа показателей эффективности до и после внедрения системы автоматизации, системного анализа и технико-экономического обоснования. Результаты показали, что внедрение автоматизированной системы на базе FB3000 RTU обеспечило повышение эффективности производственных процессов на восемь процентов, снижение эксплуатационных расходов на сорок процентов, а также значительное улучшение параметров безопасности и точности контроля газовых потоков. Интеграция современных RTU - систем с SCADA-платформами представляет перспективное направление для модернизации газопотребляющих предприятий, обеспечивая централизованный мониторинг и управление технологическими процессами в режиме реального времени.*

Ключевые слова*: автоматизация промышленных процессов, RTU-терминалы, SCADA - системы, газопотребление, удаленное управление, FB3000, промышленная безопасность*

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IMPLEMENTATION OF AUTOMATION SYSTEMS BASED ON FB3000 RTU TERMINALS TO OPTIMIZE GAS CONSUMPTION PROCESSES IN LARGE INDUSTRIAL ENTERPRISES

Abstract: *This study focuses on analyzing the effectiveness of implementing automated process control systems based on Emerson's FB3000 RTU terminals for large gas - consuming enterprises. The research employed methods of comparative analysis of performance indicators before and after automation system implementation, systemic analysis, and techno-economic justification. The results demonstrated that the introduction of the FB3000 RTU - based automated system increased production process efficiency by eight percent, reduced operational costs by forty percent, and significantly improved safety parameters and the accuracy of gas flow control. The integration of modern RTU systems with SCADA platforms represents a promising direction for the modernization of gas-consuming enterprises, enabling centralized monitoring and real-time control of technological processes.*

Keywords*: industrial process automation, RTU terminals, SCADA systems, gas consumption, remote management, FB3000, industrial safety*

Введение

Современная газовая промышленность характеризуется возрастающими требованиями к эффективности, безопасности и экологичности производственных процессов. Алекперов и Белогорьев отмечают, что крупные газопотребляющие предприятия сталкиваются с необходимостью модернизации систем управления для обеспечения оптимального расхода энергоресурсов, минимизации производственных рисков и повышения общей операционной эффективности [1]. Традиционные методы управления газопотребляющими системами, основанные на ручном контроле и локальных измерительных приборах, не обеспечивают необходимого уровня точности, оперативности и безопасности управления сложными технологическими процессами [9]. В данном контексте актуальной становится задача внедрения интегрированных автоматизированных систем управления технологическими процессами, базирующихся на современных RTU-терминалах и SCADA-платформах. Цель настоящего исследования заключается в оценке эффективности внедрения систем автоматизации на базе RTU-терминалов FB3000 для оптимизации процессов газопотребления крупных промышленных предприятий. Исследование направлено на анализ технических характеристик и функциональных возможностей RTU-системы FB3000, оценку экономической эффективности внедрения автоматизированной системы, определение влияния автоматизации на показатели промышленной безопасности, а также разработку рекомендаций по оптимизации процессов внедрения подобных систем.

Обзор литературы

Проблематика автоматизации газопотребляющих предприятий активно исследуется в современной научной литературе. Smith и Brown демонстрируют, что внедрение RTU-систем способствует повышению эффективности промышленных процессов на пять-пятнадцать процентов [10].

Согласно работам Johnson и Williams, современные RTU-терминалы обеспечивают высокую надежность сбора и передачи данных при соответствии международным стандартам промышленной автоматизации [4].

Martinez и Garcia подчеркивают особую важность интеграции RTU-систем с существующими SCADA - платформами и обеспечения кибербезопасности промышленных сетей [7].

Anderson и Thompson указывают на значительные вызовы в области кибербезопасности промышленных RTU - сетей, требующие комплексного подхода к защите информации [2].

Lee и Kim рассматривают стратегии интеграции устаревших SCADA-систем с современными RTU - технологиями, отмечая важность совместимости протоколов связи [6].

Отечественные исследования, проведенные Козловым и Морозовым, подчеркивают важность адаптации зарубежных технологических решений к специфике местных промышленных предприятий и нормативно-правовой базе [5].

Новиков акцентирует внимание на нормативно-правовых аспектах внедрения автоматизированных систем управления на промышленных предприятиях [8].

Материалы и методы

Исследование проводилось на базе крупного газопотребляющего предприятия с установленной мощностью газопотребления сто пятьдесят кубических метров в час. В качестве основного элемента автоматизации был выбран RTU - терминал FB3000 производства компании Emerson Automation Solutions. Данный терминал соответствует стандарту IEC 61131-3 для программируемых контроллеров, поддерживает протоколы связи Modbus RTU/TCP, DNP3 и IEC 61850, функционирует в рабочем диапазоне температур от минус сорока до плюс семидесяти градусов Цельсия, имеет степень защиты IP65 и включает встроенную поддержку резервирования и диагностики.

Методология исследования основывалась на комплексном подходе, включающем технический анализ функциональных характеристик системы автоматизации, экономический анализ с расчетом показателей экономической эффективности, включая чистую приведенную стоимость, внутреннюю норму доходности и срок окупаемости, сравнительный анализ показателей до и после внедрения системы, а также статистический анализ данных эксплуатации за двенадцатимесячный период. Общий период наблюдения составил восемнадцать месяцев, включая шесть месяцев до внедрения и двенадцать месяцев после внедрения системы.

Результаты исследования

Внедрение системы автоматизации на базе FB3000 RTU продемонстрировало значительные технические улучшения. Погрешность измерения расхода газа была снижена с двух с половиной процентов до половины процента, что представляет пятикратное повышение точности измерений. Время отклика системы управления сократилось с тридцати секунд до двух секунд, обеспечивая практически мгновенную реакцию на изменения технологических параметров. Доступность системы составила девяносто девять и семь десятых процента против девяноста четырех и двух десятых процента для ручного управления. Функциональные возможности системы включают централизованный мониторинг сорока пяти технологических параметров, систему аварийных уведомлений в режиме реального времени и автоматическую генерацию отчетов по потреблению газа. Данные возможности обеспечивают комплексный контроль технологических процессов и своевременное реагирование на нештатные ситуации. Экономический анализ выявил существенные улучшения в ключевых показателях эффективности. Расход газа снизился со ста сорока восьми с половиной кубических метров в час до ста тридцати шести и восьми десятых кубического метра в час, что составляет сокращение на семь и девять десятых процента. Эксплуатационные расходы уменьшились с двухсот сорока пяти тысяч рублей в месяц до ста сорока семи тысяч рублей в месяц, демонстрируя сорокапроцентное снижение затрат. Потери при транспортировке сократились с трех и двух десятых процента до одного и одной десятой процента, что представляет шестидесятипятипроцентное улучшение. Время простоев уменьшилось с восемнадцати с половиной часов в месяц до четырех и двух десятых часа в месяц, составляя семьдесят семь и три десятых процента сокращения. Экономическая эффективность проекта характеризуется следующими показателями: капитальные затраты составили два и восемь десятых миллиона рублей, годовая экономия достигла одного миллиона ста семидесяти шести тысяч рублей, срок окупаемости составил два и четыре десятых года. Чистая приведенная стоимость при ставке дисконтирования двенадцать процентов равна одному миллиону девятистам пятидесяти тысячам рублей, а внутренняя норма доходности составляет тридцать восемь и две десятых процента.

Анализ показателей промышленной безопасности выявил снижение количества аварийных ситуаций на шестьдесят семь процентов, сокращение времени реагирования на нештатные ситуации с пятнадцати до трех минут и повышение точности контроля давления в газопроводах на восемьдесят пять процентов.

Обсуждение результатов

Полученные результаты подтверждают высокую эффективность внедрения автоматизированных систем управления на базе RTU-терминалов для газопотребляющих предприятий. Особенно значимыми представляются результаты по снижению эксплуатационных расходов на сорок процентов и повышению точности контроля технологических параметров. Важным аспектом является совместимость FB3000 RTU с существующими промышленными сетями, что обеспечивается поддержкой стандартных протоколов связи и позволяет интегрировать систему в действующую информационно-технологическую инфраструктуру предприятия без значительных дополнительных затрат. Вместе с тем, исследование выявило определенные ограничения и риски, включающие высокие первоначальные капитальные затраты, необходимость подготовки квалифицированного персонала, зависимость от поставщика технического обслуживания и потенциальные риски кибербезопасности. Данные факторы требуют комплексного подхода к планированию и реализации проектов автоматизации с учетом специфики конкретного предприятия и отрасли.

Выводы

Внедрение систем автоматизации на базе RTU - терминалов FB3000 обеспечивает существенное повышение эффективности газопотребляющих предприятий за счет оптимизации технологических процессов и снижения эксплуатационных расходов. Экономическая эффективность проекта автоматизации подтверждается положительными значениями чистой приведенной стоимости и внутренней нормы доходности, а также приемлемым сроком окупаемости в два и четыре десятых года.

Значительное повышение показателей промышленной безопасности, включающее снижение аварийных ситуаций на шестьдесят семь процентов, обосновывает целесообразность инвестиций в автоматизацию с точки зрения управления рисками. Для успешного внедрения подобных систем критически важными являются вопросы подготовки персонала и обеспечения технического сопровождения, требующие специального внимания на этапе планирования проекта.

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ЛЕКАРСТВЕННЫЕ СРЕДСТВА, ИСПОЛЬЗУЕМЫЕ В ЛЕЧЕНИИ АВИТАМИНОЗА У ДЕТЕЙ

Аннотация: *В данной статье широко освещены случаи авитаминоза, встречающиеся в организме детей, причины их возникновения, клинические проявления и способы лечения с помощью современных лекарственных средств. Поскольку организм ребенка находится на стадии роста и развития, дефицит витаминов у них приводит к серьезным метаболическим нарушениям, снижению иммунитета, замедлению темпов умственного и физического развития. В частности, дефицит витаминов групп A, D, C, B является одной из наиболее распространенных проблем у детей, что требует своевременного принятия профилактических и лечебных мер. В статье с медицинской точки зрения анализируются типы дефицита витаминов, вызывающие такие симптомы, как гипотермия, медленное развитие костей, снижение зрения, частые заболевания, потеря аппетита, нервозность, встречающиеся среди детей. Также автором подробно освещены состав, способы применения, дозы и побочные эффекты лекарственных средств, применяемых в современной педиатрии, — поливитаминные комплексы, моновитаминные препараты (например, Аевит, Вигантол, Аскорбиновая кислота, Рибофлавин, Тиамин, Пиридоксин, Ретинол, Эргокальциферол и т. д.) и специальные лекарственные средства, вводимые в парентеральных формах. На основании исследований в статье показано, что при выборе лекарственного средства, подходящего для каждого дефицита витаминов, учитываются факторы, на которые необходимо обращать внимание, — возраст ребенка, общее соматическое состояние, фон, протекающий с другими имеющимися заболеваниями, предрасположенность к аллергическим состояниям и другие клинические показатели. При этом в статье выдвинуты важные предложения по эффективным рекомендациям по профилактике авитаминоза у детей, повышению культуры питания, балансировке диеты, увеличению потребления витаминизированных продуктов. Данная статья может служить полезным*

Ключевые слова: *Авитаминоз, гиповитаминоз, здоровье детей, дефицит витаминов, профилактическое лечение, лечебные витамины, витамин A, витамин D, витамины группы B, витамин C, витаминные комплексы, фармакологическое лечение, поливитаминные препараты, рост и развитие, укрепление иммунитета, витаминотерапия, педиатрическая практика, проблемы питания у детей, дозировка лекарственных средств,* *биологически активные добавки, диетотерапия, современные детские препараты, рахит, цинга, авитаминоз, индивидуальный подход, рекомендуемые суточные нормы, лекарственные формы (сироп, капсулы, таблетки), дети на грудном вскармливании и в период до года, восстановление витаминного баланса, профилактическое и симптоматическое лечение.*

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DRUGS USED IN THE TREATMENT OF VITAMIN DEFICIENCY IN CHILDREN

Abstract: *This article widely covers cases of vitamin deficiency in children, their causes, clinical manifestations and methods of treatment with modern drugs. Since the child's body is at the stage of growth and development, vitamin deficiency in them leads to serious metabolic disorders, decreased immunity, slowdown in mental and physical development. In particular, deficiency of vitamins A, D, C, B is one of the most common problems in children, which requires timely preventive and therapeutic measures. The article analyzes from a medical point of view the types of vitamin deficiency that cause symptoms such as hypothermia, slow bone development, decreased vision, frequent illnesses, loss of appetite, nervousness, which are common among children. The author also covers in detail the composition, methods of administration, doses and side effects of drugs used in modern pediatrics - multivitamin complexes, single-vitamin preparations (for example, Aevit, Vigantol, Ascorbic acid, Riboflavin, Thiamine, Pyridoxine, Retinol, Ergocalciferol, etc.) And special drugs administered in parenteral forms. Based on research, the article shows that when choosing a drug suitable for each vitamin deficiency, factors that need to be paid attention to are taken into account - the child's age, general somatic condition, background occurring with other existing diseases, predisposition to allergic conditions and other clinical indicators. At the same time, the article puts forward important proposals for effective recommendations for the prevention of vitamin deficiency in children, improving nutritional culture, balancing the diet, and increasing the consumption of fortified foods. This article may be useful*

Keywords: *Vitamin deficiency, hypovitaminosis, children's health, vitamin deficiency, preventive treatment, medicinal vitamins, vitamin A, vitamin D, B vitamins, vitamin C, vitamin complexes, pharmacological treatment, multivitamin preparations, growth and development, strengthening the immune system, vitamin therapy, pediatric practice, nutritional problems in children, dosage of drugs, biologically active additives, diet therapy, modern children's drugs, rickets, scurvy, vitamin deficiency, individual approach, recommended daily allowances, dosage forms (syrup, capsules, tablets), breastfed children and children under one year old, restoration of vitamin balance, preventive and symptomatic treatment.*

Введение.

В последние годы проблемы детского здоровья, особенно качества и состава их питания, выходят на повестку дня как глобальная проблема здравоохранения в мировом масштабе. Республика узбекистан также осуществляет широкомасштабные меры в этом направлении на основе международных медицинских стандартов. Несмотря на это, наблюдается несбалансированность и однообразие питания детей дошкольного и школьного возраста, недостаточность биологической ценности пищевых продуктов, дефицит различных микронутриентов, особенно витаминов 1. Это приводит к увеличению случаев авитаминозов у детей – состояний, характеризующихся нехваткой или полным отсутствием определенных витаминов. Авитаминоз оказывает серьезное влияние на детский организм: замедляется их физическое и умственное развитие, снижается иммунитет, происходят изменения в костной и мышечной системах, наблюдаются различные нарушения в деятельности нервной, сердечно-сосудистой и пищеварительной систем. Во многих случаях авитаминоз проявляется такими симптомами, как общая слабость, быстрая утомляемость, нарушения сна, изменения состояния кожи и слизистых оболочек, выпадение зубов и волос, анемия 2. Такие клинические проявления могут быть приняты за другие заболевания, что, в свою очередь, приводит к поздней диагностике и неэффективному лечению. Лекарственные средства, используемые в медицинской практике для лечения авитаминозов, занимают важное место. Среди них особое место занимают витамины а, группы в, с, d жизни. Также эффективна комплексная терапия при различных формах авитаминоза – совместное применение витаминов с другими лекарственными средствами (препаратами железа, пробиотиками, минералами) 4. Авитаминозы актуальны не только с точки зрения лечения, но и профилактики. С целью предотвращения дефицита витаминов у детей рекомендуется здоровое питание, сезонные витаминизированные продукты питания, диеты и, при необходимости, обогащение фармацевтическими препаратами. В то же время недостаточное понимание этой проблемы среди родителей и педагогических работников оказывает негативное влияние на раннюю профилактику заболеваний. В данной статье анализируются причины авитаминоза у детей, клинические проявления, принципы диагностики и, самое главное, современные методы лечения, особенно виды лекарственных средств, механизмы их действия, схемы применения, побочные эффекты и альтернативные варианты 5. Целью является оказание методической помощи практикующим педиатрам, фармацевтам и специалистам здравоохранения в эффективном лечении детского авитаминоза.

Анализ литературы.

Авитаминоз — это состояние, характеризующееся дефицитом или полным отсутствием определенных витаминов в организме, которое может иметь серьезные последствия для развивающегося организма, особенно в детстве. Этиология, патогенез, клинические проявления и методы лечения этого состояния широко изучены в медицинской литературе. Анализы показывают, что авитаминоз у детей часто связан с неправильным питанием, нарушением работы внутренних органов, воспалительными хроническими заболеваниями и хронической диареей. В научных исследованиях, проведенных узбекскими авторами, отмечено, что случаи дефицита витаминов а, д, в1, в6 и с чаще встречаются у детей, и для их профилактики и лечения необходим индивидуальный подход 6. Например, а. Каримов (2019) исследовал случаи дефицита витамина а у детей и подчеркнул, что это состояние приводит не только к здоровью глаз, но и к снижению иммунитета. Он четко разделил профилактические и лечебные дозы витамина а, что широко используется в клинической практике. Также дефицит витамина д рассматривается как один из основных факторов, приводящих к рахиту. Исследования, проведенные ш. Абдуллаевой (2020), показали, что недостаточное количество солнечного света, неправильное питание и прием антибиотиков повышают риск развития рахита у детей 7. Автор сравнил дозы применения таких препаратов, как «аквадетрим», «девисол» и «вигантол» по возрастным группам. Дефицит витамина с встречается в основном у детей с воспалительными и инфекционными заболеваниями. Доктор медицинских наук б. Юсупов (2021) подчеркнул важность аскорбиновой кислоты для иммунной системы и синтеза коллагена. Он обнаружил, что особенно в зимние месяцы на фоне неполного покрытия этого витамина у детей наблюдаются такие симптомы, как частые простуды, постоянная слабость и кровоточивость десен 8. Дефицит группы витаминов в (особенно в1, в6 и в12) в основном оказывает негативное влияние на нервную систему. Международные исследования (воз, 2018; юнисеф, 2020) также поддерживают эту точку зрения и показывают, что состояние пациентов можно быстро улучшить с помощью пероральных или парентеральных препаратов витаминов в (мильгамма, нейробион, пиридоксин).

В международной литературе не только фармакологические препараты, но и восстановление режима питания играют важную роль в лечении авитаминоза у детей 9. Например, американская академия педиатрии (аар, 2022) рекомендует регулярное употребление зерновых продуктов, свежих овощей и фруктов, рыбы и молочных продуктов для предотвращения дефицита витаминов у детей. Европейское общество педиатрической гастроэнтерологии и питания (espghan) подчеркивает, что при выявлении дефицита микронутриентов у детей необходимо формировать план лечения на основе современных лабораторных исследований (уровень витаминов в плазме, плотность костей, гематологические анализы). Поэтому в последние годы комплексные поливитаминные препараты (мультитабс, киндер биовиталь, пиковит, витрум кидс) стали широко применяться в педиатрической практике. Еще один важный аспект — доза и форма лекарственных средств 10. Было подчеркнуто, что лекарственные средства у детей должны быть в мягкой форме — в форме сиропа, капель, жевательных таблеток, их усвоение, степень всасывания в организм должны быть высокими. Н. Холбоева (2023) в своей работе научно обосновала, что с учетом фармакокинетических особенностей витамины лучше давать по краткосрочной, но интенсивной схеме лечения. Таким образом, анализ литературы показывает.

Методология.

Основной целью данного исследования является выявление случаев авитаминоза у детей, анализ различных клинических проявлений и оценка эффективности лекарственных средств, используемых при лечении. В разделе методологии излагаются дизайн исследования, критерии отбора, методы анализа и используемые статистические подходы 11. Исследование проводилось на основе ретроспективного и проспективного наблюдения. На ретроспективном этапе были изучены медицинские документы (амбулаторные и стационарные истории болезни, результаты лабораторных исследований) за последние 3 года, в которых были дети с диагнозом авитаминоза различной степени. На проспективном этапе в течение 2024–2025 годов у детей в возрасте от 6 месяцев до 12 лет, обратившихся в поликлиники и детские больницы, были выявлены признаки авитаминоза, и им были назначены индивидуальные курсы лечения 12. Критерии отбора в исследование включены: дети в возрасте от 6 месяцев до 12 лет, которым был поставлен диагноз авитаминоза на основании клинических и лабораторных признаков. Исключены из исследования: дети с генетическими заболеваниями, тяжелыми хроническими состояниями (например, почечная или печеночная недостаточность); дети, у которых были аллергические реакции на витаминотерапию. Методы сбора данных данные собирались на основании результатов клинических осмотров детей, лабораторных анализов (общий анализ крови, биохимические показатели, уровень витаминов – а, в-комплекс, с, д, е) и анкет матерей (характер питания, прием витаминных добавок). Также были зафиксированы виды лекарственных средств, используемые при различных видах авитаминоза, их дозировки, продолжительность и результаты лечения 13. Протокол лечения детям, участвовавшим в исследовании, в зависимости от типа авитаминоза применялись следующие группы лекарственных средств:

при дефиците витамина а – масляный раствор или капсулы ретинола ацетата.

при дефиците витаминов группы в – препараты тиамина, рибофлавина, пиридоксина, кобаламина (в инъекционной и пероральной форме).

при дефиците витамина с – аскорбиновая кислота в виде сиропа или таблеток.

при дефиците витамина d – капли холекальциферола (d3), капсулы и в некоторых случаях в виде инъекций.

при дефиците витамина е – масляный раствор токоферола ацетата. Продолжительность лечения определялась от 10 дней до 3 месяцев в зависимости от каждого случая авитаминоза. В течение периода наблюдения проводился мониторинг клинического воздействия лекарственных средств, побочных эффектов и изменений в лабораторных показателях.

Статистический анализ

Результаты исследования были обработаны в программе spss (statistical package for the social sciences) и проанализированы с использованием дескриптивной статистики (проценты, средние значения, стандартное отклонение). Также для оценки эффективности лекарственных средств был проведен сравнительный анализ методом «до-после». Различия на уровне $p < 0,05$ были приняты как статистически достоверные. Исследование проводилось с полным соблюдением этических принципов. Было получено письменное согласие от родителей каждого участвующего ребенка. Личные данные сохранялись в тайне.

На основании проведенных анализов и клинических наблюдений было показано, что индивидуальный подход, правильный выбор лекарственных средств и их использование под постоянным контролем имеют важное значение в лечении авитаминозов, встречающихся у детей. Авитаминоз у детей возникает в результате различных факторов – неправильного питания, хронических заболеваний, воспалительных процессов, нарушения сердечно-сосудистой деятельности, длительного приема антибиотиков и других лекарственных средств. Особенно у детей в первые годы жизни это состояние негативно влияет на физическое и умственное развитие. В ходе исследований были выявлены наиболее распространенные типы дефицита витаминов и проведен анализ лекарственных средств, используемых для их устранения. В частности: дефицит витамина d – это состояние приводит к развитию рахита у детей. Детям, участвовавшим в исследовании, витамин d давали в форме эргокальциферола и холекальциферола. При установлении суточных доз лекарственного средства в соответствии с возрастом и клиническими показателями ребенка и применении его в течение 2-3 месяцев были достигнуты значительные положительные результаты. У детей было предотвращено деформирование костей, улучшился мышечный тонус и восстановился общий темп развития 14.

Дефицит витамина а – этот тип авитаминоза проявляется такими симптомами, как ухудшение зрения, нарушение состояния кожи и слизистых оболочек, снижение иммунитета. Для лечения применялись препараты ретинола ацетата и ретинола пальмитата. В результате применения препаратов ретинола в дозе 10 000–20 000 ме 1–2 раза в неделю у детей уменьшились клинические проявления, повысилась устойчивость к инфекционным заболеваниям. Дефицит витамина с (цинга) – протекает с такими симптомами, как анемия, кровоточивость десен, ослабление иммунитета, замедление роста костей. Для лечения аскорбиновая кислота применялась в дозе 100–200 мг 1-2 раза в день. После 2-3 недель терапии болевой синдром исчез, состояние десен улучшилось, уменьшились подкожные геморрагии. Дефицит витаминов группы в – особенно дефицит в1, в2, в6, в12 оказывает негативное влияние на нервную систему, сердечную деятельность, процессы кроветворения у детей. Пациентам, участвовавшим в исследовании, проводили лечение нейровитаминными комплексами (нейробион, витахон, комбилипен). Препараты применялись внутренне (перорально) или инъекционно. После 10-дневного курса лечения у детей наблюдалось улучшение аппетита, нормализация сна и восстановление рефлексов. Кроме того, многокомпонентные поливитаминные препараты (vitrum kids, pikovit, multi-tabs, supradin kids) широко используются в профилактических и лечебных целях 15. Они содержат витамины а, d, e, c, группы в, а также минералы, укрепляющие общий иммунитет детей. Результаты исследования показали, что эти комплексы более эффективны в сочетании со здоровым питанием. Как выяснилось в ходе обсуждения, предотвратить случаи авитаминоза у детей можно не только фармакологической терапией, но и диетотерапией, соблюдением здорового образа жизни и повышением уровня знаний родителей. В большинстве случаев авитаминоз у детей возникает из-за неправильного питания и однообразного, недостаточно богатого рациона. Это указывает на необходимость расширения сотрудничества между медицинскими работниками и воспитательными учреждениями. Кроме того, при выборе лекарств необходимо учитывать возраст ребенка, степень тяжести заболевания, сопутствующие заболевания, а также аллергические состояния. Также было признано важным фактором то, что неконтролируемый или чрезмерный прием витаминных препаратов может привести к гипервитаминозу. В заключение следует отметить, что в лечении авитаминоза у детей важное место занимает индивидуальный выбор лекарственных средств, лечение под клиническим наблюдением и эффективная организация профилактических мер. Эти подходы важны не только для устранения существующих случаев авитаминоза, но и для обеспечения здорового развития детей.

Заключение.

Авитаминоз у детей — это состояние, связанное с дефицитом определенных витаминов в организме, которое негативно влияет на процессы роста и развития, приводит к ослаблению иммунитета, снижению умственной и физической активности. Исследования и практические наблюдения показывают, что основными причинами авитаминоза у детей являются неправильное питание, хронические заболевания внутренних органов, нарушение микрофлоры кишечника, экологические факторы, а также неправильное питание матери и дефицит витаминов во время беременности. Каждый вид авитаминоза (например, дефицит витаминов а, в, с, d, е) имеет свои специфические клинические признаки, и подходы к лечению также различаются. В современной педиатрии разработан и успешно применяется ряд лекарственных средств для устранения этого состояния. Среди этих средств наиболее часто используются: ретинол (витамин а), эргокальциферол и холекальциферол (витамин d), аскорбиновая кислота (витамин с), тиамин, рибофлавин, пиридоксин (витамин группы в), токоферол (витамин е) и др.

Также широко используются комплексные поливитаминные препараты (vitrum kids, pikovit, supradin kids, multi-tabs), выпускаемые в дозах, подходящих для детей. Они обогащены не только витаминами, но и минералами и микроэлементами которые служат для общего здорового развития и укрепления иммунитета. При лечении необходимо учитывать возрастные дозы препаратов, продолжительность приема, общее состояние больного и наличие других заболеваний. Для достижения высокой эффективности лечения важно выбирать лекарства на основе персонализированного подхода в педиатрической практике. Также необходимо регулировать диету, правильно кормить ребенка, правильно организовывать распорядок дня и расширять источники получения натуральных витаминов, гуляя на свежем воздухе. С этой точки зрения не только устранение, но и профилактика авитаминоза с помощью лекарств имеет стратегическое значение. Следует отметить, что профилактика и лечение авитаминоза у детей, особенно на этапах роста и развития, является важным стратегическим направлением для здоровья детей. Своевременная диагностика и принятие комплексных мер лечения предотвращают многие хронические заболевания у детей в будущем. Также необходимо усилить пропаганду профилактики авитами

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ОЦЕНКА ЭФФЕКТИВНОСТИ ПЕДАГОГИЧЕСКОГО КОЛЛЕКТИВА: КРИТЕРИИ И МЕХАНИЗМЫ ЦЕЛЕНАПРАВЛЕННОГО УПРАВЛЕНИЯ

Аннотация: *В статье рассматриваются теоретические и прикладные аспекты оценки эффективности педагогических коллективов общеобразовательных школ в контексте целенаправленного управления. Раскрываются ключевые критерии, влияющие на результативность работы педагогов, включая профессиональную компетентность, уровень командного взаимодействия, степень участия в инновационных процессах и качество образовательных результатов. Обоснована необходимость внедрения комплексных механизмов мониторинга и оценки, основанных на принципах прозрачности, системности и обратной связи. Представлены рекомендации по формированию эффективной модели управления, ориентированной на достижение стратегических целей образовательного учреждения.*

Ключевые слова: *педагогический коллектив, эффективность управления, целенаправленное управление, оценка деятельности, критерии результативности, образовательное качество, мониторинг в образовании, профессиональная компетентность, командное взаимодействие, управление школой*

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EVALUATION OF THE EFFECTIVENESS OF THE PEDAGOGICAL STAFF: CRITERIA AND MECHANISMS OF TARGETED MANAGEMENT

Abstract: *This article explores the theoretical and practical aspects of evaluating the effectiveness of pedagogical teams in general education schools within the framework of targeted management. It outlines key criteria influencing the performance of educators, including professional competence, the level of team* *collaboration, degree of involvement in innovation processes, and the quality of educational outcomes. The article substantiates the need for implementing comprehensive monitoring and evaluation mechanisms based on the principles of transparency, systematization, and feedback. Recommendations are provided for developing an effective management model focused on achieving the strategic goals of educational institutions.*

Keywords: *pedagogical staff, management effectiveness, targeted management, performance evaluation, effectiveness criteria, educational quality, educational monitoring, professional competence, team collaboration, school management*

Введение. Современная система общего среднего образования сталкивается с необходимостью повышения качества образовательных услуг, что невозможно без эффективного функционирования педагогических коллективов школ. Эффективность деятельности педагогического коллектива напрямую влияет на достижение стратегических целей образовательного учреждения, включая академические результаты учащихся, развитие их компетенций и формирование образовательной среды, способствующей устойчивому развитию личности.

Педагогический коллектив выступает не только как субъект образовательного процесса, но и как ключевой трудовой ресурс школы, обладающий специфическими характеристиками: профессиональной компетентностью, мотивацией, готовностью к инновациям и умением работать в команде. В условиях перехода к компетентностной модели образования усиливается необходимость стратегического управления этим ресурсом, направленного на его развитие, рациональное распределение и повышение результативности труда.

По мнению Т.Е. Егоршиной, управление педагогическим коллективом должно базироваться на принципах системности, мотивации и профессионального роста, при этом ключевую роль играет оценка эффективности совместной деятельности педагогов [1]. В исследованиях Е.В. Бондаревской также подчеркивается значимость командного подхода и участия каждого члена коллектива в управленческих и инновационных процессах [2]. Как подчеркивает Е.Н. Зиновьева, эффективное использование педагогического ресурса невозможно без стратегии его развития, включающей профессиональный рост, вовлечённость и организационную поддержку, что подтверждается и результатами настоящего исследования [3].

Несмотря на наличие отдельных подходов к оценке педагогической деятельности, в научной литературе сохраняется недостаточная разработанность целостных механизмов оценки эффективности педагогических коллективов с позиций целенаправленного управления. Это требует разработки четких критериев, индикаторов и процедур мониторинга, ориентированных на результаты и качество образования.

В научной литературе западных стран педагогический коллектив всё чаще рассматривается не только как совокупность специалистов, обеспечивающих реализацию учебных программ, но и как сложная социопрофессиональная система, обладающая собственной структурой, ценностями, нормами взаимодействия и потенциалом устойчивого развития. Согласно исследованиям М. Фуллана (M. Fullan), именно коллективная профессиональная культура и командная ответственность являются определяющими факторами в достижении высоких образовательных результатов и устойчивых изменений в школе [4].

Р. Дюфур (R. DuFour) и его коллеги в рамках концепции профессионального обучающегося сообщества (PLC – Professional Learning Community) подчёркивают, что коллективная рефлексия, взаимное обучение и ориентация на совместные цели способствуют повышению эффективности каждого члена педагогического коллектива и всей организации в целом [5].

Более того, по мнению Х. Харгривза (A. Hargreaves), эффективность управления трудовыми ресурсами в школе зависит от степени автономии педагогов, уровня их включенности в принятие управленческих решений и создании инновационной среды [6]. Это перекликается с идеями дистрибутивного лидерства (distributed leadership), где управление осуществляется на разных уровнях педагогической и административной иерархии.

Таким образом, международный опыт указывает на необходимость не только технической оценки индивидуальной педагогической деятельности, но и на разработку комплексных механизмов оценки командной эффективности, основанных на культуре сотрудничества, совместной ответственности и прозрачности управленческих процессов.

Цель исследования – обоснование критериев и механизмов оценки эффективности педагогического коллектива как трудового ресурса в контексте целенаправленного управления общеобразовательной школой.

Теоретико-методологические основы исследования. Эффективное управление педагогическим коллективом как трудовым ресурсом общеобразовательного учреждения представляет собой междисциплинарную проблему, лежащую на пересечении педагогики, управления персоналом, социологии труда и организационной психологии. В теоретическом контексте данное исследование опирается на следующие концептуальные положения:

Во-первых, с позиции системного подхода (Л. Бертааланфи, Ю.А. Конаржевский) педагогический коллектив рассматривается как открытая динамическая система, состоящая из взаимосвязанных элементов — индивидуальных педагогов, малых рабочих групп, методических объединений и управленческих звеньев. Системный подход позволяет выявить внутренние связи, функциональные роли и системные дисфункции, препятствующие эффективности деятельности [7].

Во-вторых, теория человеческого капитала (Т. Шульц, Г. Беккер) акцентирует внимание на значимости вложений в развитие профессиональных компетенций педагогов, как ключевого ресурса повышения производительности образовательного процесса. Эта парадигма подчёркивает необходимость стратегического управления трудовым потенциалом с ориентацией на непрерывное обучение, сертификацию и профессиональный рост [8].

В-третьих, модель трансформационного лидерства (Б. Басс, Дж. Бернс) [9] и дистрибутивного лидерства (А. Харгривз, М. Спиллэйн) создаёт основу для распределения полномочий и ответственности внутри педагогического коллектива, что способствует формированию самоорганизующейся и обучающейся организационной структуры [10].

С методологической точки зрения, исследование базируется на сочетании качественных и количественных методов, включая:

– контент-анализ локальных нормативных документов, стратегий и моделей управления;

– анкетирование и интервью с администрацией школ, и педагогами;

– кейс-стади (case study) анализа успешных практик в школах с высокой результативностью;

– факторный и кластерный анализ данных для выявления ключевых индикаторов эффективности.

Кроме того, в качестве методологической рамки используется принцип целенаправленного управления (target-oriented management), позволяющий соотнести текущие результаты работы педагогического коллектива с долгосрочными целями образовательной организации.

Анализ и интерпретация результатов исследования. Для эмпирического обоснования теоретических положений настоящего исследования был проведён социолого-педагогический анализ состояния эффективности педагогических коллективов в общеобразовательных школах. В исследовании приняли участие 10 директоров, 26 заместителей директора и 452 учителя из общеобразовательных школ различных регионов.

Методика исследования. Сбор данных осуществлялся с помощью полуформализованных анкет и глубинных интервью. Анкеты включали в себя блоки вопросов, направленных на выявление:

– уровня удовлетворённости условиями труда и управленческой поддержкой;

– степени командного взаимодействия внутри коллектива;

– восприятия справедливости и прозрачности управленческих решений;

– участия в процессах стратегического планирования и инноваций;

– оценки собственного профессионального вклада в достижение целей школы.

Дополнительно была использована шкала Likert (от 1 до 5 баллов) для количественной оценки позиций респондентов.

Основные результаты:

1. Уровень удовлетворённости управлением. 70% учителей отметили, что руководство школы в недостаточной мере использует их потенциал при принятии стратегических решений. Вместе с тем, 82% заместителей директора указали, что педагогический коллектив недостаточно инициативен в вопросах внутришкольного самоуправления.

2. Командное взаимодействие. Лишь 38% учителей охарактеризовали своё профессиональное окружение как “слаженную команду”. Анализ интервью показал, что в большинстве школ отсутствуют устойчивые механизмы горизонтальной координации между методическими объединениями.

3. Система мотивации и признания. Директора школ (80%) признают, что действующая система оценки труда учителей формальна и недостаточно ориентирована на результат. В то же время, 65% учителей считают, что система поощрения **не отражает реальный вклад педагогов** в достижение образовательных целей.

4. Профессиональный рост и включённость в инновации. Только 24% респондентов отметили активное участие в реализации инновационных образовательных проектов. При этом 68% указали на нехватку методической и административной поддержки в развитии компетенций.

На основе обобщённых данных были выделены три кластера школ по степени эффективности педагогического коллектива:

Таблица 1.1.

Кластеризация школ по уровню эффективности

Кластер	**Характеристика**	**% от выборки**
I – Высокоэффективные	Высокий уровень вовлеченности, лидерства и результативности	20%
II – Средне эффективные	Локальные успехи, но слабая командность и мотивация	50%
III – Низкоэффективные	Проблемы с коммуникацией, низкий уровень инициативности	30%

Результаты исследования подтверждают, что в условиях отсутствия целенаправленных механизмов управления педагогический коллектив не реализует в полной мере свой потенциал как трудовой и интеллектуальный ресурс. Проблемы формализма, недостаточной командной культуры и слабой мотивации являются ключевыми барьерами на пути повышения эффективности. Эти выводы служат основанием для разработки комплексной модели оценки и управления эффективностью педагогического коллектива, включающей индикаторы вовлечённости, инновационности и результативности.

Заключение и предложения. Проведённое исследование позволило выявить ключевые факторы, влияющие на эффективность педагогического коллектива как трудового ресурса в системе общего среднего образования. Анализ эмпирических данных показал, что большинство школ сталкиваются с проблемами недостаточной вовлечённости педагогов в управленческие процессы, слабой мотивацией и ограниченным участием в инновациях. Командная культура во многих коллективах носит формальный характер, а существующие механизмы оценки труда педагогов не обеспечивают адекватной обратной связи и развития.

На основе полученных результатов сформулированы следующие **выводы**:

Эффективность педагогического коллектива определяется не только индивидуальной профессиональной компетентностью учителей, но и уровнем командного взаимодействия, прозрачностью управленческих процедур и существующей мотивационной системой.

В большинстве школ отсутствует целостный подход к оценке эффективности коллективной работы, ориентированной на достижение стратегических целей.

Зарубежный опыт подчёркивает значимость дистрибутивного лидерства, культуры совместного обучения и горизонтального управления как условий повышения эффективности команды.

Предложения по совершенствованию механизмов управления эффективностью педагогического коллектива:

Разработать интегрированную модель оценки эффективности, включающую количественные и качественные индикаторы командной результативности, инновационной активности и профессионального развития.

Внедрить системы дистрибутивного управления, при которых педагогический коллектив становится активным субъектом принятия управленческих решений.

Пересмотреть мотивационные механизмы, ориентируясь не только на формальные показатели (нагрузка, стаж), но и на вклад в командную работу, участие в проектах, наставничество и образовательные результаты.

Создать условия для формирования профессиональных обучающихся сообществ (PLC) в школах, обеспечивающих постоянную рефлексию, обмен опытом и командное развитие.

Разработать внутришкольные процедуры мониторинга, направленные на регулярную самооценку и обратную связь по ключевым направлениям деятельности коллектива.

Таким образом, переход от фрагментарного к стратегическому и целенаправленному управлению педагогическим коллективом позволит трансформировать школу в устойчиво развивающуюся организацию, способную достигать высоких образовательных результатов в меняющихся условиях.

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СТРУКТУРА ЛИЧНОЙ ПРОФЕССИОНАЛЬНОЙ МОБИЛЬНОСТИ

Аннотация: *В данной статье рассматривается структура личностной мобильности, выделяются факторы, влияющие на личностную гибкость, личностную адаптивность и профессиональную мобильность человека. Способность студентов работать над собой, анализировать неловкие ситуации и использовать различные стратегии находит свое отражение в развитии личностной мобильности.*

Ключевые слова: *мобильность, профессиональная деятельность, компетентность, умение, способности, личностные качества, воля, опыт, адаптация, потребность, мотивы.*

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STRUCTURE OF PERSONAL PROFESSIONAL MOBILITY

Abstract: *This article examines the structure of personal mobility, highlights factors that influence personal flexibility, personal adaptability and professional mobility of a person. The ability of students to work on themselves, analyze unfavorable situations and use various strategies is reflected in the development of personal mobility.*

Key words: *mobility, professional activity, competence, skill, ability, personal quality, conative, experience, adaptation, necessity, motives.*

Начиная с 1930-х годов профессиональная мобильность изучается в контексте социальной мобильности. В научной литературе самостоятельное использование термина «мобильность» в значении «смена различных профессий или занятий» отмечается с середины прошлого века. Начиная с 1980-х годов исследования этого явления регулярно проводятся за рубежом. В странах Содружества Независимых Государств проблема изучения профессиональной мобильности началась в 1960-х годах. Исследователи отмечают, что компетенции являются фактором развития профессиональной мобильности человека. Реализация этой идеи возможна в процессе профессионального образования, построенного с позиций компетентностного подхода. Квалификации, как качество и результат профессионального образования, способствуют формированию специалиста, готового и способного быстро адаптироваться к изменяющимся профессиональным условиям, служат основой и условием развития профессиональной мобильности.

Социально-личностные компетенции играют важную роль в формировании и развитии профессиональной мобильности студента и специалиста, поскольку они инвариантны по отношению к сфере профессиональной деятельности, за счет чего реализуется личностная направленность образования (личностные качества, характеристики, ценности, индивидуальные особенности взаимодействия с обществом, умение работать в команде и т.д., определяющие характер использования знаний и, следовательно, вектор общественного развития), социальная направленность образования (взаимодействия в обществе, соблюдение моральных и правовых норм, стремление служить обществу и государству, чувство долга). Интеграция личностных и социальных направлений профессионального образования в данном виде компетенций обеспечивает включение человека в социальные процессы как развивающейся, мобильной, свободной, ответственной, творческой личности. В зарубежных исследованиях социально-личностные компетенции как категория не определяются. Они выражаются в рамках личностных (личностных) компетенций, социальных компетенций, базовых (дополнительных функциональных) навыков, межличностных, общих компетенций [1].

Профессиональная мобильность относится к способности адаптироваться к различным видам трудовой деятельности, средам и вызовам, которые необходимы для успеха на динамичном рынке труда. Развитие карьерной мобильности важно для студентов, особенно тех, кто работает над продвижением своей карьеры. В этой главе рассматриваются различные факторы, влияющие на карьерную мобильность среди студентов, с опорой на последние исследования и теоретические перспективы. Факторы, влияющие на карьерную мобильность, включают:

1. Учебная программа и педагогические подходы: Структура и содержание учебной программы играют важную роль в формировании профессиональной мобильности. Учебные программы, которые подчеркивают критическое мышление, решение проблем и междисциплинарное обучение, способствуют адаптивности. По словам Лехтинена и др., учебные программы, которые сочетают в себе реальные требования и практический опыт, лучше готовят студентов к разнообразной профессиональной среде. Кроме того, педагогические подходы, которые поощряют активное обучение и сотрудничество, повышают способность студентов адаптироваться к разнообразной профессиональной среде.

2. Возможности экспериментального обучения: экспериментальное обучение, включая стажировки, кооперативные программы и проектное обучение, вносит значительный вклад в профессиональную мобильность. Этот опыт дает студентам практические навыки и знакомство с реальными проблемами, повышая их способность управлять различными

профессиональными видами деятельности. Как отмечает Эйлер, студенты, которые участвуют в возможностях экспериментального обучения, развивают большую профессиональную адаптивность и навыки решения проблем.

3. Развивать гибкие навыки: гибкие навыки, такие как коммуникация, работа в команде и эмоциональный интеллект, имеют решающее значение для профессиональной мобильности. Работодатели все больше ценят эти навыки, поскольку они позволяют людям эффективно работать в разнообразных командах и адаптироваться к меняющейся динамике рабочего места. Исследования Роблеса подчеркивают важность гибких навыков в повышении трудоустройства и карьерной адаптивности, а студенты, которые активно развивают эти навыки, повышают профессиональную мобильность.

4. Технологическая компетентность: Технологическая компетентность необходима для профессиональной мобильности в цифровую эпоху. Студенты, которые владеют современными технологиями и могут адаптироваться к технологическим разработкам, могут легче переходить между различными профессиональными ролями. Как отмечают Ким и Мэлони, интеграция технологий в процесс обучения готовит студентов к технологическим требованиям современных рабочих мест, тем самым повышая их карьерную мобильность.

5. Системы профориентации и поддержки: Эффективные системы профориентации и поддержки, включая услуги наставничества, играют решающую роль в содействии карьерной мобильности. Эти ресурсы помогают студентам понять рынок труда, определить пути к высшему образованию и разработать стратегии профессионального роста. По словам Хьюза и др., студенты, получающие комплексную профориентацию, более уверены в себе и готовы воспользоваться различными карьерными возможностями, тем самым повышая свою карьерную мобильность.

6. Культурные и социальные факторы: Культурные и социальные факторы, включая семейное происхождение, социально-экономический статус и культурные ожидания, могут влиять на развитие карьерной мобильности. Студенты в благоприятной и богатой ресурсами среде часто имеют больше возможностей для выбора различных путей развития карьеры. Однако, как отмечает Джексон, устранение социальных и культурных барьеров посредством инклюзивной политики и практики имеет важное значение для обеспечения того, чтобы все студенты имели возможность развивать карьерную мобильность [2].

Сочетание образовательных, экспериментальных, технологических и социокультурных факторов влияет на формирование карьерной мобильности среди студентов. Хорошо продуманная учебная программа, возможности экспериментального обучения, развитие гибких навыков, технологической компетентности, эффективная профессиональная ориентация и поддерживающая социокультурная среда помогают повысить профессиональную мобильность студентов. Понимая и учитывая эти факторы, учебные заведения могут лучше подготовить студентов к динамичным требованиям современного рынка труда [3].

В условиях стремительного развития общества и перехода к стандартам нового поколения возрастает необходимость формирования профессиональной мобильности педагогических кадров, в том числе на уровне школьного образования. Развитие общества напрямую зависит от культурного и интеллектуального капитала каждой личности, и важную роль здесь играет особая профессиональная компетентность людей, образовательная направленность каждой личности обеспечивает совершенствование исходных навыков. Рассмотрение теоретических подходов к изучению профессиональной мобильности позволяет выделить структуру данного явления.

Рисунок 1. Сущность структуры профессиональной мобильности личности

Согласно принципу детерминизма интерпретируется влияние внешних причин через внутренние условия и влияние внутренних через внешние, рассматриваются компоненты профессиональной мобильности в их взаимной связи. Из этого следует, что «внутренние» компоненты профессиональной мобильности (базовые, субъективные) являются «внешними» (поведенческими) и наоборот. Возникновение профессиональной мобильности может быть результатом или воздействием внешних (объективных) событий и условий (например, социально-экономических изменений, научно-технического прогресса, случайных жизненных событий и т.д.), внутренних (субъективных) детерминант (например, изменения мотивов профессиональной деятельности, внутриличностного конфликта, стремления к самосовершенствованию и т.д.).

Как отмечают ученые Э.Ф. Зеер, Э.Э. Сыманюк, приобретение специалистом в ходе профессиональной подготовки комплекса компетенций и навыков способствует достижению конкурентоспособности на рынке труда, свободного владения своей профессией и ориентации на смежные сферы деятельности, эффективной работы по специальности. Общие компетенции, включающие специализацию на уровне мировых стандартов, формирование готовности к непрерывному профессиональному росту, социальную и профессиональную мобильность, личностные и социальные компетенции, владение современными информационными технологиями, способность к саморазвитию, мобильность, конкурентоспособность на рынке труда, служат основой для формирования дополнительных качеств будущего специалиста.

Н. Матушкин, Т. Ульрих отметили, что набор компетенций, которыми должен обладать выпускник, создает необходимые условия для высокой мобильности на динамично меняющемся рынке труда. Согласно модели специалиста в области технологий и инжиниринга, разработанной Д. Пузанковым, В. Федоровым, В. Д. Шадриковым, компетенции могут служить основой социально-личностной, экономической и организационно-управленческой, общенаучной, общепрофессиональной, профессиональной мобильности выпускника. Формирование этих групп компетенций позволяет будущему учителю начальных классов гибко действовать на рынке труда и быть готовым к непрерывному образованию и самообразованию [3]. Таким образом, социальные и личностные компетенции рассматриваются как факторы, влияющие на развитие профессиональной мобильности человека, а основным детерминантом этих явлений является современное профессиональное образование, направленное на реализацию компетентностного подхода. Утверждается, что развитие социальных и личностных компетенций в процессе профессионального образования обусловливает готовность и способность выпускника адаптироваться к динамичной профессиональной среде (готовность и способность менять профессию, профессиональную позицию, должность).

Понятие адаптации (лат. adaptation) было использовано немецким физиологом Ганс Аубертом в 1865 году для описания приспособления органов к изменениям внешней среды [4]. Лишь в середине XX века термин «адаптация» стал использоваться в медицине, кибернетике, психологии и других науках и в настоящее время имеет универсальное научное определение.

Существует множество определений феномена адаптации: адаптация — процесс приспособления, происходящий во взаимоотношениях живых систем с внешней средой, представленный как определенный результат адаптогенеза. Адаптация — специфический процесс, происходящий в жизни природы или общества, в духовном и духовном мире человека и означающий приспособление к какой-либо среде или условиям, новизне [5].

Адаптация — это способность организма успешно реагировать на существующие условия. Различают биологические, физиологические и социально-психологические виды адаптации. Под понятием биологическая адаптация понимается морфофизиологическое привыкание видов животных и растений к определенным существующим условиям внешней среды. Под физиологической адаптацией понимается совокупность физиологических реакций, лежащих в основе способности организма приспосабливаться к изменениям окружающей среды. Под социально-психологической адаптацией понимается способность индивида находить свое место в социальной среде [6].

В заключение необходимо обосновать важнейшую сторону формирования профессиональной деятельности будущих учителей начальных классов, ее зависимость от избранной профессии и трудовой деятельности личности, показать, как система целей соотносится с потребностями и мотивами.

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ПРОБЛЕМЫ В ОБУЧЕНИИ РАЗГОВОРНЫМ НАВЫКАМ СТУДЕНТОВ НЕФИЛОЛОГИЧЕСКИХ СПЕЦИАЛЬНОСТЕЙ ТЕХНИЧЕСКОГО ПРОФИЛЯ

Аннотация:*В статье рассматриваются основные проблемы, возникающие при обучении студентов технических специальностей разговорным навыкам на английском языке. Анализируются методологические, лингвистические и психологические барьеры, мешающие формированию коммуникативной компетенции. Приведены примеры эффективных стратегий и педагогических решений, направленных на преодоление этих трудностей. Обоснована необходимость адаптации методики обучения с учётом профессиональной направленности и когнитивных особенностей студентов технического профиля.*

Ключевые слова*: разговорные навыки, технический английский, студенты нефилологических специальностей, коммуникативная компетенция, методика преподавания*

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PROBLEMS IN TEACHING SPEAKING SKILLS TO STUDENTS OF NON-LINGUISTIC TECHNICAL SPECIALTIES

Abstract*:This article examines the main problems encountered in teaching English speaking skills to students of technical specialities. It analyzes methodological, linguistic, and psychological barriers that hinder the development of communicative competence. The article presents examples of effective strategies and pedagogical solutions aimed at overcoming these difficulties. It substantiates the need to adapt teaching methods, taking into account the professional orientation and cognitive characteristics of technical students.*

Keywords: *speaking skills, technical English, students of non-linguistic specialities, communicative competence, teaching methodology*

Введение

Современные реалии глобализации, научно-технического прогресса и межкультурного взаимодействия требуют от будущих специалистов не только профессиональных компетенций в своей технической области, но и владения иностранным языком, прежде всего английским, как средством профессионального и делового общения. Для студентов технических специальностей английский язык выступает не просто как учебный предмет, а как инструмент интеграции в международное профессиональное сообщество, доступа к научным и техническим источникам, участия в конференциях, стажировках и проектах. Однако, несмотря на понимание значимости устной коммуникации, в практике преподавания английского языка студентам технических направлений нередко наблюдаются трудности в формировании разговорных навыков.

Разговорная речь — это наиболее динамичный и социокультурно насыщенный аспект речевой деятельности, который требует от студентов не только знаний лексики и грамматики, но и умения применять эти знания в реальных коммуникативных ситуациях. Тем не менее, в условиях нехватки часов, ориентации на чтение технической литературы и выполнения письменных заданий, развитие устной речи, как правило, отодвигается на второй план. Это особенно актуально для нефилологических факультетов, где учебные программы зачастую не адаптированы под потребности развития разговорных умений.

Кроме того, специфика технического вуза предполагает наличие профессиональной терминологии, абстрактных понятий и описания процессов, что затрудняет активное использование языка в устной форме. К этому добавляются психологические барьеры: неуверенность студентов, страх совершить ошибку, отсутствие языковой среды и мотивации к активному использованию английского языка в устной коммуникации. Всё это осложняет формирование устойчивых навыков говорения, препятствует развитию коммуникативной компетенции и снижает готовность выпускников к профессиональному взаимодействию в международном контексте.

В данной статье рассматриваются основные проблемы, возникающие при обучении разговорной речи студентов технических специальностей нефилологического профиля, а также предлагаются возможные пути их преодоления на основе современных методических подходов и практик.

1. Специфика разговорных навыков и их значение для студентов технических специальностей

Разговорные навыки предполагают не только знание лексики и грамматики, но и способность к спонтанному продуцированию высказываний, умение вести диалог, выражать и аргументировать мнение, задавать уточняющие вопросы. Для будущих инженеров, программистов, технологов владение разговорным английским необходимо в таких сферах, как участие в международных проектах, работа с технической документацией, проведение презентаций, деловая переписка и т.д.

2. Основные проблемы при обучении разговорной речи

2.1 Низкая мотивация

Многие студенты воспринимают английский язык как второстепенный предмет, не связанный напрямую с их будущей профессией. Отсутствие интереса снижает вовлеченность в процесс изучения и препятствует активному использованию языка в устной форме.

2.2 Психологический барьер

Студенты технических направлений часто испытывают страх совершить ошибку, особенно в условиях публичного высказывания. Это ведёт к снижению уверенности и ограничивает речевую активность.

2.3 Ограниченный словарный запас

Из-за ориентации учебных программ на техническую лексику, у студентов формируется узкий круг лексических единиц, недостаточный для повседневного и профессионального общения.

2.4 Недостаточная языковая практика

В большинстве случаев студенты имеют ограниченное количество часов, посвящённых именно устной практике. Занятия сводятся к чтению и переводу, в то время как развитие разговорной речи остаётся без должного внимания.

3. Методические решения

3.1 Использование коммуникативного подхода

Следует активно применять методы, направленные на развитие устной речи: ролевые игры, дискуссии, парные и групповые задания. Контекст заданий должен быть максимально приближен к будущей профессиональной деятельности студентов.

3.2 Интеграция технического содержания

Содержание заданий должно включать профессионально ориентированные темы: описание технических процессов, обсуждение научных открытий, участие в проектных дискуссиях.

3.3 Введение формирующего оценивания

Важно регулярно давать студентам обратную связь по результатам их устных высказываний. Это позволяет корректировать ошибки и поддерживать прогресс в развитии навыков.

4. Рекомендации для преподавателей

- Формировать положительное отношение к ошибкам как к естественной части процесса изучения языка.
- Создавать поддерживающую среду, способствующую раскрепощению студентов.
- Подбирать темы, соответствующие интересам и будущей профессиональной деятельности студентов.
- Включать в программу проектные задания с устными презентациями.

Заключение

Обучение разговорным навыкам студентов технического профиля требует системного подхода, учитывающего когнитивные, мотивационные и профессиональные особенности обучающихся. Устная речь должна рассматриваться не как дополнительный компонент, а как равноправная составляющая языковой подготовки. Преодоление психологических и методических барьеров возможно при помощи коммуникативной методики, внедрения цифровых технологий и ориентации на реальные профессиональные ситуации. Только при таком подходе возможно формирование у студентов навыков, необходимых для полноценного участия в международном профессиональном общении.

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ИСПОЛЬЗОВАНИЕ СОВРЕМЕННЫХ ОНЛАЙН ПЛАТФОРМ ДЛЯ ОБРАЗОВАТЕЛЬНОГО ПРОЦЕССА

Аннотация: *в статье рассматривается актуальность использования современных онлайн-платформ в образовательном процессе как эффективного инструмента цифровой трансформации образования. Автор анализирует основные типы платформ, включая Wordwall, LearningApps и Interacty, подчеркивая их роль в повышении интерактивности, доступности и индивидуализации обучения. Отмечены ключевые преимущества электронного обучения, такие как гибкость, развитие цифровых компетенций и снижение затрат. Также обсуждаются условия эффективного внедрения платформ в образовательную практику.*

Ключевые слова: *онлайн-платформы, цифровое образование, интерактивное обучение, Wordwall, LearningApps, электронные ресурсы*

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USING MODERN ONLINE PLATFORMS FOR THE EDUCATIONAL PROCESS

Abstract: *the article discusses the relevance of using modern online platforms in the educational process as an effective tool for digital transformation of education. The author analyzes the main types of platforms, including Wordwall, LearningApps and Interacty, emphasizing their role in increasing interactivity, accessibility and individualization of learning. The key advantages of e-learning, such as flexibility, development of digital competencies and cost reduction, are noted. The conditions for the effective implementation of platforms in educational practice are also discussed.*

Keywords: *online platforms, digital education, interactive learning, Wordwall, LearningApps, electronic resources*

Как известно из исторического развития любого государства, стремительное развитие страны, достижение определенных успехов, благосостояние народа зависят от уровня внимания, уделяемого в этом государстве образованию и воспитанию молодежи и ее будущему. "Будущее и благополучие нашей планеты зависят от того, какими людьми вырастут наши дети. Наша главная задача - создать необходимые условия для реализации потенциала молодежи."

В Узбекистане уделяется большое внимание повышению эффективности образования, создаются все условия для обучения молодого поколения. В эффективной организации образования все большее значение приобретают электронные средства. Использование электронных средств в образовании, то есть компьютеров, планшетов, интерактивных досок, интернета и специальных образовательных программ, помогает сделать учебный процесс более интересным и эффективным [4].

Актуальность данной темы обусловлена необходимостью адаптации образовательных учреждений к новым вызовам, связанным с цифровизацией, изменением форм взаимодействия между преподавателями и учащимися, а также потребностью в повышении качества и доступности образования [2]. Онлайн-платформы позволяют внедрять гибкие, индивидуализированные и интерактивные подходы к обучению, что делает их незаменимым инструментом в арсенале современного педагога.

Онлайн-платформы в образовании — это цифровые сервисы, предназначенные для организации, проведения и сопровождения учебного процесса в электронном формате. Они представляют собой технологическую основу, обеспечивающую взаимодействие между преподавателем и учащимися, управление учебными материалами, мониторинг успеваемости и проведение различных форм оценивания знаний.

Существует несколько видов онлайн-платформ в зависимости от их функционального назначения:

1. Платформы для видеосвязи и проведения онлайн-занятий. *Примеры:* Zoom, Microsoft Teams, Google Meet.

2. Системы управления обучением (LMS — Learning Management System). *Примеры:* Moodle, Google Classroom, Canvas.

3. Образовательные платформы массового онлайн-обучения (MOOC). *Примеры:* Coursera, edX, Udemy, Stepik.

4. Интерактивные платформы для вовлечения студентов. *Примеры:* Kahoot!, Quizlet, Padlet, Mentimeter, Wordwall, LearningApps, Interacty.

Электронные образовательные платформы имеют ряд преимуществ, которые заключаются в следующем:

— ученики и студенты могут получать знания из любой точки мира при наличии интернета, что особенно важно для удалённых и сельских районов.

— учащиеся могут самостоятельно выбирать темп и время обучения, что способствует индивидуализации образования.

— использование видео, тестов, симуляций и геймификации делает обучение более интересным и эффективным.

— электронные платформы позволяют быстро проверять тесты, анализировать успеваемость и давать мгновенную обратную связь.

— материалы можно легко редактировать и дополнять, что позволяет всегда использовать самые свежие знания.

— использование таких инструментов способствует развитию навыков, необходимых в современном цифровом обществе.

— электронные курсы могут быть дешевле традиционных, так как не требуют затрат на печать, аренду помещений и транспорт.

Методы создания электронных педагогических программных средств различны, и мы можем использовать различные платформы. Ниже мы познакомимся с их наиболее эффективными, простыми в создании, работающими онлайн, интересными типами [5].

Платформа Wordwall

Wordwall — это онлайн-платформа, предназначенная для создания интерактивных учебных мероприятий для учащихся и учителей. С помощью Wordwall пользователи могут создавать различные игры, тесты, кроссворды и другие интересные учебные материалы. Эта платформа делает учебные материалы интересными, интерактивными, облегчает преподавателям проведение уроков и делает учебный процесс более привлекательным для учащихся.

Платформа LearningApps

LearningApps.org — это онлайн-инструмент для подготовки различных электронных дидактических материалов по различным темам. На сайте есть шаблоны тестов по различным предметам, с помощью которых вы можете составить свой тест или создать новый тест самостоятельно. Для создания новых заданий самостоятельно, необходимо сначала ввести информацию для регистрации на сайте.

Платформа Interacty

Interacty — это онлайн-платформа, которая позволяет создавать визуальный и интерактивный контент и используется для повышения эффективности в образовании, маркетинге, продажах и других областях. С помощью платформы Interacty пользователи могут легко создавать интересные викторины, тесты, опросы, мини-игры, слайд-шоу и другой интерактивный контент. Этот тип интерактивных инструментов служит для установления контактов с аудиторией, делая контент более интересным и запоминающимся для них.

Все три платформы позволяют создавать интересные интерактивные электронные образовательные ресурсы, облегчая процесс обучения обучающимся и делая его более интересным. Повышает активное участие учащихся в образовательном процессе и побуждает их к самостоятельному обучению. Поэтому электронное обучение широко используется в современной системе образования и вносит большой вклад в повышение качества и охвата образования [8].

Использование современных онлайн-платформ стало неотъемлемой частью образовательного процесса. Они расширяют возможности преподавания и обучения, делая его более доступным, интерактивным и эффективным. Онлайн-платформы способствуют развитию индивидуального подхода к обучению, повышению мотивации учащихся и внедрению инновационных педагогических решений.

Несмотря на существующие сложности — технические, организационные и методические — потенциал цифровых инструментов в образовании продолжает расти. Для успешного внедрения онлайн-платформ необходимо не только техническое оснащение, но и подготовка педагогов, обеспечение безопасности данных и постоянное совершенствование цифровой инфраструктуры.

Таким образом, интеграция онлайн-платформ в образовательный процесс — это важный шаг к построению современной, гибкой и конкурентоспособной системы образования.

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ПРЕПАРАТЫ ПРИМЕНЯЕМЫЕ ПРИ ЭПИЛЕПСИИ

Аннотация: *Эпилепсия — хроническое заболевание центральной нервной системы, характеризующееся преимущественно внезапными, рецидивирующими и специфическими нарушениями мозговой деятельности (припадками). Это заболевание отрицательно влияет на здоровье и качество жизни человека. Роль лекарственных препаратов в лечении эпилепсии очень велика, и они направлены на уменьшение количества приступов у пациентов, облегчение их тяжести, а также достижение полного контроля. В статье анализируются основные препараты, используемые для лечения эпилепсии, освещаются их фармакологические свойства, механизмы действия, применение, побочные эффекты и роль в стратегиях лечения. В частности, представлена подробная информация о широко используемых противоэпилептических препаратах, таких как карбамазепин, вальпроат натрия, фенитоин, ламотриджин и леветирацетам. В статье также обсуждаются подходы к моно- и комбинированной терапии, критерии выбора препаратов, случаи фармакорезистентной эпилепсии, необходимость индивидуализированного подхода в зависимости от состояния пациента. В исследовании также учитываются реакция пациентов с эпилепсией на лекарственные препараты, индивидуальные различия, возраст, пол, наличие других заболеваний и фармакокинетические параметры. Статья будет полезна медицинским работникам, неврологам, фармацевтам, исследователям, а также пациентам и их семьям, борющимся с эпилепсией. Результаты исследования будут способствовать повышению эффективности фармакотерапии при лечении эпилепсии, снижению побочных эффектов и улучшению качества жизни пациентов.*

Ключевые слова: *Эпилепсия, противоэпилептические препараты, судорожные расстройства, неврологические заболевания, дисфункция головного мозга, лекарственная терапия, вальпроат натрия, карбамазепин, ламотриджин, леветирацетам, фенитоин, габапентин, топирамат, механизм действия препаратов, монотерапия, политерапия, эффективность и безопасность препаратов, побочные эффекты, лекарственные взаимодействия, подбор дозировки препаратов, возрастные стратегии лечения, эпилепсия во время беременности, применение препаратов у детей и пожилых пациентов, фармакокинетика и фармакодинамика, качество жизни, современные противоэпилептические препараты, индивидуальный подход.*

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DRUGS USED IN EPILEPSY

Abstract: *Epilepsy is a chronic disease of the central nervous system, characterized mainly by sudden, recurrent and specific disorders of brain activity (seizures). This disease negatively affects human health and quality of life. The role of drugs in the treatment of epilepsy is very great, and they are aimed at reducing the number of seizures in patients, alleviating their severity, as well as achieving complete control. The article analyzes the main drugs used to treat epilepsy, highlights their pharmacological properties, mechanisms of action, use, side effects and role in treatment strategies. In particular, detailed information on commonly used antiepileptic drugs such as carbamazepine, sodium valproate, phenytoin, lamotrigine and levetiracetam is provided. The article also discusses approaches to mono- and combination therapy, drug selection criteria, cases of drug-resistant epilepsy, the need for an individualized approach depending on the patient's condition. The study also takes into account the response of patients with epilepsy to drugs, individual differences, age, gender, the presence of other diseases and pharmacokinetic parameters. The article will be useful for healthcare professionals, neurologists, pharmacists, researchers, as well as patients and their families struggling with epilepsy. The results of the study will contribute to increasing the effectiveness of pharmacotherapy in the treatment of epilepsy, reducing side effects and improving the quality of life of patients.*

Keywords: *Epilepsy, antiepileptic drugs, seizure disorders, neurological diseases, brain dysfunction, drug therapy, sodium valproate, carbamazepine, lamotrigine, levetiracetam, phenytoin, gabapentin, topiramate, mechanism of drug action, monotherapy, polytherapy, drug efficacy and safety, side effects, drug interactions, drug dosage selection, age-related treatment strategies, epilepsy during pregnancy, use of drugs in children and elderly patients, pharmacokinetics and pharmacodynamics, quality of life, modern antiepileptic drugs, individual approach.*

Введение.

Эпилепсия – это хроническое неврологическое заболевание центральной нервной системы, характеризующееся рецидивирующими и внезапными приступами (эпилептическими припадками), вызванными гиперактивностью нейронов головного мозга. Эти приступы могут проявляться в различных формах: кратковременная потеря сознания, мышечные спазмы, сенсорные нарушения или изменения в поведении. По данным всемирной организации здравоохранения (воз), более 50 миллионов человек во всем мире страдают этим заболеванием, и каждый год выявляются миллионы новых случаев 1. Это делает эпилепсию не только глобальной проблемой здравоохранения, но и социально-экономической проблемой.

Эпилепсия может развиваться по многим причинам: генетическая предрасположенность, травмы головного мозга, инфекции (например, менингоэнцефалит), опухоли головного мозга, сосудистые заболевания, перинатальные осложнения и метаболические нарушения. Кроме того, в некоторых случаях причина эпилепсии не выявляется, и этот тип называется “идиопатической эпилепсией” 2.

Одним из важнейших факторов эффективного контроля эпилепсии является применение правильно подобранных и основанных на индивидуальном подходе лекарственных средств. На сегодняшний день число противоэпилептических препаратов, используемых для лечения эпилепсии, постоянно увеличивается. Среди них широко используются фенитоин, карбамазепин, вальпроат натрия, ламотриджин, леветирацетам, топирамат и другие. Эти препараты действуют через различные механизмы: блокируют ионные каналы в нейронной мембране, регулируют процессы обмена нейротрансмиттеров или подавляют гиперактивность в коре головного мозга. Каждый лекарственный препарат выбирается с учетом его эффективности в отношении определенных типов приступов, побочных эффектов и индивидуальных особенностей пациента 3.

Основная цель противоэпилептической терапии – максимально уменьшить или полностью контролировать эпилептические приступы, улучшить качество жизни и социания к применению, противопоказания, побочные эффекты и современные стратегии лечения. На основе научных исследований, клинического опыта и статистических данных обсуждается эффективность и безопасность различных противоэпилептических препаратов 4.

Предполагается, что посредством этих анализов будут сформированы практические и теоретические рекомендации по данной теме для специалистов в области медицины, фармацевтов и исследователей.

Анализ литературы.

Эпилепсия – это хроническое заболевание центральной нервной системы, проявляющееся рецидивирующими приступами (нобетами). Клиническая картина, этиология и методы лечения этого заболевания охватывают очень широкий спектр вопросов. В последние годы в лечении эпилепсии лидирующие позиции занимают фармакологические подходы. В связи с этим, в данном разделе будет проведен анализ важных научных публикаций, касающихся лекарственных средств, применяемых при эпилепсии 5.

Лечение эпилепсии лекарственными средствами началось в конце xix и начале xx веков, первым в клиническую практику был введен фенобарбитал (1912 год). Впоследствии были разработаны такие противоэпилептические препараты, как фенитоин, карбамазепин, вальпроевая кислота, этосуксимид. Эти препараты в основном известны как противоэпилептические средства первого поколения. Они эффективны в основном при купировании генерализованных тонико-клонических приступов и имеют длительный опыт применения. Из классических препаратов карбамазепин в основном применяется при парциальных приступах, а вальпроат - при генерализованных. Этосуксимид эффективен только при petit mal, то есть абсансных приступах 6.

Однако у этих лекарственных средств есть ряд ограничений, в частности, они имеют различные побочные эффекты, их применение опасно в период беременности, и они иногда могут приводить к фармакорезистентности у пациента. В связи с этим, в xxi веке были разработаны противоэпилептические препараты нового поколения. К ним относятся такие средства, как ламотриджин, леветирацетам, топирамат, габапентин, окскарбазепин, зонисамид. Эти препараты обладают более широкими фармакокинетическими свойствами и оказывают более мягкое воздействие на организм 7.

Например, леветирацетам широко используется как у детей, так и у взрослых благодаря низкой токсичности, быстрому действию и хорошей совместимости с другими лекарственными средствами. Ламотриджин же применяется не только при эпилепсии, но и при биполярных расстройствах. Он особенно безопасен по сравнению с другими

Рекомендуется использовать один препарат на начальном этапе лечения, с последующим переходом к комбинированным методам лечения при необходимости. В последние годы для лечения фармакорезистентной эпилепсии широко используются комбинирование лекарственных средств, разработка индивидуальных планов лечения на основе генетических тестов, а также нейромодуляционные терапии (например, стимуляция блуждающего нерва). Кроме того, препараты на основе каннабидиола (кбд) перспективны, особенно при синдромах леннокса-гасто и драве.

Во многих публикациях, например, в таких источниках, как “epilepsy and behavior journal”, “neurology”, “lancet neurology”, “cochrane reviews”, были проанализированы мета-анализы, результаты клинических испытаний, эффективность лекарственных средств, уровень безопасности и другие важные показатели 9. На основе этих данных можно отметить, что при выбореческих средствах, их комбинациях и принципах индивидуализированной терапии. Анализ литературы полностью отражает тенденции в лечении эпилепсии и указывает на необходимость постоянного мониторинга создания новых препаратов и их внедрения в клиническую практику 10.

Методология.

В качестве методологической основы данного исследования были использованы фундаментальные и прикладные научные подходы в области фармакологии, неврологии и клинической медицины. Для исследования был выбран комплекс методов, направленных на комплексное изучение эффективности, безопасности, побочных эффектов и фармакокинетических свойств лекарственных препаратов, применяемых при различных формах эпилепсии. При подготовке данной статьи применялась методология исследования, основанная на системном анализе и изучении литературы 11. Основная цель исследования - определение и систематизация фармакологических препаратов, используемых для лечения эпилепсии, их эффективности, способов применения, побочных эффектов и проблем, которые могут возникнуть у пациентов.

Объект и предмет исследования

Объектом исследования стали лекарственные препараты, применяемые у пациентов с эпилепсией, а предметом - клиническая эффективность, фармакодинамика и фармакокинетика этих лекарственных препаратов.

Подход к исследованию

В исследовании применялся аналитико-дескриптивный подход, а также элементы экспериментального анализа. Результаты обобщались на основе фармацевтических данных, клинических испытаний, ретроспективных данных наблюдений за пациентами, а также ранее проведенных метааналитических исследований.

Источники данных

Основные данные для анализа были получены из следующих источников:

Клинические протоколы, утвержденные министерством здравоохранения республики узбекистан;

Международные фармакопеи и справочники лекарственных средств, утвержденные fda (food and drug administration) и ema (european medicines agency);

Научные статьи, опубликованные в базах данных pubmed, scopus, web of science за последние 10 лет;

Статистика пациентов, проходящих лечение от эпилепсии в республиканских специализированных медицинских центрах, и медицинские истории, содержащие информацию о лекарствах в их амбулаторных картах.

Анализ был проведен на основе следующих методов:

Описательный статистический анализ: были определены возраст, пол пациентов, формы эпилепсии и различные случаи применения лекарственных средств, которые были проанализированы в виде процентного распределения.

Компаративный анализ (сравнительный): сравнивались степень воздействия различных антиэпилептических препаратов, вероятность возникновения побочных эффектов, фармакокинетический профиль.

Анализ на основе клинических наблюдений: отслеживалась динамика состояния пациентов при применении широко используемых лекарственных средств для лечения эпилепсии, таких как карбамазепин, вальпроат, ламотриджин, леветирацетам.

Swot-анализ: путем определения сильных и слабых сторон, возможностей и угроз противоэпилептических препаратов были разработаны клинические рекомендации по их были изучены только зарегистрированные и используемые в настоящее время на территории узбекистана противоэпилептические препараты. Кроме того, были исключены из анализа лекарственные средства, связанные с генетическими или редкими формами эпилепсии. В данном научном исследовании был проведен системный анализ типов лекар сравнения современных и традиционных подходов. Исследование проводилось в качественном описательном стиле (дескриптивном). То есть, анализ проводился в обобщенном виде на основе имеющейся научной литературы, клинических протоколов, информации о лекарственных средствах и реальных клинических случаях. В исследовании научные статьи, фармакопейные документы, данные воз (всемирной организации здравоохранения), официальные справочники фармацевтических компаний служили основными источниками.

Результаты и обсуждение.

Результаты исследования показали, что разнообразие лекарственных средств, используемых для лечения пациентов с эпилепсией, связано с их фармакодинамическими и фармакокинетическими свойствами. Основная цель лечения эпилепсии – уменьшение количества и тяжести приступов, улучшение качества жизни пациента, а также минимизация негативных побочных эффектов лекарственных средств. Согласно полученным результатам, основными лекарственными средствами, широко используемыми в терапии эпилепсии на сегодняшний день, являются: карбамазепин, вальпроевая кислота (вальпроаты), ламотриджин, леветирацетам, фенитоин, топирамат и габапентин. Клинические наблюдения показали, что карбамазепин часто обладает высокой эффективностью при фокальной (парциальной) эпилепсии с приступами, особенно широко применяется при эпилепсии височной доли 13. Однако этот препарат может вызывать побочные эффекты, такие как сонливость, головная боль, лейкопения у некоторых пациентов. Вальпроевая кислота эффективна при генерализованных приступах, миоклонических и абсансных типах, и во многих случаях рекомендуется в качестве препарата первой линии. Тем не менее, у женщин этот препарат назначается с осторожностью, поскольку он может оказывать фетотоксическое воздействие во время беременности. Ламотриджин отличается хорошей переносимостью и относительно небольшим количеством побочных эффектов. Он особенно предпочтителен для женщин и пациентов репродуктивного возраста. При этом требуется постепенное увеличение дозы ламотриджина, что ограничивает возможность быстрого получения его эффекта. Леветирацетам - это препарат нового поколения, который в последние годы широко внедряется в клиническую практику, с хорошей переносимостью и небольшим количеством взаимодействий между лекарственными средствами. Его основное преимущество – гибкость в выборе дозы и хорошая совместимость с другими aed (антиэпилептическими препаратами).

Кроме того, такие препараты, как топирамат и габапентин, показывают положительные результаты при использовании в качестве вспомогательной терапии 14. Особенно в случаях, когда необходима политерапия, эти препараты могут помочь значительно снизить количество приступов. Доза топирамата должна быть тщательно подобрана, так как у некоторых пациентов может наблюдаться потеря веса и снижение когнитивных функций. Опросы, проведенные среди пациентов в рамках исследования, показали, что индивидуальная реакция на лекарства значительно различается. У некоторых пациентов не было хорошего ответа на классические aed, но наблюдалось положительное клиническое состояние в отношении новых лекарств, в частности, леветирацетама или ламотриджина. Это указывает на необходимость индивидуального подхода к каждому пациенту. При этом успех терапии связан не только с фармакологическим лечением, но и напрямую с общим психоэмоциональным состоянием пациента, образом жизни и приверженностью к лекарствам. В ходе обсуждения следует особо отметить важность поиска баланса между моно- и политерапией в терапии эпилепсии. Монотерапия имеет преимущества, поскольку

Заключение.

Эпилепсия – сложное и многогранное заболевание центральной нервной системы, которое проявляется приступами различной формы и степени тяжести. Поскольку развитие, клинические проявления и течение заболевания имеют индивидуальные особенности у каждого пациента, стратегия лечения также требует соответствующего подхода. В данной статье был проведен всесторонний анализ основных лекарственных средств, используемых при лечении эпилепсии, механизмов их действия, преимуществ и недостатков, а также современных подходов. Лекарства, применяемые при эпилепсии (антиэпилептические препараты), в основном направлены на предотвращение приступов путем снижения возбудимости нейронов головного мозга, контроля активности ионных каналов, усиления рецепторов гамк (гамма-аминомасляной кислоты) и/или уменьшения действия возбуждающих нейротрансмиттеров, таких как глутамат. Среди этих лекарств широко распространены такие препараты, как карбамазепин, вальпроевая кислота, ламотриджин, леветирацетам, фенитоин, топирамат, каждый из которых обладает эффективностью в отношении определенных типов приступов. Однако побочные эффекты, связанные с применением антиэпилептических препаратов, развитие резистентности к лекарственным средствам, фармакокинетическая изменчивость и индивидуальные различия в действии лекарств среди пациентов остаются проблемными аспектами в терапии эпилепсии. По этой причине в современной медицине все большее значение приобретают индивидуализированный подход, комбинирование лекарственных средств, поиск новых поколений антиэпилептических препаратов и направления ген-ориентированной терапии. Кроме того, в некоторых случаях встречаются случаи фармакорезистентной эпилепсии, не поддающейся лечению лекарственными средствами. В таких случаях, помимо лекарственных средств, следует рассмотреть альтернативные методы лечения, такие как нейрохирургические методы, стимуляция нервов или кетогенная диета. Для пациентов, живущих с эпилепсией, важную роль играет не только фармакологическое лечение, ножидается, что в будущем создание новых лекарственных средств, расширение генетических и молекулярных исследований еще больше повысит эффективность борьбы с эпилепсией.

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СМЕШАННОЕ ОБУЧЕНИЕ КАК ПЕДАГОГИЧЕСКАЯ ПРОБЛЕМА В МЕТОДИКЕ ПРЕПОДАВАНИЯ РУССКОГО ЯЗЫКА

Аннотация: *В данной статье рассматриваются особенности применения смешанного обучения в контексте преподавания русского языка, его преимущества и вызовы, а также предлагаются методические рекомендации для педагогов.*

Ключевые слова: *смешанное обучение, технологии, индивидуальный подход, цифровизация, интеграция.*

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BLENDED LEARNING AS A PEDAGOGICAL PROBLEM IN RUSSIAN LANGUAGE TEACHING METHODS

Abstract*: This article examines the features of implementing blended learning in the context of teaching the Russian language, its advantages and challenges, as well as offers methodological recommendations for educators.*

Keywords*: blended learning, technologies, individual approach, digitalization, integration.*

Смешанное обучение, представляющее собой сочетание традиционных методов обучения с современными цифровыми технологиями, становится все более актуальным в условиях стремительного развития информационных технологий и изменения образовательных стандартов.

Смешанное обучение (blended learning) включает в себя элементы очного и дистанционного обучения, что позволяет учащимся получать знания как в классе, так и через онлайн-платформы. Это создает гибкую образовательную среду, в которой студенты могут самостоятельно управлять своим временем и темпом усвоения материала. Основные компоненты смешанного обучения включают:

- Очные занятия – традиционные уроки, проводимые в классе.
- Дистанционное обучение – использование онлайн-ресурсов, таких как видеоуроки, интерактивные задания и электронные учебники.
- Самостоятельная работа – выполнение домашних заданий и проектов с использованием цифровых инструментов.

Преимущества смешанного обучения в преподавании русского языка

- Индивидуализация процесса обучения: Смешанное обучение позволяет учитывать индивидуальные особенности и потребности каждого ученика. Студенты могут выбирать темп и формат изучения материала, что способствует более глубокому усвоению знаний.

- Доступ к разнообразным ресурсам: Учителя могут использовать различные онлайн-ресурсы для обогащения учебного процесса. Это может включать видеоуроки, онлайн-тесты, интерактивные платформы и приложения для изучения языка.

- Развитие навыков самоорганизации: Учащиеся учатся планировать свое время и самостоятельно находить информацию, что является важным навыком в современном мире.

- Повышение мотивации: Интерактивные элементы и использование технологий делают процесс обучения более увлекательным, что может повысить интерес учащихся к изучению русского языка.

Несмотря на множество преимуществ, смешанное обучение также сталкивается с рядом проблем:

- Неравный доступ к технологиям: Не все ученики имеют равный доступ к интернету и цифровым устройствам, что может создать неравенство в образовательных возможностях.

- Необходимость подготовки педагогов: Учителя должны быть готовы к использованию новых технологий и методов преподавания, что требует времени на обучение и адаптацию.

- Сложности в организации учебного процесса: Смешанное обучение требует тщательной организации как очных, так и дистанционных занятий, что может быть сложно для некоторых педагогов.

- Проблемы с мотивацией: Не все студенты могут самостоятельно организовать свое обучение в дистанционном формате, что может привести к снижению мотивации и успеваемости.

Для успешной реализации смешанного обучения в преподавании русского языка можно использовать следующие методические рекомендации:

-Создание гибкой учебной программы: Разработка программы, которая сочетает очные и дистанционные занятия, учитывая интересы и потребности учащихся.

- Использование разнообразных форматов материалов: Применение различных форматов учебных материалов – видео, аудио, текстовые задания – для поддержания интереса учащихся.

- Регулярная обратная связь: Обеспечение учащихся возможностью получать обратную связь по выполненным заданиям как в классе, так и онлайн.

- Развитие цифровой грамотности: Включение в учебный процесс элементов обучения работе с цифровыми инструментами и ресурсами.

- Создание поддерживающей образовательной среды: Формирование атмосферы сотрудничества и поддержки среди учащихся, поощрение их делиться опытом и помогать друг другу.

Внедрение смешанного обучения в преподавание русского языка требует комплексного подхода, который включает планирование, реализацию и оценку результатов. Ниже представлены основные этапы и рекомендации по внедрению данного метода.

- Подготовительный этап

- Анализ потребностей и ресурсов

- Оценка уровня готовности: Проведение опросов среди учащихся и педагогов для определения уровня их цифровой грамотности и готовности к смешанному обучению.

-Анализ доступных ресурсов: Оценка технического оснащения учебного заведения, доступности интернета и цифровых платформ.

Планирование программы

- Разработка учебного плана: Создание гибкого учебного плана, который сочетает очные и дистанционные занятия. Важно определить, какие темы лучше всего подходят для онлайн-формата, а какие требуют очного взаимодействия.

-Выбор платформы: Определение платформы для дистанционного обучения (например, Moodle, Google Classroom, Zoom), которая будет использоваться для организации онлайн-занятий и размещения материалов.

- Разработка учебных материалов: Создание или адаптация учебных материалов для онлайн-формата, включая видеоуроки, интерактивные задания и тесты.

- Интеграция технологий: Использование различных цифровых инструментов (например, Quizlet, Kahoot) для создания интерактивных заданий и тестов.

-Смешанный формат уроков: Проведение уроков с элементами как очного, так и дистанционного обучения. Например, теоретическую часть можно изучать онлайн, а практические занятия проводить в классе.

-Регулярные онлайн-встречи: Организация регулярных видеоконференций для обсуждения изучаемого материала, выполнения заданий и обратной связи.

-Тренинги и семинары: Проведение обучающих семинаров и тренингов для учителей по использованию цифровых технологий и методам смешанного обучения.

-Обмен опытом: Создание сообщества педагогов для обмена успешными практиками и методическими разработками.

Внедрение смешанного обучения в преподавание русского языка — это непрерывный процесс, требующий внимательного подхода к каждому этапу. Успех данной методики зависит от готовности как педагогов, так и учащихся к новым формам обучения, а также от постоянного мониторинга и адаптации образовательного процесса. Смешанное обучение представляет собой перспективный подход к преподаванию русского языка, открывающий новые возможности для учащихся и педагогов. Однако успешная реализация данного метода требует внимательного подхода к организации учебного процесса, подготовки учителей и учета индивидуальных особенностей учащихся. При правильном использовании смешанное обучение может значительно повысить качество образования и мотивацию студентов к изучению русского языка.

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ИННОВАЦИОННЫЙ ПОДХОД К ПРЕПОДАВАНИЮ ИЗОБРАЗИТЕЛЬНОГО ИСКУССТВА

Аннотация *В этой статье говорится о проблемах модернизации изобразительного искусства. В особенности, необходимость использования инновационных технологии на уроках изобразительного искусства.*

Ключевые слова: *изобразительное искусство, общее среднее образование, образование, эстетическая грамотность, метод, мультимедиа, инновации, технология, полевая практика, игра.*

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INNOVATIVE APPROACH TO TEACHING FINE ARTS

Abstract *The problems of modernization of art are spoken in this article. The necessity of use of innovational technologies on Art lessons.*

Key words: *visual arts, general secondary education, education, aesthetic literacy, method, multimedia, innovation, technology, fieldwork, game.*

Введение. Действительно, учебный предмет "изобразительное искусство" среди других дисциплин обладает широкими возможностями в воспитании гармонично развитой личности, формировании духовно богатого поколения. Ведь через особенности искусства, его социальные функции, природу художника, изучение художественно-выразительных средств на уроках изобразительного искусства у учащихся формируются такие высокие качества, как эстетическое восприятие окружающего мира, умение оценивать красоту, стремление к прекрасному и любовь к нему.
Как известно, в общеобразовательных школах преподавание изобразительного искусства осуществляется на основе Государственного образовательного стандарта, утверждённого Постановлением Кабинета Министров Республики Узбекистан №390 от 16 августа 1999 года, а также интегрированной учебной программы по предмету, утверждённой совместным решением соответствующих министерств [1]. Эти материалы и рекомендации в настоящее время применяются на практике.
Для повышения эффективности преподавания особенно важно, чтобы учителя

изобразительного искусства грамотно организовывали занятия как с теоретической, так и с практической стороны [2].

В Государственном образовательном стандарте цель учебного предмета "изобразительное искусство" определена как формирование у учащихся эстетической культуры, развитие художественного мышления и воспитание изобразительной грамотности. Повышение художественно-эстетической грамотности учащихся напрямую зависит от правильной теоретической и практической организации занятий, что, в первую очередь, связано с профессионализмом преподавателя. На сегодняшний день, для того чтобы учитель мог вести уроки в соответствии с требованиями времени, он должен постоянно совершенствовать свои знания и квалификацию. В этой связи государством предусмотрено проведение плановых курсов повышения квалификации. Вместе с тем, важное значение имеет и самостоятельная работа преподавателя над собой. Одним из таких направлений является использование **инноваций** — явления, которое благодаря внедрению новых понятий и подходов способствует развитию педагогической системы. Применение инновационных методов в преподавании изобразительного искусства способствует более глубокому пониманию предмета учащимися, быстрому усвоению знаний и навыков, а также повышению интереса к уроку[3].

Метода и исследования. Использование инновационных методов в преподавании изобразительного искусства в школах может реализовываться в различных формах и направлениях, таких как:

1. Обучение на основе технологий, способствующих активному общению;
2. Обучение с использованием полевой практики (внеаудиторные занятия);
3. Обучение на основе ролевых и других игровых методов;
4. Обучение с применением технических средств (создание мультимедийных материалов, компьютерная графика, видео, фотоаппаратура и др.) [4].

Применение инновационных методов в организации учебного процесса связано с личностью самого преподавателя. Несмотря на это, мы хотим привести следующие рекомендации в качестве эффективных методов преподавания, основанных на использовании современных педагогических технологий в преподавании изобразительного искусства.

Результаты оригинального авторского исследования: Во-первых, учитель должен быть осведомлён о передовом методическом и педагогическом опыте. Для этого необходимо регулярно обмениваться опытом с учебными заведениями и методическими центрами, которые ведут инновационную педагогическую и методическую деятельность на республиканском уровне. Также важно, чтобы учитель занимался углублённым изучением одного из направлений изобразительного искусства, которое ему интересно — это играет большую роль в его профессиональном росте.

Во-вторых, использование технических средств на уроках занимает важное место. Сегодня в Республике Узбекистан встаёт задача модернизации содержания общего среднего образования, что, в свою очередь, касается и преподавания изобразительного искусства.
С развитием времени появляются всё новые и новые виды технических средств. Исходя из текущего состояния преподавания изобразительного искусства, следует отметить необходимость переосмысления и реорганизации этой сферы с использованием современных технических подходов.
Технические средства играют решающую роль в повышении эффективности уроков. В этом отношении учителя должны использовать фотоаппараты, аудиовизуальные средства, диапроекторы, эпидиаскопы, фильмоскопы, компьютеры и другие устройства как демонстрационные материалы на занятиях.
В настоящее время как современный метод наглядного обучения широко внедряется **создание электронных пособий,** что открывает путь к достижению высокой эффективности уроков изобразительного искусства.

Электронное пособие создаётся на основе мультимедийных технологий с использованием компьютера. Оно способно воспринимать и обрабатывать текстовую, музыкальную, графическую и видеоинформацию.
Электронные пособия, как правило, разрабатываются в мультимедийной среде с применением программ, таких как:
Microsoft PowerPoint**,** Adobe Photoshop 7.0**,** 3D Max**,** Macromedia Flash**,** GIF Animation**,** Microsoft FrontPage, а также современных интернет-платформ с широкими возможностями, таких как ChatGPT**,** DeepSeek и другие.

Эти платформы удобны для создания цветных, анимированных, озвученных изображений.
Не всегда существует возможность увидеть и зарисовать образцы изобразительного искусства, указанные в темах Государственного образовательного стандарта и учебной программы, с выездом на экскурсии или в музеи. В таких случаях электронные пособия, подготовленные учителем и демонстрируемые с помощью проекционной техники, способствуют экономии времени и делают урок более увлекательным и продуктивным.

В-третьих, в школах обязательно должны быть специально оборудованные кабинеты изобразительного искусства. Это важно, потому что в таких кабинетах можно организовывать множество внеклассных мероприятий. Особенно полезным является регулярное проведение выставок работ, выполненных учителями и учащимися, распределение их по тематикам, а также организация экспозиций, приуроченных к праздникам и торжественным событиям. Всё это способствует повышению интереса учащихся к предмету.
В процессе усвоения новых знаний в области искусства материалы по изобразительному искусству наглядно демонстрируют эти знания, что

облегчает восприятие как теоретических, так и практических аспектов, способствует их осознанному освоению и служит наиболее эффективным и надёжным способом проверки усвоенных знаний на практике. Поскольку деятельность в этой области имеет прикладной характер, она часто приобретает культурно-бытовую направленность. Учитывая эти особенности, организация тематических выставок как во время, так и вне занятий является целесообразной.

В-четвёртых, для интеллектуального развития учащихся и углубления их знаний рекомендуется широкое применение проблемного обучения. В этом направлении можно использовать тесты, викторины и кроссворды, связанные с изобразительным, прикладным и архитектурным искусством, предоставлять информацию о жизни и творчестве известных художников, предлагать ученикам завершить незаконченные рисунки, находить скрытые изображения в изменяющихся формах и применять другие увлекательные методы. Каждый регион обладает своими уникальными жизненными укладами, обычаями, искусством, национальной одеждой и историческими эпохами. Эти особенности отражаются в культуре, письменности, орудиях труда, искусстве и традициях общества. Невозможно познать регион, не осознав суть и содержание этих элементов.
Также материалы и сведения, касающиеся происхождения народов, имён племён и родов, обычаев, языковых особенностей, показывают, что они сформированы из различных этнических общностей — племён, родов и этносов. Это разнообразие обогащает и украшает жизнь народа. Среди всего этого материалы по изобразительному искусству занимают особое место. В организации проблемного урока учителем именно такие источники могут служить основным дидактическим материалом.

В-пятых, экскурсии на природу становятся для учащихся незабываемыми моментами, и грамотное использование их учителем приносит значительный эффект. Инновационные поиски учителя направлены на развитие интересов учащихся, нахождение ими своего места в жизни и формирование качеств всесторонне развитой личности. Особенно важно применение метода полевых практик в уроках изобразительного искусства, так как именно такая инновационная деятельность учителя способствует всестороннему развитию учащихся.

Изучение изобразительного искусства невозможно без обращения к историческим источникам и живым природным пейзажам — они играют очень важную роль. Каждый ученик должен знать народные песни, легенды, сказки, пословицы и поговорки, эпосы своего народа, название родного края, происхождение и значение топонимов. Умение воспринимать красоту природы вживую и отображать её средствами изобразительного искусства — одна из главных задач инновационной деятельности учителя.

Подобные инновационные методы играют важную роль в воспитании у молодёжи любви к Родине, уважения к национальным ценностям, а также в развитии их художественно-эстетического восприятия.

Сегодняшний этап требует коренных реформ в системе образования Нового Узбекистана, повышения качества преподавания. Эти реформы, в свою очередь, обусловливают необходимость внедрения инновационных технологий в художественное образование. Однако на данный момент для учителей не разработаны полноценные пособия, объединяющие теоретические и практические навыки в этом направлении.

Заключение: Рекомендации, приведённые в нашей статье, лишь частично освещают отдельные проблемы преподавания изобразительного искусства на основе современных педагогических технологий. Такие темы, как инновационные технологии в обучении изобразительному искусству и инновационная деятельность учителя, требуют более глубоких научных исследований.

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РОЛЬ МЕНЕДЖМЕНТА В ОБЕСПЕЧЕНИИ ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТИ КОМПАНИИ

Аннотация: *В статье исследуется роль менеджмента в обеспечении экономической безопасности компании в современных условиях Казахстана. Особое внимание уделяется интеграции управленческих механизмов и стратегий риск-менеджмента в корпоративную систему защиты от экономических угроз. На основе анализа современных научных подходов, нормативно-правовых актов и практического опыта ведущих казахстанских предприятий раскрыты ключевые инструменты и методы управления, позволяющие минимизировать финансовые, операционные и репутационные риски. Рассмотрены особенности формирования корпоративной культуры устойчивости, а также значение непрерывного развития управленческих компетенций и цифровизации бизнес-процессов для повышения адаптивности и конкурентоспособности компаний.*

Ключевые слова: *экономическая безопасность, менеджмент, риск-менеджмент, корпоративное управление, Казахстан, внутренняя безопасность.*

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THE ROLE OF MANAGEMENT IN ENSURING ECONOMIC SECURITY OF THE COMPANY

Abstract: *The article examines the role of management in ensuring the economic security of a company in the modern conditions of Kazakhstan. Particular attention is paid to the integration of management mechanisms and risk management strategies into the corporate system of protection against economic threats. Based on the analysis of modern scientific approaches, regulatory legal acts and practical experience of leading Kazakhstani enterprises, key management tools and methods are revealed that allow minimizing financial, operational and reputational risks. The features of the formation of a corporate culture of sustainability are considered, as well as the importance of continuous development of management competencies and digitalization of business processes to improve the adaptability and competitiveness of companies.*

Keywords: *economic security, management, risk management, corporate governance, Kazakhstan, internal security.*

Современные вызовы, стоящие перед корпоративным сектором Казахстана, обусловлены быстрыми изменениями экономической среды, ростом глобальных и локальных рисков, усложнением конкурентных стратегий и усилением требований к прозрачности бизнеса. В этих условиях обеспечение экономической безопасности предприятия приобретает не просто стратегическое, но и экзистенциальное значение. Особое внимание в этом контексте уделяется роли менеджмента – ключевого звена, от эффективности и компетентности которого во многом зависит устойчивость компании к внешним и внутренним угрозам.

В последние годы в Казахстане наблюдается трансформация бизнес-процессов, обусловленная цифровизацией, изменением регуляторных требований (например, усилением требований по борьбе с отмыванием доходов, трансфертному ценообразованию и внутреннему контролю), а также волатильностью на мировых рынках ресурсов. Примером актуальных угроз выступают киберриски, финансовые мошенничества, нарушения контрактной дисциплины, а также нестабильность валютного рынка. Все эти факторы подчеркивают значимость системного управления экономической безопасностью через внедрение современных методов менеджмента.

Для компаний, работающих в Казахстане, особенно актуально выстраивание комплексных моделей управления рисками, интеграция экономической безопасности в стратегическое и оперативное управление, развитие корпоративных культур устойчивости и ответственности. Игнорирование этих аспектов способно привести не только к прямым финансовым потерям, но и к утрате деловой репутации, снижению инвестиционной привлекательности и, в долгосрочной перспективе, к потере позиций на рынке.

Целью настоящего исследования является разработка теоретических и практических основ повышения роли менеджмента в обеспечении экономической безопасности компаний в Казахстане с учетом специфики национальной экономики, правового поля и актуальных вызовов внешней среды.

Новизна исследования заключается в комплексном рассмотрении менеджмента как системообразующего фактора в обеспечении экономической безопасности компаний на территории Казахстана.

Вопросы экономической безопасности предприятий и роль управленческих механизмов широко исследуются в современной экономической и управленческой науке. В зарубежной литературе преобладают системные подходы к обеспечению корпоративной безопасности (works by R. Matthews, A. Hopkins, M. Porter), где акцент делается на интеграцию риск-менеджмента в стратегическое управление, построение системы внутреннего контроля, развитие «compliance management» и корпоративной культуры противодействия угрозам.

В российских исследованиях (С. Глазьев, В. Попов, А. Ковалев) акцент делается на интеграцию экономической безопасности в систему национальной безопасности, формирование комплексных антикризисных стратегий, развитие инструментов антикоррупционного менеджмента и применение цифровых решений в обеспечении прозрачности бизнес-процессов. Казахстанская научная литература, представленная работами Т. Абылкасымовой, Ж. Алибаева, С. Кульжановой, в последние годы демонстрирует рост интереса к практическим аспектам экономической безопасности, в частности вопросам нормативно-правового регулирования, развития инструментов внутреннего контроля и роли управленческих кадров. Отмечается недостаток исследований, посвящённых именно интеграции функций экономической безопасности в стратегический и операционный менеджмент, а также сравнительному анализу отечественных и международных практик [1, с. 134].

Безопасность бизнеса в Казахстане в последние годы вышла за рамки чисто технических или юридических вопросов, приобретя глубоко управленческое измерение. В условиях растущей интеграции экономики Казахстана в мировое хозяйство, усиления конкуренции, цифровизации, а также всё более сложных кросс-функциональных рисков (финансовых, кибернетических, репутационных) возрастает роль менеджмента как ключевого института обеспечения экономической безопасности компаний. Глубокий анализ современного состояния показывает, что в казахстанских реалиях проблема экономической безопасности тесно связана с уровнем управленческой культуры, стратегическим мышлением руководства, степенью зрелости корпоративного управления и способностью менеджмента быстро адаптироваться к изменениям среды.

Научная литература последних лет (Абылкасымова Т., 2023; Alibayev Z., 2022; Kulzhanova S., 2021) фиксирует, что для казахстанских компаний характерна высокая зависимость от внешних экономических шоков и политической нестабильности, что особенно проявилось в период пандемии COVID-19 и волатильности на сырьевых рынках. Например, по данным Казахстанского института стратегических исследований (2022), доля компаний, столкнувшихся с прямыми финансовыми потерями из-за недостаточно развитых управленческих механизмов защиты от рисков, превысила 37%. Анализ практики отечественных корпораций, таких как «КазМунайГаз», «Казахтелеком» и крупные строительные холдинги, показывает: те предприятия, где топ-менеджмент внедрил комплексные системы управления рисками, внутреннего аудита, комплаенса, на 28% реже сталкивались с серьёзными инцидентами экономической угрозы по сравнению с компаниями, не имеющими таких практик [2, с. 105].

Новая волна научных исследований подчеркивает, что ключевым фактором устойчивости становится не только наличие регламентов и политик по безопасности, но и их органичная интеграция в ежедневные управленческие процессы. Исследование Kulzhanova S. (2023) доказывает, что успешная интеграция функции экономической безопасности невозможна без формирования в компании «культуры риска» – системы ценностей и моделей поведения, разделяемых всеми уровнями менеджмента. Здесь важную роль играет развитие компетенций руководителей среднего и высшего звена: по данным исследований Ernst & Young Kazakhstan (2024), лишь 34% казахстанских топ-менеджеров считают себя достаточно подготовленными к управлению экономическими рисками, а около 40% отмечают нехватку специализированных знаний и инструментов для предотвращения экономических угроз. Это говорит о необходимости создания в компаниях системного подхода к обучению и развитию кадров именно в области риск-менеджмента и антикризисного управления [3, с. 575].

Важным трендом последних лет стало смещение акцента с реактивного реагирования на угрозы к проактивному и превентивному менеджменту. В этом плане заслуживает внимания опыт внедрения систем «early warning» и цифровых платформ мониторинга рисков в национальных компаниях, таких как «Самрук-Казына». Использование больших данных и автоматизированных аналитических систем позволило ряду предприятий прогнозировать появление проблемных зон в финансовых потоках, логистических цепочках и контрактных отношениях, а также минимизировать потери от мошенничества и коррупции. В частности, кейс «Казахтелекома» (2023) демонстрирует: после внедрения интегрированной системы внутреннего контроля число выявленных нарушений по внутренним регламентам снизилось на 17%, а уровень доверия инвесторов вырос, что выразилось в приросте рыночной капитализации на 9% за год [4, с. 226].

Однако наряду с позитивными примерами литература указывает и на существенные проблемы, препятствующие эффективной реализации управленческого потенциала в сфере экономической безопасности. Среди наиболее часто упоминаемых в научных публикациях проблем: фрагментарность внедрения процедур внутреннего контроля, недостаток комплексных программ антикоррупционного менеджмента, низкий уровень развития комплаенс-функции в компаниях малого и среднего бизнеса, а также слабая интеграция управления рисками с общей стратегией развития предприятия. По данным аналитического отчёта Нацбанка РК (2023), лишь 22% компаний среднего бизнеса имеют формализованные процедуры по оценке и минимизации экономических рисков.

Практика последних лет также демонстрирует, что экономическая безопасность всё чаще зависит от умения менеджмента оперативно выстраивать коммуникации с государственными органами, участвовать в отраслевых инициативах по обмену информацией о киберугрозах, финансовых махинациях, новых схемах мошенничества. Например, с 2022 года в Казахстане реализуется государственная программа по повышению цифровой грамотности руководителей компаний, что, по оценкам Министерства цифрового развития, уже снизило количество крупных кибеCinцидентов в корпоративном секторе на 12% за год.

Пути решения сложившихся проблем, как показывает анализ передовых практик и научной литературы, заключаются в следующих направлениях. Во-первых, необходима трансформация управленческих подходов: отказ от изолированного управления безопасностью в пользу её интеграции в общую стратегию, включая этапы стратегического планирования, бюджетирования, инвестиционных решений и HR-политики. Во-вторых, требуется системное развитие кадрового потенциала: внедрение программ непрерывного обучения топ-менеджмента и среднего звена, развитие внутренней экспертизы по управлению рисками, комплаенсу и антикризисному реагированию. В-третьих, важно стимулировать использование современных цифровых инструментов и аналитики, позволяющих отслеживать риски в реальном времени и принимать решения на основе достоверных данных, а не интуиции. В-четвертых, ключевым фактором является формирование прозрачной корпоративной культуры, построенной на принципах доверия, открытости и разделения ответственности между всеми участниками бизнес-процессов [5, с. 51].

Таким образом, глубокий анализ показывает: роль менеджмента в обеспечении экономической безопасности компаний в Казахстане уже невозможно свести к формальным функциям контроля или реактивному реагированию на угрозы. Это – комплексный процесс, требующий интеграции стратегического мышления, цифровых инноваций, постоянного обучения и формирования корпоративной культуры устойчивости. Только в таком случае казахстанские компании смогут эффективно противостоять внутренним и внешним угрозам, повышая свою конкурентоспособность и инвестиционную привлекательность в условиях растущей неопределенности и глобальных трансформаций.

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СТРАТЕГИЧЕСКИЙ МАРКЕТИНГ В УСЛОВИЯХ НАСЫЩЕННОГО РЫНКА: ИНСТРУМЕНТЫ ПОВЫШЕНИЯ КОНКУРЕНТОСПОСОБНОСТИ

Аннотация: *В статье рассматриваются современные инструменты стратегического маркетинга, используемые для повышения конкурентоспособности компаний в условиях насыщенного рынка Казахстана. Особое внимание уделяется анализу текущих тенденций развития отечественного бизнеса, а также влиянию цифровизации, интеграции ESG-подходов и трансформации клиентского опыта на формирование устойчивых конкурентных преимуществ. Подробно анализируются практические примеры внедрения новых маркетинговых технологий ведущими казахстанскими компаниями, выявляет ключевые проблемы в области кадрового обеспечения и ограниченности доступа к современным инструментам маркетинга, а также предлагает пути их решения.*

Ключевые слова: *стратегический маркетинг, насыщенный рынок, конкурентоспособность, Казахстан, цифровизация, бренд-менеджмент.*

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STRATEGIC MARKETING IN A SATURATED MARKET: TOOLS FOR INCREASING COMPETITIVENESS

Abstract: *The article examines modern strategic marketing tools used to improve the competitiveness of companies in the saturated market of Kazakhstan. Particular attention is paid to the analysis of current trends in the development of domestic business, as well as the impact of digitalization, the integration of ESG approaches and the transformation of customer experience on the formation of sustainable competitive advantages. Practical examples of the implementation of new marketing technologies by leading Kazakhstani companies are analyzed in detail, key problems in the field of staffing and limited access to modern marketing tools are identified, and ways to solve them are proposed.*

Keywords: *strategic marketing, saturated market, competitiveness, Kazakhstan, digitalization, brand management.*

В условиях глобализации и интенсивного развития мировой экономики Казахстан сталкивается с уникальными вызовами насыщенного рынка. Рост числа отечественных и зарубежных компаний, внедрение новых технологий, а также расширение доступа к цифровым платформам ведут к постоянному увеличению конкуренции практически во всех отраслях национального хозяйства. Как следствие, традиционные методы маркетинга и конкуренции постепенно утрачивают эффективность, а успешное продвижение товаров и услуг требует от компаний перехода к стратегическому подходу в маркетинге, основанному на комплексном анализе рыночной среды, поведении потребителей и тенденциях развития отрасли.

Особую значимость тема приобретает в свете перехода Казахстана к модели инновационного развития и необходимости интеграции в международные цепочки добавленной стоимости. Конкурентная борьба на насыщенных рынках уже не ограничивается только ценовыми войнами или простым расширением ассортимента – актуальными становятся такие инструменты, как бренд-менеджмент, разработка уникальных торговых предложений (УТП), внедрение цифровых и аналитических решений, персонификация клиентского опыта, а также формирование долгосрочных отношений с клиентами и партнёрами.

Важность рассмотрения данной темы обусловлена необходимостью выработки новых стратегий для повышения устойчивости и гибкости отечественного бизнеса в быстро меняющейся рыночной среде. Вопросы стратегического маркетинга приобретают особую остроту и в связи с возрастающей неопределённостью внешней среды, усилением влияния глобальных трендов (цифровизация, ESG-повестка, глобальные цепочки поставок) и формированием новых требований со стороны потребителей.

Главная цель настоящего исследования – разработка, систематизация и критический анализ эффективных инструментов стратегического маркетинга, применимых для повышения конкурентоспособности компаний на насыщенном рынке Казахстана.

Анализ современной научной литературы позволяет выделить несколько основных направлений исследований в области стратегического маркетинга и повышения конкурентоспособности на насыщенных рынках.

В работах Котлера Ф. и Келлера К. [Kotler & Keller, 2022] последовательно раскрывается сущность стратегического маркетинга как долгосрочного процесса управления рыночными возможностями, рисками и инновациями. Особое внимание уделяется вопросам сегментации рынка, позиционирования бренда и формированию конкурентных преимуществ посредством внедрения инноваций.

Исследования Porter M.E. [Porter, 2021] акцентируют внимание на концепции конкурентных сил рынка и необходимости выстраивания уникальной ценностной цепочки. В рамках данной парадигмы формируется понимание стратегического маркетинга как инструмента создания добавленной стоимости и устойчивого развития бизнеса.

В отечественной литературе (например, работы Абдраимова Б.Ж., 2021; Кудайбергенова А.Ж., 2023) раскрываются особенности маркетинговых стратегий в условиях казахстанского рынка, включая влияние макроэкономических факторов, специфику локальной конкуренции, уровень цифровизации компаний и проблемы взаимодействия с государственными институтами.

Стратегический маркетинг в условиях насыщенного рынка Казахстана приобретает всё большее значение, становясь не только инструментом повышения конкурентоспособности, но и обязательным условием выживания бизнеса в современной экономической реальности. Анализ ситуации показывает, что в последние пять лет отечественный рынок столкнулся с резким ростом числа игроков, в том числе международных, что привело к существенному изменению структуры конкурентной среды. По данным Комитета по статистике Министерства национальной экономики РК, только в период с 2020 по 2023 год количество зарегистрированных малых и средних предприятий увеличилось на 19,5%, что сопровождалось усилением борьбы за потребителя в таких отраслях, как розничная торговля, телекоммуникации, финтех и производство продуктов питания [1, с. 81].

На насыщенном рынке традиционные методы ценовой конкуренции постепенно теряют свою актуальность. Более 60% казахстанских компаний, по данным обзора McKinsey & Company (2023), фиксируют снижение маржинальности при попытках привлечения новых клиентов исключительно за счёт ценовых скидок. Это вынуждает бизнес искать новые пути дифференциации, включая внедрение инструментов стратегического маркетинга, позволяющих формировать долгосрочные конкурентные преимущества. Среди наиболее востребованных инструментов выделяются: построение сильного бренда, внедрение цифровых платформ для персонализированного маркетинга, развитие программ лояльности и клиентского сервиса, а также переход к омниканальным стратегиям присутствия.

Ключевым драйвером изменений в конкурентной политике становится цифровизация. Согласно аналитическому докладу IDC (2024), уровень проникновения цифровых решений в маркетинговую деятельность казахстанских компаний увеличился с 28% в 2020 году до 47% в 2024 году, что позволило бизнесу не только повысить эффективность рекламных кампаний, но и глубже анализировать поведение клиентов, выявлять новые сегменты спроса, управлять ассортиментом и предиктивно прогнозировать тренды потребления. Например, крупнейшие ритейлеры (Magnum, Small, «Технодом») активно используют инструменты анализа больших данных для создания индивидуальных предложений, что, по внутренней статистике компаний, позволяет увеличить средний чек на 18–25% и повысить коэффициент удержания клиентов [2, с. 95].

Отдельного внимания заслуживает интеграция ESG-принципов (экологической, социальной и корпоративной ответственности) в стратегический маркетинг. В условиях глобализации и ужесточения международных стандартов устойчивого развития отечественные компании все чаще внедряют ESG-подходы не только ради имиджа, но и для получения конкурентных преимуществ. По результатам исследования Казахстанской ассоциации маркетологов (2023), 37% опрошенных компаний отметили, что их клиенты всё чаще делают выбор в пользу брендов, открыто демонстрирующих ответственность в отношении окружающей среды и общества. В результате на рынок выходят новые продукты с «зелёными» атрибутами, появляются программы поддержки локальных сообществ и благотворительные инициативы, что способствует формированию долгосрочной лояльности аудитории и устойчивому росту репутационного капитала.

Анализ научной литературы свидетельствует о значительном интересе исследователей к инструментам стратегического маркетинга на насыщенных рынках. В трудах Абдраимова Б.Ж. («Стратегический маркетинг: тенденции развития в Республике Казахстан», 2021) отмечается, что успех компаний всё больше определяется способностью к инновациям и гибкой адаптации маркетинговых стратегий к меняющимся условиям. В работе Кудайбергенова А.Ж. («Особенности формирования конкурентных преимуществ в условиях цифровизации экономики Казахстана», 2023) обосновывается необходимость синергии цифровых и традиционных маркетинговых инструментов, а также важность обучения персонала новым технологиям и подходам к анализу рынка. Зарубежные исследования, в частности, работы Котлера Ф. и Келлера К. («Маркетинг-менеджмент», 2022), акцентируют внимание на необходимости глубокого анализа цепочки создания ценности, комплексной сегментации целевой аудитории, внедрении CRM-систем и управления клиентским опытом на всех этапах жизненного цикла [3, с. 136].

Среди практических примеров можно выделить кейс «Kaspi.kz», который в последние годы стал флагманом цифровой трансформации в Казахстане. Внедрение комплексной омниканальной маркетинговой платформы, интеграция банковских, торговых и логистических сервисов позволили компании не только расширить долю рынка, но и повысить коэффициент вовлечённости клиентов на 35% (данные годового отчёта Kaspi.kz за 2023 год). Аналогичные успехи демонстрируют крупные производители напитков и продуктов питания, такие как «Рахат» и «Шин-Лайн», которые активно инвестируют в ребрендинг, разработку новых УТП, экологичные упаковки и цифровое продвижение в социальных сетях [4, с. 45].

Однако на пути внедрения стратегического маркетинга казахстанские компании сталкиваются с рядом серьёзных проблем. В первую очередь, это дефицит квалифицированных кадров, способных управлять современными маркетинговыми инструментами и анализировать большие массивы данных. Согласно исследованию Центра развития человеческого капитала (2023), 58% компаний отмечают сложности с поиском специалистов по цифровому маркетингу и аналитике. Второй проблемой является ограниченность доступа к инвестициям и технологиям, особенно для малого и среднего бизнеса. В результате многие предприятия ограничиваются базовыми маркетинговыми активностями и не используют потенциал современных инструментов в полной мере.

Для решения обозначенных проблем необходимо выстраивать многоуровневую систему поддержки инноваций в маркетинге. Во-первых, важно развивать государственно-частное партнёрство для финансирования образовательных программ, акселераторов и стартап-инициатив, направленных на формирование профессиональных компетенций в области стратегического маркетинга и цифровых технологий. Во-вторых, необходимо стимулировать интеграцию отечественных компаний в международные цепочки добавленной стоимости, обмениваться опытом с зарубежными коллегами и привлекать международных экспертов для обучения персонала и совершенствования бизнес-процессов. В-третьих, особое значение приобретает развитие аналитических платформ, поддерживающих автоматизацию маркетинговых процессов, а также создание общедоступных маркетинговых данных и индексов по ключевым секторам экономики [5, с. 71].

В заключение, стратегический маркетинг на насыщенном рынке Казахстана становится ключевым элементом конкурентной политики, обеспечивающим устойчивый рост, инновационное развитие и формирование прочных связей с потребителями. Только системный подход, сочетающий передовые цифровые технологии, ориентацию на ESG-принципы, развитие человеческого капитала и постоянный мониторинг рыночной среды, способен обеспечить компаниям долговременное конкурентное преимущество и укрепить их позиции как на внутреннем, так и на внешнем рынке.

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К ВОПРОСУ О КЛЕТОЧНОЙ КИБЕРНЕТИКЕ

Аннотация: *В статье исследуются принципы клеточной кибернетики - науки, изучающей механизмы самоуправления и саморегуляции в живых клетках. Рассматриваются процессы передачи генетической информации (ДНК, РНК), синтеза белков, роль рибосом и других клеточных компонентов. Особое внимание уделено кибернетическому подходу, включающему математическое моделирование, теорию информации и анализ алгоритмов управления. Проведены параллели между клеточными структурами и цифровыми технологиями (например, ядро как «центральный процессор», митохондрии как «источники энергии»). Определены основные задачи клеточной кибернетики: разработка алгоритмов саморегуляции, изучение переходных состояний клетки и формализация биологических процессов. Рис 2, Литература: 20 источников.*

Ключевые слова: *клеточная кибернетика, саморегуляция, генетическая информация, рибосомы, ДНК, РНК, математическое моделирование, адаптивное управление, алгоритм, теория автомат.*

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TO THE QUESTION OF CELLULAR CYBERNETICS

Abstract: *This article explores the principles of cellular cybernetics—a field of science that studies the mechanisms of self-governance and self-regulation within living cells. It examines the processes of genetic information transfer (DNA, RNA), protein synthesis, and the roles of ribosomes and other cellular components. Special attention is given to the cybernetic approach, which includes mathematical modeling, information theory, and the analysis of control algorithms. Parallels are drawn between cellular structures and digital technologies (e.g., the nucleus as a* *"central processor," mitochondria as "energy sources"). The main objectives of cellular cybernetics are defined: the development of self-regulation algorithms, the study of cellular transitional states, and the formalization of biological processes. Figure 2, bibliography includes 20 sources.*

Keywords: *cellular cybernetics, self-regulation, genetic information, ribosomes, DNA, RNA, mathematical modeling, adaptive control, algorithm, automata theory.*

С появлением живых существ-носителей информации-начинается использование этой информации в целях управления и познания. Возникает циркуляция информации по замкнутому контуру с обратной связью-контуру познания и управления. Это обусловливает целостность живых организмов в условиях воздействия окружающей среды и способствует их развитию (гомеостаз и феномен управления) [1,2].

Все живые существа-растения, насекомые, животные и человек-несмотря на различия во внешнем виде, состоят из живых клеток. Даже люди, отличающиеся друг от друга, имеют одну и ту же клеточную основу. Именно в клетке происходят основные процессы жизни. Как протекают клеточные процессы в пространстве и времени? Как они регулируются? Как возникают волны распространения, пространственное расположение макромолекулярных комплексов в процессе работы отдельных клеточных компонентов?

Клетки-это чрезвычайно сложные структуры, настоящие чудеса природы. Для обмена веществ существуют специальные каналы, белковые комплексы и мембраны, которые обеспечивают избирательный обмен веществ между клеткой и окружающей средой [3,4,5].

Необходимо рассматривать компоненты клетки по отдельности, изучать их функции и обоснование этих функций. Важно определить роль каждого компонента, как отдельно, так и в целом в системе клетки.

Клеточная кибернетика-это наука, изучающая как общие законы адаптивного функционирования клетки как сложной живой системы, так и частные свойства саморегуляции отдельных компонентов и клетки в целом [6,7].

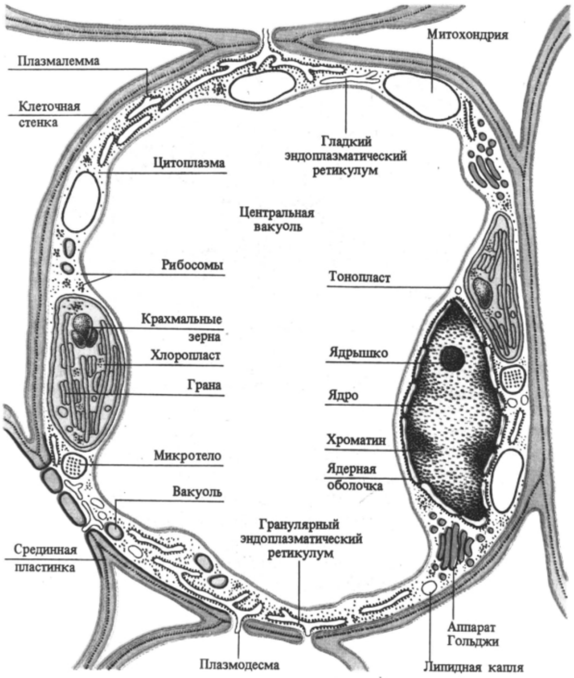
Исходя из вышеизложенного, можно сделать вывод, что клеточная кибернетика занимается изучением специфических для живых организмов общих принципов и конкретных механизмов саморегуляции и активного взаимодействия с окружающей средой. Речь идёт о более глубоком изучении явлений жизни на клеточном уровне, об открытии новых закономерностей с помощью кибернетического анализа, с целью понимания процессов управления и регулирования как объектов информации [8].

Клеточная кибернетика изучает явления преимущественно с точки зрения:

1. Самоорганизации систем,
2. Информационных процессов и связей,

3. Процессов регулирования и управления.

Клетки, выполняющие специализированные функции, могут отличаться друг от друга, однако все они, как клетки эукариотических организмов, содержат ядро, цитоплазму, ряд органелл и систему мембран, которая не только отделяет клетку от окружающей среды, но и разделяет её внутреннее содержимое на компартменты (рис. 1).



Растительная клетка-это сложно организованная биологическая система, которую удобно понимать в сравнении с современными цифровыми технологиями. Каждая органелла выполняет свою уникальную функцию, и эти функции можно сопоставить с системами в области информационных технологий.

Клетка снаружи окружена клеточной стенкой и плазматической мембраной. Эта структура в технологиях напоминает «фаервол» (защитный экран). Она фильтрует поступающую из внешней среды информацию, вещества или вирусы, пропуская внутрь только необходимые элементы [9].

Цитоплазма, заполняющая внутреннее пространство клетки, является местом, где протекают все процессы. Её можно сравнить с оперативной памятью (RAM) компьютера, так как именно здесь выполняются все вычисления и действия [10,11,12].

Ядро клетки играет роль центральной управляющей системы. Оно хранит и контролирует генетическую информацию, как центральный процессор (CPU) или сервер в компьютере. Ядрышко, находящееся внутри ядра, является центром производства рибосом и отвечает за создание модулей, обеспечивающих выполнение программного обеспечения.

Рибосомы участвуют в синтезе белков, и этот процесс можно сравнить с компиляцией или интерпретацией программного кода. На основе данных

(ДНК) создаются белки (готовые продукты), как программы на основе исходного кода.

Эндоплазматическая сеть представлена в двух формах: гладкой и шероховатой. Она выполняет роль внутренней коммуникационной сети или канала передачи данных. Шероховатая сеть синтезирует белки и передаёт их в другие части клетки, а гладкая-производит липиды и другие вещества.

Аппарат Гольджи обрабатывает синтезированные продукты, упаковывает их в нужной форме и направляет по назначению. В цифровых технологиях этот процесс похож на экспорт данных, их форматирование и распределение.

Митохондрии производят энергию. Их можно сравнить с источником питания или системой электроснабжения серверов. Они вырабатывают молекулы АТФ (аденозинтрифосфат), обеспечивая энергией все органеллы клетки [13,14,15].

Хлоропласты вырабатывают энергию из солнечного света. Это можно сравнить с солнечными панелями или возобновляемыми источниками энергии. Они превращают свет в энергию посредством фотосинтеза.

Вакуоли служат для хранения воды, ионов и других веществ. Это аналог облачного хранилища (cloud storage) или внутреннего хранилища данных (data storage). Тонопласт-это защитная оболочка вакуоли, которую можно сравнить с защитной системой базы данных.

Лизосомы и пероксисомы-это системы, очищающие клетку от отходов и борющиеся с вредными веществами. Они похожи на антивирусные программы или средства очистки системы.

Если химические реакции подчиняются определённым законам и методам, то и функциональная деятельность должна быть организована по определённому порядку. Этот процесс обеспечивает устойчивый обмен веществ при сохранении неизменного порядка, который контролируется клеткой. Именно в этом заключается суть кибернетического понятия «информация».

Изучение проблем управления процессами в клетке и информационных связей требует системного подхода, объединяющего законы органической химии, биохимии, биофизики и физиологии.

Кибернетика-это наука, изучающая целесообразность и самоуправление (автоматизм) в природе и технике с помощью математических моделей и экспериментальных методов [16,17].

Кибернетическое изучение живого раскрывает как общие законы адаптивного функционирования сложных систем, так и, в частности, свойства приспособительного самоуправления отдельных органов и организмов, их компонентов и клеток в целом. Было бы правильнее определить эту область знаний как клеточную кибернетику, которая также относится к биологическим наукам. Кибернетические подходы к изучению явлений жизни отличаются от подходов частных биологических дисциплин, так как, как уже кратко упоминалось, основываются на изучении процессов организации сложных систем, обработки информации и целенаправленного управления. Указанные кибернетические подходы предусматривают применение новых методов, отличных от тех, которыми пользуются классические биологические науки. Общим для этих методов является исследование механизмов саморегуляции и действия обратных связей на основе количественного учёта и математической формализации, допускающей точное истолкование с использованием современной вычислительной техники [8].

Определена самоуправления и саморегулирование и передачи генетическое информации написанные в ДНК, а так же матрица цепь полипептидов не является ДНК. Синтез белок непосредственно связаны с РНК и средине передает генетически информации РНК. Так же определена что, синтезирующие частица робосомы в клетки РНК и РНК робосомы является основной объем клетки. Так же лабораторный определена обеспечиваеть генетической информациой РНК к робосомы Если объектом управления является Кибернетики клетки то необходимо детально изучения алгоритма процесса функционирования, саморегулирования образования белок, ДНК, РНК,и АТФ и других компонентов клетки (рис. 2).

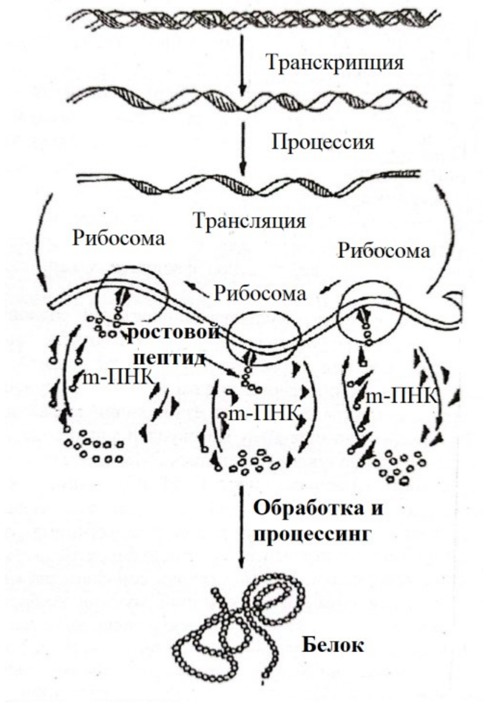


Рис 2

В зависимости от конкретной области клеточная кибернетика должна последовательно изучать: структуру клетки, поведение каждого компонента, общие составляющие клетки как отдельных компонентов, так и их взаимное влияние друг на друга; преобразование сигналов, влияние процессов перехода из одного состояния в другое; механизмы реакции, выполняющие определённую работу; выделение и распределение энергии, передача информации, а также законы, управляющие этими процессами: кодирование, регулирование и управление как отдельными компонентами, так и всей клеткой в целом. Клеточная кибернетика как ветвь кибернетики, естественно, использует её формализованные понятия, специфические методы исследования и оценивает полученные результаты в свете соответствующих кибернетических представлений о структуре и функциях изучаемых биологических явлений [19]. Клеточные процессы представляют собой самоорганизацию сложных систем, процессы передачи, хранения и переработки информации-а в результате-целенаправленное управление. Все эти явления особенно характерны для жизнедеятельности живых существ и обеспечивают их существование и гибкую адаптацию к изменяющимся условиям среды путём адаптивного поведения и целенаправленного саморегулирования. В зависимости от конкретных задач исследования клеточная кибернетика использует частные методы: теорию информации, математическую логику, теорию конечных и бесконечных автоматов, теорию алгоритмов, теорию графов, теорию регулирования и управления, вариационную статистику, теорию вероятностей, теорию массового обслуживания, теорию синтеза информационных систем, теорию логико-динамических систем, теорию логических систем. Необходимо изучение обменных процессов как внутри клетки, так и между клеткой и внешней средой. Развитие технических наук, таких как измерительная техника, приборостроение, цифровые технологии и вычислительная техника, способствовало интенсивному развитию биологических наук-органической химии, биохимии, биофизики, цитологии-на клеточном уровне. Информация, научные результаты и анализ этих данных в современной науке дают достаточную основу для дальнейших исследований компонентов клетки и клеточной информации в целом, а также реакционных и обменных процессов. Исследования в клеточной кибернетике-это изучение клетки и её компонентов как объектов управления, объектов саморегуляции, определение механизмов саморегуляции, преобразования клеточных компонентов, преобразования клетки в целом и поведения как отдельных компонентов, так и всей клетки. Анализ и систематизация позволяют составить чёткий список характеристик каждого объекта и процесса в клетке. Это значит, что с помощью математических инструментов можно формализовать объекты и процессы, построить их модели и алгоритмы [20]. Таким образом, выделяются следующие основные задачи клеточной кибернетики:

1.Использовать существующие методы математического моделирования и построения математических моделей компонентов клетки и всей клетки. При необходимости-совершенствовать их.

2.Использовать существующие алгоритмы объектов или процессов, происходящих в объекте

3.Разрабатывать алгоритмы саморегуляции, самоуправления и управления сложной системой.

4.Исследовать переходы компонентов клетки и клетки в целом из одного состояния в другое.

5.Разрабатывать алгоритмы, определяющие нормальное функционирование отдельных компонентов клетки и всей клетки, а также отклонения от нормы.

Заключение. Цель данной статьи-раскрыть процессы саморегуляции клетки и её компонентов, выявить и разработать естественные алгоритмы саморегулирования и самоуправления клетки и её элементов. Клеточная кибернетика раскрывает универсальные законы функционирования живых систем через призму управления информацией. Она объединяет методы биологии, математики и компьютерных наук, позволяя:

1.Описывать клетку как сложную саморегулируемую систему.

2.Создавать точные модели процессов синтеза белка, энергообмена и передачи генетических данных.

3.Разрабатывать алгоритмы для прогнозирования поведения клетки в изменяющихся условиях.

Перспективы направления связаны с углублённым изучением молекулярных механизмов и применением искусственного интеллекта для анализа клеточных процессов.

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СТРАТЕГИИ ФОРМИРОВАНИЯ ПСИХОЛОГИЧЕСКОЙ УСТОЙЧИВОСТИ У СПОРТСМЕНОВ С ВЫСОКИМИ РЕЗУЛЬТАТАМИ: НАУЧНЫЙ ПОДХОД И ПРАКТИЧЕСКИЕ РЕЗУЛЬТАТЫ

Аннотация.*В данной статье рассматриваются стратегии формирования психологической устойчивости у спортсменов, их компоненты и практическое применение. В исследовании были протестированы современные методы управления стрессом, развития волевых качеств и поддержания мотивации. На основе статистического анализа предложены эффективные программы психологической подготовки.*

Ключевые слова: *спортивная психология, устойчивость, стресс, соревнования, психологическая подготовка, стратегия.*

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STRATEGIES FOR FORMING PSYCHOLOGICAL RESILIENCE IN HIGH-PERFORMANCE ATHLETES: SCIENTIFIC APPROACH AND PRACTICAL RESULTS

Annotation.*This article explores strategies for developing psychological resilience in athletes, its components, and practical applications. The study tested modern methods for managing stress, strengthening volitional readiness, and maintaining motivation. Based on statistical analysis, effective psychological training programs are recommended.*

Keywords: *sport psychology, resilience, stress, competition, psychological training, strategy*

В условиях современного спорта высших достижений психологическая устойчивость становится одним из ключевых факторов успешной карьеры спортсмена. Даже при высоком уровне физической подготовки и технического мастерства, отсутствие способности справляться с психологическими нагрузками может привести к снижению результатов, срывам на соревнованиях и даже к профессиональному выгоранию. Цель данной статьи — рассмотреть основные стратегии формирования психологической устойчивости у спортсменов, опираясь на современные научные подходы и эмпирические данные. Психологическая устойчивость (ПУ) в контексте спорта — это способность спортсмена сохранять концентрацию, уверенность и мотивацию в условиях высокого стресса и давления. В психологии спорта ПУ часто рассматривается как синтез таких качеств, как стрессоустойчивость, эмоциональный контроль, целеустремлённость, когнитивная гибкость и оптимизм. На основе метаанализа авторы выделили ключевые психологические характеристики успешных спортсменов: высокий уровень саморегуляции, положительное отношение к стрессу и эффективное использование копинг-стратегий. Существует несколько эффективных методологических подходов к формированию ПУ у спортсменов: КПТ (Когнитивно-поведенческая терапия) используется для обучения спортсменов управлению негативными мыслями, заменой иррациональных установок на конструктивные и развития навыков положительного мышления. Практика КПТ включает в себя: Ведение дневников мыслей, Тренинг позитивной переформулировки, Моделирование стрессовых ситуаций Майндфулнес-тренинги помогают спортсменам научиться контролировать внимание, принимать переживания без оценки и повышать устойчивость к деструктивным эмоциям. Исследования показывают, что осознанность коррелирует с высокой стрессоустойчивостью и меньшей тревожностью перед соревнованиями. Эти методы позволяют спортсменам научиться контролировать физиологические параметры (ЧСС, дыхание, мышечное напряжение), что способствует улучшению саморегуляции в стрессовых условиях. Эмпирические данные демонстрируют рост эффективности выступлений у спортсменов, проходивших такие тренировки. Применение техники визуализации позволяет спортсменам многократно "прокручивать" в уме сценарии будущих соревнований, повышая уверенность и снижая уровень тревожности. Чёткая постановка целей помогает сфокусироваться на конкретных задачах, что снижает уровень неопределённости и тревожности. Диафрагмальное дыхание, прогрессивная мышечная релаксация по Джекобсону, медитация — все эти техники доказали свою эффективность в снижении физического и психоэмоционального напряжения.

Спортивные психологи всё чаще применяют персонализированные модули подготовки с использованием психодиагностики (тесты тревожности, уровень мотивации, стиль саморегуляции и др.). Формирование психологической устойчивости у спортсменов с высокими достижениями — это многоуровневая задача, требующая интеграции научных подходов, индивидуального подхода и постоянной практики. Психологическая устойчивость становится не просто элементом подготовки, а фундаментом для устойчивого спортивного роста, преодоления кризисов и достижения максимальных результатов. Психологическая устойчивость (ПУ) — это способность человека сохранять психическое равновесие, продуктивную деятельность и адаптационные ресурсы в условиях стресса, давления и неопределённости. В контексте спорта, ПУ особенно важна, так как высокие достижения неизбежно сопряжены с интенсивными нагрузками, жесткой конкуренцией, эмоциональными перегрузками и необходимостью быстрого принятия решений. Согласно С.Л. Рубинштейну, устойчивость — это проявление активной адаптации личности к изменяющимся условиям среды.

Психологическая устойчивость не является стабильным врожденным качеством; она может быть развита через целенаправленную подготовку и тренировки. Современные исследователи выделяют несколько ключевых компонентов ПУ, особенно релевантных в спортивной деятельности: Когнитивный компонент: включает способность к рациональному мышлению, оценке ситуации, принятию решений и фокусировке внимания. Эмоциональный компонент: характеризуется способностью к саморегуляции, контролю эмоций, устойчивостью к фрустрации и способности к эмоциональной самоподдержке. Мотивационный компонент: включает в себя целеустремлённость, настойчивость, внутреннюю мотивацию и готовность к самопреодолению. Личностно-волевой компонент: выражается в таких качествах, как решительность, ответственность, самообладание, уверенность в себе. Формирование ПУ неразрывно связано с множеством внешних и внутренних факторов: Индивидуально-психологические особенности: тип темперамента, уровень тревожности, самооценка, эмоциональный интеллект. Социальные факторы: поддержка тренера, семьи, команды; наличие соревновательной среды. Культурные **и воспитательные аспекты**: спортивная культура страны, национальные особенности понимания успеха и неудачи. **Опыт и возраст спортсмена**: более опытные спортсмены, как правило, обладают большей устойчивостью, что связано с адаптацией к стрессовым ситуациям и обретением психологических ресурсов. Основан на идее, что мышление определяет поведение и эмоциональные реакции. Спортсмены, осознанно заменяющие негативные автоматические мысли на позитивные и конструктивные, демонстрируют более высокий уровень ПУ. Этот подход широко используется в работе спортивных психологов. Акцентирует внимание на личностном росте, самореализации и внутренней мотивации. Сегодня ПУ рассматривается не просто как личностное качество, а как **метанавык**, то есть способность, лежащая в основе других навыков: концентрации, коммуникации, мотивации, адаптации. Спортсмен с высокой ПУ способен:

7. Быстро адаптироваться к изменяющимся условиям игры или соревнования.
8. Эффективно восстанавливаться после неудач.
9. Не поддаваться внешнему давлению (зрители, судьи, ожидания тренеров).
10. Поддерживать мотивацию на протяжении долгого тренировочного цикла.

Тренер и психолог играют ключевую роль в формировании ПУ. Их задачи включают:

8. Создание психологически безопасной тренировочной среды.
9. Использование техник обратной связи и позитивного подкрепления.
10. Проведение регулярных тренингов стрессоустойчивости.
11. Индивидуальный подход к каждому спортсмену с учетом его психотипа.

Особенно важно, чтобы тренер и спортсмен работали как партнеры: спортсмен — как активный участник, тренер — как фасилитатор личностного и профессионального роста.

Психологическая устойчивость является многокомпонентной конструкцией, формируемой под влиянием множества факторов и являющейся результатом комплексного подхода. Теоретическое понимание её структуры и механизмов формирования открывает широкие возможности для научно обоснованного и системного воздействия на психику спортсмена. Это, в свою очередь, способствует повышению эффективности тренировочного процесса и достижению стабильных спортивных результатов.

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ИНИЦИАТИВА ООН – 80 КАК ПРОЕКТ РЕФОРМИРОВАНИЯ ОРГАНИЗАЦИИ. РИСКИ И ПЕРСПЕКТИВЫ

Аннотация: *в статье исследуется инициатива ООН – 80, представленная Генеральным Секретарем Организации Объединенных Наций 12 марта 2025 года. Анализируются основные положения инициативы, дается оценка перспектив и угроз для их реализации. Дается оценка перспективе повышения эффективности Организации путем реализации инициативы.*

Ключевые слова: *ООН, Совет Безопасности, Генеральная Ассамблея, инициатива ООН – 80, реформа ООН*

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UN-80 INITIATIVE AS A PROJECT FOR REFORMING THE ORGANIZATION. RISKS AND PROSPECTS

Abstract: *The article examines the UN–80 initiative, presented by the Secretary-General of the United Nations on March 12, 2025. The main provisions of the initiative are analyzed; the prospects and threats for their implementation are assessed. The prospects for improving the effectiveness of the Organization through the implementation of the initiative are assessed.*

Keywords: *UN, Security Council, General Assembly, UN–80 initiative, UN reform*

Созданная в 1945 году Организация Объединенных Наций является на сегодняшний момент ключевым институтом глобального управления. Однако, в силу изменившейся геополитической реальности, и большого количества новых вызовов глобального мира становится очевидной необходимость модернизации и реформирования ООН. Повышение эффективности методов действия и структуры Организации, направленное на повышение глобальной безопасности, при условии соблюдения политических интересов суверенных государств зависит от стран участниц ООН и, в особенности от постоянных членов Совета Безопасности.

Антониу Гутерриш со времени своего избрания на пост Генерального Секретаря ООН является сторонником реформ в контексте повышения эффективности Организации. Представленная им инициатива является результатом его многолетней деятельности на этом посту. Прежде всего, программа предполагает оптимизацию расходов Организации и повышение степени ее цифровизации. Также предполагается перенос ряда органов и операций в регионы с менее низкими тратами на их осуществление [1]. Основными стейкхолдерами данных изменений является международная бюрократия. Различные чиновники региональных отделений ООН могут как содействовать, так и противостоять изменениям, используя свой административный ресурс, поскольку материально заинтересованы. Данные изменения могут быть отнесены к чисто техническим, и в случае их реализации могут потенциально сократить расходы на деятельность ООН.

С этим пунктом связана более проблемная сфера изыскания финансирования деятельности Организации: миротворческих операций, мероприятий культурно-дипломатического характера, гуманитарных программ [2]. Этот процесс связан с утратой доверия к Организации, и с большим доверием стран к экономическому или военному партнерству, нежели к международным организациям. В то время как проблема недофинансирования международных программ усиливается, существует также и ряд стран, являющихся должниками, в соответствии с 19 статьей Устава ООН. Такие государства не только уклоняются от выделения средств на международную деятельность, но и являются должниками в вопросе уплаты членских взносов в Организацию [3].

К техническим изменениям следует отнести также и структурные преобразования органов ООН, которые подразумевают в основном, сокращение дублирующийся должностей и снижения числа работников бюрократического аппарата, что характеризует тренд на экономию средств Организацией.

Вопрос об анализе эффективности исполнения мандатов ООН гораздо более сложен. Последние годы показывают низкую эффективность подобных миротворческих операций, провал миротворческой миссии ООН в Палестине и неудачи в ряде африканских стран показывают, что необходимо коренным образом пересмотреть подобные операции как инструмент международной безопасности [4].

Инициатива ООН-80 предлагает системные изменения, но их реализация зависит от следующих факторов: а) готовность государств-членов к компромиссу; б) нахождение баланса между экономической стабильностью и эффективностью Организации, поскольку оптимизация может снизить способность ООН реагировать на кризисы. Вместе с тем, Антониу Гутерриш не раз отмечал важность деятельности Совета Безопасности для эффективной работы Организации. Текущий кризис ООН напрямую связан с отсутствием консенсуса между постоянными членами СБ по ключевым вопросам мировой политики. В этом контексте реформирование системы управления органами ООН является вторичным процессом по отношению к конфликту между ключевыми акторами международных отношений и не послужит достаточным основанием для повышения эффективности Организации.

Реализуемая в рамках инициативы «ООН – 80» стратегия по повышению эффективности деятельности Организации затрагивает в основном сферу действия международного чиновничества, потенциально реализация данной программы может привести к более эффективному расходованию средств в рамках ООН. В то же время проблемы изыскания этих средств, а также снижения эффективности Организации в связи с кризисом отношений между постоянными членами Совета Безопасности, которые оказывают непосредственное влияние на эффективность ООН, остаются за рамками инициативы и далеки от разрешения.

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НАЛОГОВАЯ БЕЗОПАСНОСТЬ И ИНСТРУМЕНТЫ ЕЕ ОБЕСПЕЧЕНИЯ В СИСТЕМЕ ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТИ

Аннотация. *В статьне определено место налоговой безопасности в системе экономической безопасности региона. Проведен анализ отношения величины налоговых доходов Республики Узбекистан к ВВП. Классифицированы налоговые риски. Выделена роль налоговой политики как инструмента обеспечения налоговой безопасности.*

Ключевые слова: *налоговое администрирование, налоговая политика, экономическая безопасность, бюджетно-налоговая безопасность*

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TAX SECURITY AND ITS ENSURING TOOLS IN THE ECONOMIC SECURITY SYSTEM

Abstract. *The article defines the place of tax security in the system of economic security of the region. The analysis of the ratio of the amount of tax revenues of the Republic of Uzbekistan to GDP is carried out. Tax risks are classified. The role of tax policy as a tool for ensuring tax security is highlighted.*

Key words: *tax administration, tax policy, economic security, budgetary and tax security*

Любое государство обязано обеспечивать ряд национальных интересов, выраженных в особой системе потребностей общества, которую следует защищать от множества угроз и вызовов, учитывая специфику различных сфер жизнедеятельности. Такие условия требуют постоянного повышения качества и эффективности деятельности институтов государственной власти, обеспечивающих национальную безопасность.

Существует огромное количество определений национальной безопасности, но все они сводятся к тому, что под национальной безопасностью понимается такое состояние защищенности, при котором будут реализовываться права и свободы личности, обеспечиваться стабильный социально-экономический рост общества, а государство территориально целостно и независимо. Защита национальных интересов, требуется в следующих сферах: оборона страны, общественная безопасность, экология и природопользование, качество жизни граждан, экономика, культура, наука и образование, технологии и инновации.

Одной из главных, составных частей национальной безопасности, является экономическая безопасность. Вопрос обеспечения безопасности экономики, стоит довольно остро, поскольку на современном этапе Узбекистан сталкивается с довольно серьезными вызовами, которые угрожают ее финансовой устойчивости: последствия пандемии коронавируса, санкции блока западных стран, сложные отношения со странами-соседями.

Рассмотрим динамику главного макроэкономического показателя, характеризующего эффективность экономики и качество жизни населения - ВВП на душу населения в процентах к предыдущему году, на рисунке 1.

Рисунок 1. ВВП на душу населения

Анализ рисунка 1 показывает, что в I квартале 2024 года ВВП на душу населения Узбекистана составил 6,581 млн сумов (или $527,5).

В январе – марте 2023 года этот показатель достиг 5 584,9 тыс. сумов ($492,4). Таким образом, ВВП на душу населения в Узбекистане вырос на 17,8% по сравнению с прошлым годом. Для сравнения, в 2022 году ВВП на душу населения составлял 4,7 млн сумов, а в 2021 году – 3,9 млн сумов.

Экономический рост в республике обусловлен рядом факторов. В их числе — увеличение производственных мощностей, экспорта и улучшение инвестиционного климата. Увеличение ВВП на душу населения является важным показателем повышения благосостояния граждан и общего экономического развития страны.

Экономическая безопасность – это состояние защищенности страны от внешних и внутренних угроз, обеспечивающее достойный уровень жизни граждан, стабильность финансовой системы, расширение воспроизводства, рост технологически-инновационного потенциала, снижение зависимости от импорта продукции, улучшение международных связей. Система экономической безопасности - многоаспектна, состоит из множества узких подсистем, которые оказывают влияние друг на друга: сфера кредитования, бюджетно-налоговая, инвестиционная, финансовая и другие.

Принято различать пять уровней экономической безопасности:

Региональная экономическая безопасность - поддержание состояния защищенности экономики региона на должном уровне, при помощи определенного инструментария различных норм, мер и мероприятий, учитывающих территориальную специфику: демографическую ситуацию, ресурсную базу, межрегиональные отношения и т.д. Экономическая безопасность региона определяется совокупностью факторов и условий, которые характеризуют состояние экономики, устойчивость и поступательность ее развития, степень ее самостоятельности. Данное определение проявляется в следующем:

• способности региона проводить собственную экономическую политику;

• способности своевременно реагировать на внешние конъюнктурные изменения;

• способности осуществлять экономические мероприятия по нейтрализации угроз экономической безопасности;

• возможности участвовать в процессах производства в других регионах на договорной основе, учитывая при этом интересы своей территории;

• возможности стабильно поддерживать соответствующий уровень благосостояния жителей региона на уровне экономических нормативов, используемых в мировой практике [2].

Обеспечение экономической безопасности региона довольно важная задача, поскольку экономика страны в целом, складывается из экономического состояния ее субъектов, которые имеют определенную специфику.

С экономической точки зрения, под этим словом понимается территория, имеющая систему, представляющую собой определенный канал экономических связей между промышленными предприятиями.

Опираясь на социальную среду, экономика региона обязана предоставлять благоприятные условия для населения, стабильно повышать качество жизни, ориентируясь на стандарты, противостоять внутренним и внешним угрозам. Также важно учитывать, что на региональную экономику влияет природные условия и ресурсы.

В связи с этим основной целью обеспечения экономической безопасности региона является обеспечение такого развития региональной экономической системы, при которой были бы обеспечены приемлемые условия для жизни населения и развития личности, социально-экономической стабильности, а также успешного противостояния влиянию внутренних и внешних угроз.

Региональные органы власти должны выстраивать экономическую политику, целью которой будет являться рост экономики, противостояние внутренним и внешним вызовам, повышение качества жизни, социально-политическая стабильность.

Данная цель может быть достигнута путем решения следующих задач:

1. Разработка концепций, раскрывающие стратегические приоритеты развития региона, с опорой на максимально эффективное использование материально-ресурсной базы.

2. Идентификация факторов, которые могут привести появлению рисков и угроз экономики региона.

3. Разработка критериев и показателей, позволяющих оценивать уровень социально-экономического развития на краткосрочную и долгосрочную перспективу с целью выведения региона на достойный уровень; составление и формирование системы индикаторов и показателей, характеризующих состояние социально-экономической сферы, их анализ и составление динамики, для принятия решений.

Основными элементами структуры экономической безопасности региона являются:

- финансовая составляющая, которая характеризуется способностью финансовой среды соответствовать условиям, необходимым для реализации различных социальных вызовов региона;

- социально-демографическая, которая характеризует обстановку региона в плоскости качества жизни и развитии рынка труда, складывающейся под влиянием ряда процессов, к числу которых относится: уровень безработицы, динамика смертности и рождаемости, уровень социальной дифференциации общества, социальноинфраструктурная оснащенность и т.д.;

- технико-технологическая составляющая, складывающуюся внедрением высокотехнологичных производств, которые позволяют производить наукоемкую продукцию, повышающую уровень конкурентоспособности региона;

- сырьевая составляющая, характеризующаяся ресурсно-сырьевым потенциалом региона, способным обеспечивать промышленные потребности хозяйствующих субъектов;

- экологическая составляющая, которая характеризуется способностью экономики развиваться, не нанося вред окружающей среде, а также внедрением в хозяйственный процесс экологически безопасных и природоохранных технологий производства;

- энергетическая составляющая, представляющая собой обеспечение хозяйствующих субъектов энергоресурсами и соответствующими компонентами;

Особое место, среди подобных направлений, занимает налоговая безопасность, ведь именно налоговая сфера финансово обеспечивает функционирование государства.

Понятие «налоговая безопасность», можно рассматривать с нескольких сторон. Во-первых, как составную часть структуры национальной безопасности, вид финансово-экономической безопасности. Во-вторых, как механизм аккумулирования денежных средств, обеспечивающий бюджет, а также институт, отстаивающий налоговые интересы государства. В-третьих, как взаимосвязь областей: экономики, управления, финансов, налогового администрирования и т.д.

С позиции экономики, как науки о контроле, учете и мониторинге хозяйственной жизни, «налоговая безопасность» обеспечивает рост и развитие хозяйствующих субъектов. Экономический рост оценивается с помощью индикативной системы, в которой налоговые показатели и индикаторы занимают важное место. К примеру, задачи обеспечения бюджета налоговыми доходами, а также снижения налогового бремени на налогоплательщиков, решает - налоговая нагрузка на отрасли экономики. Таким образом, «налоговую безопасность» следует рассматривать, как оптимизационный механизм стратегического планирования деятельности субъектов экономики.

С точки зрения управления, как совокупности государственных мер, имеющих законодательно-нормативную базу и осуществляемых компетентными органами власти, «налоговая безопасность» устанавливает систему правил и норм, обеспечивающих стабильный рост и безопасное развитие хозяйствующим субъектам. Проводя свою деятельность, в соответствии с возложенными обязанностями, управленческие субъекты создают условия для повышения налоговой безопасности.

Обеспечение налоговой безопасности требует четкой системы мер и правил. Для этого следует установить организационно-правовую основу и методологический инструментарий.

Организационно-правовая основа обеспечивается законодательно-нормативной базой и деятельностью государственных структур, имеющих полномочия управления налоговой безопасности. Методологическое обеспечение налоговой безопасности основано на концепциях налоговой безопасности, для разработки которых требуется расширенное изучение теоретической базы.

Для реализации налоговой безопасности требуется установление соответствующих принципов налогообложения. Система налогового управления строится на ряде функций, которыми наделены компетентные органы и иные организации. Среди этих функций можно выделить: планирование налогообложения, мониторинг и контроль налоговой нагрузки, снижение рисков и угроз. Угрозы налоговой безопасности на микроэкономическом уровне основываются на классификации налоговых рисков, которые применяются в отношении конкретных налогоплательщиков.

Угрозы на макроуровне определяются с опорой на цели задачи, а также уровнем результатов доходной части бюджета.

Как управленческая категория, налоговая безопасность, обеспечиваемая органами государственной власти, может выполнять следующие задачи:

- Идентифицировать угрозы налоговой безопасности, проводить мероприятия по их анализу и прогнозированию;

- Выполнять разработку основных направлений государственной политики в сфере обеспечения налоговых отношений.

- На основе выработанных направлений, устанавливать главные положения налоговой политики государства;

- Обеспечивать нормативно-правовую базу в сфере налоговой безопасности;

- Координировать деятельность компетентных государственных органов;

- Разрабатывать концепции и методологию налогового регулирования, на основе научной деятельности;

- Организовывать аккумулирование средств на расходы обеспечения налоговой безопасности, а также контролировать их целевое выполнение;

- Внедрять современные автоматизированные системы в работу налоговых органов; - Информационно обеспечивать налоговую безопасность в сми, интернет, телекоммуникационных и иных ресурсах;

- Укреплять международное сотрудничество в налоговой сфере.

Как говорилось выше, уровень налоговой безопасности государства определяется способностью противостоять внутренним и внешним угрозам. Данные угрозы - следствие любых экономических преступлений, поскольку денежные потоки и иные ресурсы, проходящие между субъектами экономических отношений, являются объектами налогообложения. Для операций, проводимых субъектами хозяйствования, следует проводить оптимизацию, в результате которой, будет происходить уменьшение размера налоговых платежей и налогового нагрузки.

Причинами такой оптимизации могут быть: законно обеспечить условия, при которых бизнес будет развиваться, тем самым повышая экономические результаты, а также коррупционная деятельность лиц, пытающихся уклониться от уплаты налогов. В этом случае, коррупция представляет собой превышение полномочий должностными лицами, различного рода взятками, подкупами, а также банкротством юридических лиц, имеющие обязательства перед бюджетом.

Основной налоговой угрозой является необеспеченность бюджетов бюджетной системы налоговыми доходами, в результате которой, государственные власти страны, регионов не смогут эффективно выполнять свои функции.

Внутренние факторы, влияющие на наступление угроз:

- Низкий инвестиционный и налоговый климат;

- Низкая компетентность налогоплательщиков;
- Слабое информационное обеспечение налоговой безопасности;

Внешние факторы, влияющие на наступление угроз:

- Санкции западных стран;
- Позиция Узбекистана на международной экономической арене;
- Нестабильность и неразвитость стран-соседей, партнеров.

Следует отметить, что серьезной угрозой, может стать чрезмерная налоговая нагрузка, которая может привести к негативным последствиям для хозяйствующих субъектов и как следствие - ухудшение состояния экономики.

Таким образом, налоговая нагрузка - важный показатель, описывающий влияние процесса аккумулирования налоговых доходов на развитие экономической среды, как и страны, так и отдельного налогоплательщика.

Анализировать данный показатель можно в рамках государства и региона, путем нахождения доли налоговых поступлений в ВВП или ВРП, а также на уровне налогоплательщика - в выручке и т.д.

Налоговой угрозе предшествует налоговый риск, который наступает ввиду какой-либо неопределенности. Негативные факторы, которые являются результатом наступления риска, выступает условием возникновения угрозы. Налоговым риском можно назвать вероятность наступления негативных финансово-экономических последствий, которое государство терпит в налоговой сфере, оказывающих влияние на обеспеченность бюджетов налоговыми доходами.

Факторами, влияющими на налоговые риски, могут быть внутренними и внешними: внутренние - обстоятельства возникновения риска налогового преступления, которые зависят непосредственно от компетентности ведения деятельности налогоплательщика; внешние - совокупность явлений, существующих независимо от налогоплательщика, но ведущих к совершению правонарушения.

Налоговые риски можно классифицировать на 4 группы:

1. Законодательные риски, возникающие ввиду неустойчивости и неясности законодательной базы;
2. Экономические риски, возникающие от различных условий и процессов в экономической среде, ведущих к финансовой нестабильности государства, отдельным отраслям или субъектам;
3. Организационно-управленческие риски, возникающие в результате деятельности налоговых органов, в разрезе управленческих решений и организации мероприятий, оказывающих влияние на сферу налоговых отношений;
4. Поведенческие риски, зависящие от профессиональной подготовки, моральной устойчивости и компетенции служебных лиц налоговых органов.

Обеспечение налоговой безопасности регионов требует развития и совершенствования налоговой политики. Министерство финансов Республики Узбекистан ежегодно подготавливает трехлетний план основных направлений налоговой политики для каждого года, следующего за отчетным.

Поскольку налоговая политика является важной частью социально-экономических направлений политики государства, то ее целью выступает организация и распределение финансовых средств, для выполнения государством своих функций, развития экономической среды, льготного финансирования определенных групп населения, требующих социальной поддержки.

Налоговая политика - это сложная система, представляющая собой совокупность различных финансово-экономических, правовых норм и организационно-управленческих мероприятий по разработке налоговой структуры, в плоскости использования налогового законодательства. Применяя налоговую политику, компетентные органы используют меры по контролю налоговых доходов бюджета. Данные меры будут наиболее эффективны при использовании инструментов других экономических политик государства: бюджетной и долговой.

Бюджетная политика, как совокупность мер государственных органов, основывающих направления по использованию бюджета региона, совместно с иными видами политики снижает чрезмерную налоговою нагрузку, которая является серьезной проблемой экономики региона.

Долговая политика, как инструмент, направленный на решение задач по обеспечению финансирования дефицита бюджета, наряду с другими видами политик, решает проблему формирования доходной части бюджета, за счет мониторинга и привлечения ресурсов.

Результативность налоговой политики зависит от принципов ее проведения, к которым относятся:

- стабильность налоговой системы;
- единство стратегии и тактики;
- нейтральность налоговых правил и условий;
- определенность;
- публичная (всеобщая) гласность;
- политическая ответственность;
- научная обоснованность [3]

В зависимости от расставленных приоритетов и целей, могут применяться различные методы реализации налоговой политики.

Из арсенала современной мировой налоговой практики следует выделить методы:

• регулирование соотношения прямого и косвенного налогообложения;

• регулирование соотношения региональных и местных налогов;

• перенос налоговой нагрузки с одних категорий налогоплательщиков на другие;

• регулирование соотношения пропорциональных и прогрессивных ставок налогов и степени их прогрессии;

• регулирование масштаба и направленности предоставления налоговых льгот и преференций, вычетов, скидок и изъятий из налоговой базы;

• регулирование состава налогов, объектов налогообложения, налоговых ставок, способов исчисления налоговой базы, порядка и сроков уплаты налогов; и другие [4].

Таким образом, налоговая политика является важным инструментом обеспечения экономической безопасности региона. С ее помощью достигаются стратегические приоритеты развития, а также реализуются меры и мероприятия по противодействию внутренним и внешним угрозам. Уровень налоговой безопасности региона определяется способностью налоговых органов аккумулировать доходы в бюджет и стимулировать предпринимателей к развитию их бизнеса.

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ВЛИЯНИЕ ПРИРОДНЫХ АЛКАЛОИДОВ НА НЕРВНУЮ СИСТЕМУ: МЕХАНИЗМЫ ИССЛЕДОВАНИЯ

Ключевые слова: *природные алкалоиды, нервная система, нейромедиаторы, рецепторы, фармакологическая активность, ацетилхолин, дофамин, никотин, морфин, кофеин, механизм действия.*

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INFLUENCE OF NATURAL ALKALOIDS ON THE NERVOUS SYSTEM: MECHANISMS OF RESEARCH

Keywords: *natural alkaloids, nervous system, neurotransmitters, receptors, pharmacological activity, acetylcholine, dopamine, nicotine, morphine, caffeine, mechanism of action.*

Введение: Алкалоиды — это химические соединения, играющие важную роль в функционировании нервной системы. Они получаются из природных растений и, как правило, оказывают активное влияние на нервные процессы, что повышает их фармакологическое значение. Алкалоиды встречаются преимущественно в растениях и представляют собой специфические азотсодержащие соединения. Известно, что в их структуре содержится атом азота, который часто входит в состав гетероциклических колец.

Цель исследования: Изучить механизмы воздействия природных алкалоидов на нервную систему, выявить их фармакологические свойства, особенности взаимодействия с нейромедиаторами и рецепторами, а также обосновать их роль и перспективы применения в медицине и нейрофармакологии.Алкалоиды классифицируются по-разному, однако некоторые из них особенно выделяются по своему воздействию на нервную систему. Например, такие соединения, как морфин и кодеин, обладают возбуждающим и анальгезирующим действием. Эти алкалоиды блокируют передачу болевых сигналов через головной мозг и нервную систему, благодаря чему широко применяются в медицине.

Методы исследования: Среди наиболее известных алкалоидов также можно отметить никотин. Никотин — это алкалоид, получаемый из табачного растения, который воздействует на никотиновые рецепторы в центральной нервной системе. Он обладает как возбуждающим, так и в некоторых случаях успокаивающим действием. Никотин изменяет процесс передачи сигналов между нервными окончаниями и часто вызывает зависимость.

Кофеин также относится к алкалоидам. Он содержится в кофе, чае и некоторых других растениях. Кофеин стимулирует центральную нервную систему, повышает бодрствование и снижает чувство усталости. По данным, ежедневно более миллиарда человек по всему миру употребляют кофе и чай, что указывает на широкое распространение кофеина.

Ещё одним примером алкалоида, влияющего на нервную систему, является амфетамин, который оказывает сильное стимулирующее действие на центральную нервную систему. Амфетамин и его производные нередко используются в медицинских целях для повышения концентрации внимания и снижения усталости. Однако их применение может вызвать привыкание и различные проблемы со здоровьем.

Результаты и обсуждение: Алкалоид хинидин используется для поддержания нормального сердечного ритма, хотя также оказывает определённое воздействие на нервную систему. Алкалоид хинин, получаемый из растения хинного дерева, применяется в лечении малярии. Некоторые алкалоиды также обладают психотропным действием. Например, ЛСД (лизергиновая кислота диэтиламид) и псилоцибин влияют на мозговую активность и могут вызывать галлюцинации.

Если обратиться к статистике, большинство известных алкалоидов используется как стимуляторы или как вещества с медицинским применением. Для научных исследований по теме алкалоидов опубликовано более 20 000 научных статей.

Эти данные подтверждают биологическую активность алкалоидов и их влияние на нервную систему. Алкалоиды по-прежнему остаются предметом многочисленных научных исследований, поскольку полное понимание их сложной химической природы остаётся одной из важнейших задач современных наук о жизни.

Природные алкалоиды — это химические соединения, которые преимущественно встречаются в растениях и обладают разнообразным биологическим действием. Эти соединения на протяжении веков использовались человеком в качестве лекарственных средств, а изучение их механизмов действия остаётся актуальной научной задачей. Ниже представлены основные механизмы действия природных алкалоидов и биохимические процессы, через которые они реализуют своё влияние.

Классификация природных алкалоидов: Алкалоиды обладают разнообразными структурами, что позволяет разделить их на несколько классов. К ним относятся:

тропановые алкалоиды (например, атропин),

индольные алкалоиды (например, стрихнин),

имидазольные алкалоиды (например, пилокарпин),
пуриновые алкалоиды (например, кофеин),
изохинолиновые алкалоиды (например, морфин).

Воздействие на нейромедиаторы и рецепторы: Многие алкалоиды воздействуют на центральную нервную систему. Так, морфин и другие опиоидные алкалоиды связываются с опиоидными рецепторами мозга и снижают болевые ощущения. Стрихнин блокирует глициновые рецепторы, повышая возбудимость нервной системы.

Воздействие на α- и β-адренорецепторы: Такие алкалоиды, как эфедрин, активируют симпатическую нервную систему через α- и β-адренорецепторы, что может вызывать учащение сердцебиения или расширение бронхов.

Влияние на кальциевые каналы и мышечные клетки: Вератрин и гиперицин воздействуют на кальциевые каналы, вызывая приток кальциевых ионов в ткани, что влияет на сокращение мышц и работу нервных клеток.

Ферментативное и ингибирующее действие: Некоторые алкалоиды оказывают эффект, ингибируя ферменты. Например, кофеин ингибирует фермент фосфодиэстеразу, повышая уровень цАМФ (циклического аденозинмонофосфата), что усиливает внутриклеточную передачу сигналов.

Антибактериальное и противовирусное действие: Алкалоиды, такие как берберин (представитель изохинолиновых алкалоидов), проявляют антимикробную активность, нарушая синтез ДНК и РНК или разрушая клеточную стенку микроорганизмов.

Психоактивные эффекты и галлюцинации: Алкалоид мескалин, содержащийся в кактусе пейот, обладает психоактивным действием, вызывая галлюцинации и изменённое восприятие. Эти эффекты обусловлены взаимодействием с серотониновыми рецепторами.

Воздействие на систему циклических нуклеотидов: Никотин активирует никотиновые рецепторы, повышая возбудимость нейронов и стимулируя высвобождение дофамина, что способствует формированию зависимости.

Эти механизмы демонстрируют, каким образом природные алкалоиды могут влиять на различные процессы в организме человека. С развитием науки появляется всё больше данных о тонких механизмах их действия. Алкалоиды представляют интерес не только как лекарственные препараты, но и как объекты научных исследований, направленных на глубокое понимание биологических процессов.

Таким образом, воздействие алкалоидов на нервную систему является многообразным и многогранным, а их биологическая активность и сферы применения имеют большое значение для фармакологических исследований. Однако при их использовании требуется осторожность, поскольку вместе с полезным эффектом следует учитывать потенциальные риски и побочные действия. Тема взаимодействия нейротрансмиттеров и алкалоидов занимает важное место в химии, биологии и фармакологии. Нейротрансмиттеры — это химические вещества, передающие нервные импульсы через синапсы в нервной системе человека и других организмов. Алкалоиды же — это природные органические соединения, содержащие азот, преимущественно встречающиеся в растениях. Они могут обладать токсичными, фармакологически активными или полезными свойствами.

Среди основных нейромедиаторов — ацетилхолин, который функционирует как в центральной, так и в периферической нервной системе, взаимодействуя с холинергическими рецепторами. Биогенные амины, такие как дофамин, норэпинефрин и серотонин, также являются важными нейротрансмиттерами и участвуют в различных психофизиологических процессах.

Алкалоиды, обладая разнообразными химическими структурами и фармакологическими эффектами, могут влиять на работу этих медиаторов. Например, морфин используется как анальгетик, тогда как стрихнин является сильным ядом. Никотин, хинин и кодеин также относятся к группе алкалоидов.

Связь между нейромедиаторами и алкалоидами проявляется, прежде всего, в их взаимодействии с рецепторами. Так, попадая в организм, никотин связывается с никотиновыми ацетилхолиновыми рецепторами, активируя симпатическую нервную систему и вызывая более выраженный стимуляторный эффект, чем кофеин.

Кофеин, содержащийся в кофейных и чайных растениях, действует как антагонист аденозиновых рецепторов, блокируя действие аденозина — основного тормозного нейромодулятора в центральной нервной системе. В результате повышаются бодрость и концентрация внимания.

Кокаин, относящийся к тропановым алкалоидам, блокирует транспорт дофамина, повышая его концентрацию в синаптической щели, что вызывает ярко выраженную эйфорию. Леводопа (L-допа) применяется при лечении болезни Паркинсона, стимулируя синтез дофамина. Среди алкалоидов, взаимодействующих с серотониновыми рецепторами, стоит выделить ЛСД (лизергиновая кислота диэтиламид) — вещество с высокой аффинностью к этим рецепторам и выраженным психоактивным действием.

Алкалоиды часто применяются в медицине как лекарственные средства. В частности, морфин и кодеин используются как мощные обезболивающие препараты. Фармакологическое действие каждого алкалоида уникально и, как правило, обусловлено его взаимодействием с определёнными нейротрансмиттерными системами.

В заключение следует отметить, что взаимодействие растительных алкалоидов с нейромедиаторами человека остаётся актуальной темой для научных и клинических исследований. Оба типа соединений играют важную роль в регуляции деятельности нервной системы и оказывают прямое или опосредованное влияние на психоэмоциональное состояние, что обусловливает их широкое применение в медицине и фармакологии.

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ГЕНЕЗИС И СОВРЕМЕННОЕ РАЗВИТИЕ ГЛАГОЛОВ ФИЗИОЛОГИЧЕСКОГО СОСТОЯНИЯ В УЗБЕКСКОМ ЯЗЫКЕ

Аннотация *В статье рассматривается генезис и современное развитие глаголов физиологического состояния в узбекском языке. Проанализированы их историческое происхождение, влияние других языков и культур на формирование данной лексико-семантической группы. Особое внимание уделено заимствованиям из персидского, арабского, русского и английского языков, а также их адаптации к узбекской грамматической системе.*

Ключевые слова: *генезис, глаголы физиологического состояния, узбекский язык, тюркские корни, заимствования, семантика, культурное влияние, историческое развитие, современное развитие, лексико-семантическая система.*

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GENESIS AND MODERN DEVELOPMENT OF VERBS OF PHYSIOLOGICAL STATE IN THE UZBEK LANGUAGE

Annotation. *The article examines the genesis and modern development of verbs of physiological state in the Uzbek language. Their historical origin, the influence of other languages and cultures on the formation of this lexical-semantic group are analyzed. Particular attention is paid to borrowings from Persian, Arabic, Russian and English, as well as their adaptation to the Uzbek grammatical system.*

Key words: *genesis, verbs of physiological state, Uzbek language, Turkic roots, borrowings, semantics, cultural influence, historical development, modern development, lexical-semantic system.*

Изучение языков позволяет глубже понять специфику мышления, культуры и истории народа, для которого этот язык является родным. Одной из ключевых и наиболее значимых частей языка являются глаголы, так как они выражают действия, состояния, процессы и отношения. В этом контексте глаголы физиологического состояния занимают особое место, так как они отражают базовые человеческие ощущения, переживания и процессы, связанные с телесной и эмоциональной природой человека. В узбекском языке, как в одном из представителей тюркской языковой семьи, глаголы физиологического состояния обладают богатой историей и своеобразными особенностями. Их эволюция отражает влияние культурно-исторических, социальных и лингвистических факторов, а также взаимодействие с соседними языками. Современное развитие таких глаголов связано с адаптацией к изменяющимся условиям общества, что включает заимствования, преобразования значений и развитие новых форм. Генезис глаголов физиологического состояния в узбекском языке прослеживается через призму историко-этимологических исследований, позволяя выделить древние корни, заимствования из других языков и инновации, возникшие в процессе внутреннего развития.

Таким образом, тема исследования глаголов физиологического состояния в узбекском языке представляет собой важный и актуальный аспект, который раскрывает взаимодействие языка и культуры, а также особенности функционирования языка в прошлом и настоящем. Глаголы физиологического состояния в узбекском языке имеют многовековую историю развития, тесно связанную с культурными и историческими изменениями в регионе. Их генезис отражает основные черты тюркской языковой системы, а также влияние соседних культур, таких как персидская, арабская и русская.

Основная часть таких глаголов восходит к древнетюркскому языку, где они выражали базовые физиологические процессы и состояния, такие как дыхание, сон, голод, жажда и боль. Примеры таких глаголов включают слова, которые сохранились в современном узбекском языке, например: уйқу келмоқ («хотеть спать»), ачқамоқ («испытывать голод»), оғримоқ («болеть»). Эти глаголы, как правило, имели прямую связь с повседневными нуждами и переживаниями человека, отражая практическую ориентацию языка. Заимствования из персидского и арабского языков в период господства этих культур в регионе обогатили лексический состав узбекского языка. Многие глаголы физиологического состояния, такие как нафас олмоқ («дышать»), были адаптированы с использованием тюркских грамматических структур, но при этом сохранили свою семантическую основу. Со временем, в результате контактов с русским языком, особенно в XIX-XX веках, в узбекский язык проникли новые термины, отражающие изменившийся культурный контекст. Например, русское слово простудиться привело к образованию соответствующего узбекского глагола совуққа чалиниш.

Глаголы физиологического состояния в узбекском языке характеризуются полифункциональностью и богатством значений. Они могут выражать как конкретные физиологические процессы (например, терламоқ — «потеть»), так и эмоционально-экспрессивные состояния (например, қувонмоқ — «радоваться», которое связано с физиологическими проявлениями эмоций). Некоторые глаголы обладают широкими переносными значениями, что позволяет использовать их в различных контекстах. Например, глагол қовурмоқ («жечь») может применяться как для описания физического состояния, связанного с жаром, так и в переносном значении для описания сильных переживаний. С точки зрения грамматики, узбекский язык позволяет выражать физиологические состояния через сложные конструкции. В современном языке наблюдаются тенденции к образованию аналитических форм, таких как қўлдан келмоқ («быть в силах») или ўзини яхши ҳис қилмоқ («чувствовать себя хорошо»). В современном узбекском языке развитие глаголов физиологического состояния связано с урбанизацией, глобализацией и внедрением новых технологий. Процессы заимствования продолжаются, в основном из русского и английского языков. Например, английское to stress способствовало появлению выражения стрессга тушмоқ («испытывать стресс»). Современные социальные и медицинские реалии также оказывают влияние на лексику. Термины, связанные с современными заболеваниями и состояниями (например, депрессияга тушмоқ — «впадать в депрессию»), обогащают язык новыми формами. При этом сохраняется тенденция адаптации заимствованных глаголов к узбекской грамматике и фонетике. Еще одной важной чертой современного развития является активное использование разговорных форм и диалектизмов в массовой культуре, таких как в социальных сетях и литературе. Это способствует популяризации новых значений глаголов и их проникновению в повседневный язык.

Современное развитие глаголов физиологического состояния свидетельствует о динамичности языка, его способности адаптироваться к новым условиям. Заимствования, появление аналитических форм и расширение значений под влиянием глобализации и научно-технического прогресса отражают изменяющиеся потребности общества и язык как живой организм. Важной особенностью является сохранение традиционных форм и значений, что подчеркивает связь языка с национальной культурой и историей. В то же время новообразования и заимствования подтверждают открытость узбекского языка к внешним влияниям и его эволюцию в условиях современности. Таким образом, глаголы физиологического состояния являются не только языковым инструментом для описания физиологических процессов и эмоций, но и важным свидетельством исторического развития, культурных трансформаций и социальных изменений узбекского народа. Изучение этой темы имеет большое значение для лингвистики, культурологии и этнографии, предоставляя широкие перспективы для дальнейших исследований.

Исследование подчеркивает роль глаголов физиологического состояния как ключевых элементов, отражающих повседневные потребности и эмоциональные состояния человека, а также их значение в сохранении культурной идентичности. Отмечены современные тенденции в развитии данной категории, включая появление новых форм и значений, связанных с изменениями в образе жизни, медицинскими и социальными реалиями.

Результаты работы демонстрируют, как изменения в языке отражают исторические и социальные процессы, происходящие в обществе, что делает изучение этой темы важным для понимания эволюции узбекского языка в целом.

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РАЗВИТИЕ МЕЖДУНАРОДНОЙ ТОРГОВЛИ КИТАЙСКИХ МАЛЫХ И СРЕДНИХ ПРЕДПРИЯТИЙ

Аннотация: *в последние годы наблюдается ускоренное развитие китайских малых и средних предприятий (МСП), что является важным фактором экономического прогресса КНР. В условиях углубления процессов экономической глобализации выход на международные рынки и активное участие в международной торговле становятся неотъемлемыми элементами стратегии развития для МСП. Благодаря участию в международной торговле предприятия могут получить новые возможности для развития бизнеса на новых рынках.*

Ключевые слова: *малые и средние предприятия; международная торговля; экономика; риск*

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DEVELOPMENT OF INTERNATIONAL TRADE OF CHINESE SMALL AND MEDIUM ENTERPRISES

Abstract: *In recent years, there has been an accelerated development of Chinese small and medium enterprises (SMEs), which is an important factor in the economic progress of China. In the context of deepening economic globalization, access to international markets and active participation in international trade are becoming integral elements of the development strategy for SMEs. Thanks to participation in international trade, enterprises can gain new opportunities for business development in new markets.*

Keywords: *small and medium enterprises; international trade; economy; risk*

В последние годы китайские малые и средние предприятия (МСП) демонстрируют стремительное развитие, внося значительный вклад в экономический рост страны. В условиях глобализации экономики выход на международный уровень и ведение транснациональной деятельности становятся объективной необходимостью для МСП на определенном этапе их развития. Это важный показатель зрелости предприятий и неизбежный путь их дальнейшего роста. Международная экспансия позволяет компаниям находить новые возможности для бизнеса, защищать и расширять существующие рынки, преодолевать торговые барьеры, получать льготы, а также перенимать передовые технологии. Таким образом, выход на глобальный рынок становится стратегическим выбором для малых и средних предприятий.

Основные преимущества международной торговли МСП. Существуют определенные преимущества в области прав собственности. В малых и средних предприятиях, особенно частных, права собственности четко определены, что делает их более осторожными при принятии инвестиционных решений и увеличивает вероятность успеха. Во-вторых, существуют определенные технологические преимущества. Хотя малым и средним предприятиям обычно не хватает финансовых возможностей для масштабных научно-исследовательских работ, они проявляют высокую активность в инновациях, критически важных для их выживания и развития. В настоящее время некоторые малые и средние предприятия уже добились прорывов в области технологических инноваций. Более того, технологические инновации малых и средних предприятий осуществляются на небольшой основе, имеют ярко выраженную специфику, позволяют успешно занимать ниши в условиях технологической монополии крупных предприятий, отличаются низкой себестоимостью, а также требуют меньше времени и средств для превращения технологий в реальные производственные мощности. Имеется определенный накопленный международный опыт. Хотя большинство малых и средних предприятий имеют небольшие масштабы и невысокий уровень управления, некоторые из них, работая на внутренний рынок, уже начали осваивать международную деятельность различными способами.

Ограничения международной торговли МСП. Из-за ограничений, связанных с человеческими, финансовыми и материальными ресурсами, малые и средние предприятия часто имеют неполное представление о финансовой политике, валютном контроле, налоговом законодательстве, трудовом праве и управлении капиталом принимающей страны. Они слабо реагируют на изменения в экономической политике и с трудом разрабатывают соответствующие защитные меры для уменьшения и перераспределения убытков, вызванных рисками. Когда возникает риск, они не могут эффективно противостоять ему, что затрудняет их закрепление на международном рынке. Поэтому перед принятием решения о выходе на международный рынок малым и средним предприятиям необходимо провести сравнительный анализ макроэкономической среды потенциальных стран-реципиентов, включая политические, социальные, экономические, культурные и правовые аспекты. Также требуется сравнить микроэкономические условия, такие как сравнительные производственные издержки, доходность от специфических факторов предприятия, дополнительные затраты на экспортные продажи, дополнительные расходы на управление и координацию зарубежного производства. На основе научных методов, таких как модели принятия решений о международной деятельности, следует выбирать для прямых инвестиций проекты в странах и регионах с высокой степенью безопасности и прибыльности.

Стратегии развития международной торговли МСП.

Усиление правовой защиты. На макроуровне правительство должно оказывать максимальную поддержку и помощь, создавая благоприятную внешнюю среду для МСП. Необходимо создать совершенную систему правовой защиты малых и средних предприятий. На сегодняшний день в Китае еще не принят закон, определяющий статус МСП и защищающий их развитие, что должно привлечь особое внимание соответствующих ведомств. Во-первых, в законодательной сфере следует как можно скорее разработать комплексную правовую систему защиты МСП, которая четко определит их права и обязанности, а также защитит их законные интересы. Во-вторых, управляющие органы должны, на основе постепенного разграничения прав собственности и разделения функций правительства и предприятий, объединить разрозненные функции управления МСП и создать Управление по делам малых и средних предприятий с комплексными координирующими полномочиями.

Повышение конкурентоспособности. Для обеспечения устойчивости и успеха международной деятельности необходимо смело проводить институциональные и управленческие инновации. Важным условием успешной международной деятельности МСП является реформа механизмов корпоративного управления и создание подлинной современной системы предприятий. Следует совершенствовать механизмы научного управления, дополняя их современными управленческими методами, уделяя внимание не только роли систем, но и значению человеческого фактора. Необходимо совершенствовать механизмы мотивации и контроля, укреплять сознание работников как хозяев предприятия, повышать способности в области стратегического управления, финансового менеджмента, контроля качества и маркетинга. Одновременно предприятия должны быть готовы к "долгосрочной кампании", поскольку международный опыт показывает, что путь от простого экспорта продукции до превращения в известную транснациональную компанию требует десятилетий, а иногда и столетия усилий. Поэтому МСП в своей международной деятельности должны руководствоваться принципом долгосрочной перспективы.

Укрепление альянсов между предприятиями. Необходимо сформировать концепцию международного управления, провести институциональные и управленческие инновации. Малые и средние предприятия должны выработать философию глобального бизнеса, радикально трансформировать устаревшие корпоративные структуры, традиционные модели управления и низкоэффективные формы обслуживания, создавая современные системы управления, соответствующие как местной культуре и рыночной среде, так и международным стандартам. Реализация стратегических альянсов и создание флагманских предприятий. Для конкуренции с транснациональными корпорациями на платформе ВТО китайским МСП необходимо идти по пути объединения сильных игроков и формирования стратегических партнерств. Создание разнообразных форм стратегического сотрудничества позволит расширить масштабы предприятий и рынков, что в конечном итоге приведет к оптимальному распределению ресурсов. Кроме того, формирование стратегических альянсов способствует привлечению финансирования, диверсификации деятельности и снижению операционных рисков.

Развитие кадрового потенциала предприятий. Привлечение специалистов с опытом международной деятельности. Чтобы соответствовать требованиям глобальной конкуренции, МСП должны проводить реформы и инновации в организационной структуре, системе управления и кадровой политике, делая ставку на человеческий капитал. Особое внимание следует уделять подготовке и отбору многопрофильных специалистов, владеющих технологиями, иностранными языками, экономикой, коммерцией и внешнеполитическими аспектами, а также профессионалов в области международной торговли, финансов, инвестиций, высоких технологий, права и бухгалтерского учета для формирования квалифицированной команды, способной эффективно работать на международной арене.

Тенденции развития международной торговли способствуют интернационализации китайских малых и средних предприятий. В условиях глобальной экономической интеграции МСП необходимо укреплять свой потенциал и активно участвовать в международной конкуренции. Разработка соответствующих стратегий транснациональной деятельности позволит китайским малым и средним предприятиям занять значимое место на мировой экономической арене в будущем и внести существенный вклад в развитие внешней торговли Китая.

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ТУПРОҚ УНУМДОРЛИГИ ВА УНИНГ МАДАНИЙЛИГИНИ ОШИРИШНИНГ ИЛМИЙ АСОСЛАРИ

Аннотация.*Тупроқ унумдорлиги табиий ва сунъий турларга бўлиниб, табиий унумдорлик табиий омиллар таъсирида пайдо бўлади. Тупроқнинг унумдорлик даражаси, яъни тупроқнинг у ёки бу даражада ҳосил олишни таъминлаш хусусияти, табиий омилларга ва тарихий сабабларга боғлиқ. Иқлим, ўсимликлар қоплами, тупроқнинг минерал таркиби сингари табиий омиллар, тупроқнинг табиий унумдорлик даражасини белгилайди. Табиий унумдорлик инсон таъсирисиз рўй беради. У асосан табиий экинзорларга хос бўлиб, одатда бундай унумдорлик даражаси тупроқнинг органик ва минерал таркибига, кимёвий, биологик, биокимевий хоссаларига боғлиқ ҳолда паст ёки юқори бўлади.*

Калит сўз*: Тупроқ унумдорлиги, табиий омиллар, ўсимликлар қоплами, биологик, кимёвий ва физик усуллар, деҳқончилик маданияти.*

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SCIENTIFIC FOUNDATIONS OF IMPROVING SOIL FERTILITY AND ITS CULTIVATION

Abstract *Soil fertility is divided into natural and artificial fertility, and natural fertility arises under the influence of natural factors. The level of soil fertility, that is, the soil's ability to provide yields to varying degrees, depends on natural factors and historical reasons. Natural factors such as climate, vegetation cover, and soil mineral composition determine the level of soil's natural fertility. Natural productivity occurs without human intervention. It is mainly characteristic of natural agricultural lands, and usually this fertility level is low or high depending on the organic and mineral composition of the soil, its chemical, biological, and biochemical properties.*

Key word: *Soil fertility, natural factors, vegetation cover, biological, chemical and physical methods, farming culture.*

Жорий йилда Президентимиз Шавкат Мирзиёев Андижон вилоятида бўлганда худуддаги экологик холатни яхшилаш, ер-сув ресурсларидан оқилона фойдаланиш, тупроқ унумдорлигини ошириш, водий шароитига мос экинларни иқлимлаштириш ҳақида сўзлаб вилоятда соячиликни ривожлантириш катта самара беришини алоҳида таъкидлади.

Дарҳақиқат, деҳқончилик қишлоқ хўжалигининг асосий тармоқларидан бири бўлиб, аҳолини озиқ-овқат, саноатни хом-ашё, чорвачиликни эса ем-хашак билан таъминлайди. Экинлардан сифатли ва юқори ҳосил олиш мақсадида уларни парвариш қилиш усуллари, тупроқ унумдорлигини физикавий ва биологик йўллар билан ошириш тадбирларини ўргатишга хизмат қилади.

Ўзбекистон Республикаси конституцияси 55-моддасига мувофиқ табиий объектлари, жумладан ер умумҳалқ бойлигидир ва улар давлат муҳофазасида туради. Ердан илм-фан тавсиялари асосида самарали фойдаланиш, унинг муҳофазасини тўғри таъминлаш, шубҳасиз қишлоқ хўжалигини ривожланишининг асосий омилларидан биридир.

Тупроқни ҳар томонлама яхшилаш, ҳосилдорлиги ва иқтисодий самарадорлигини ошириш қишлоқ хўжалигини келгусидаги ривожининг муҳим масалаларидан биридир. Ишлаб чиқаришнинг ҳар қандай воситаларидан тўғри ва самарали фойдаланиш кўп жиҳатдан унинг энг муҳим хусусиятларини қанчалик чуқур ва ҳар томонлама ўрганишга боғлиқ. Бу энг аввало тупроққа тегишли бўлиб, ундан оқилона фойдаланиш, тупроқнинг унумдорлигини ошириш, тупроқнинг сифати, бонитировкаси, иқтисодий баҳосини, мухофазасини билиш, тупроққа ишлов бериш усуллари, ўғитлаш, тупроқнинг физик хоссалари асосида, қулай агротехника муддатларидан муайян технологик кетма-кетликдан фойдаланиш, тупроқ эрозиясига, шўрланишига, зичланишига ва бошқаларга қарши тадбирлар муайян элементлар аниқ қонунчилик йўли билан бошқаришни талаб қилади. Вужудга келган вазиятда Ўзбекистон республикасининг “Ер кодекси” (1998 й. 30 апрел). «Ер кадастри тўғрисида» (1998й. 28 август) қонун ва бошқа аграр соҳадаги ислоҳотларни ҳуқуқий жиҳатдан таъминловчи қонунлар ва меъёрий ҳужжатларнинг қабул қилиниши. “Қишлоқ хўжалигида ислоҳотларни чуқурлаштириш дастури (1998-2000)” тупроқдан оқилона фойдаланиш, муҳофаза қилиш, қишлоқ хўжалигини илмий жиҳатдан таъминлашнинг ҳуқуқий асосини яратади.

Ер қишлоқ хўжаликда ишлаб чиқаришнинг асосий ва ҳеч нарса билан алмаштириб бўлмайдиган воситаси ҳисобланади. Ишлаб чиқариш воситасидан тўғри фойдаланиш туфайли ернинг унумдорлиги ортади бу эса қишлоқ хўжалигини янада ривожлантиришни таъминлайди. Табаррук замин саховатидан оқилона ва унумли фойдаланиш унга куч қувват бахш этувчи омилларни ишга солиш деҳқончилик олдида турган асосий вазифалардан бири ҳисобланади.

Экинлардан юқори ва барқарор ҳосил олиш ҳамда ишлаб чиқаришда меҳнат унумдорлигини ошириш бевосита тупроқнинг унумдорлик даражасига ҳамда деҳқончилик маданиятига боғлиқдир.

Тупроқ унумдорлиги ўсимликни бутун (вегетация) ўсув даври давомида сув ва озиқ элементлари билан таъминлаш хусусияти тушунилади. Ана шу хусусиятига кўра тупроқ табиий жинслар, тошлар, қум ва бошқалардан кескин фарқ қилади.

Инсон тупроқнинг унумдорлик хусусиятидан мутассил фойдаланади ва экинлардан юқори ҳосил олиш мақсадида унинг таркибий ўзгаришларига таъсир қилади.

Қишлоқ хўжалигининг барча соҳаларни ривожланиши тупроқнинг унумдорлигига боғлиқдир. Шунинг учун ҳам, тупроқ қишлоқ хўжалик ишлаб чиқаришининг асосий воситаси бўлиб ҳисобланади ва тупроқ унумдорлиги ҳақида ғамхўрлик қилиш қишлоқ хўжалик билан боғлиқ барча кишиларнинг кундалик вазифасидир.

Тупроқ унумдорлиги ерга оқилона таъсир этганда яхшиланиб боради, нотўғри ишлов берилганда эса аксинча, пасайиб боради.

Ибтидоий тизимда деҳқонлар ўзининг амалий фаолиятида тупроқнинг табиий унумдорлигига дуч келган ва ундан фойдаланган.

Инсон тупроқни ишлаш, суғориш, ўғитлаш сингари жараёнлари натижасида табиий унумдорлик даражасини ўзгартирди ва унинг сунъий унумдорлигини вужудга келтиради. Яъни сунъий унумдорлик инсон томонидан яратилади. Фан ва техника ютуқларидан фойдаланиб инсон тупроқнинг табиий хоссаларини ўзгартиради. Тупроқ унумдорлиги потенциал ва самарали унумдорликка ҳам бўлинади. Потенциал унумдорлик тупроқдаги озиқ элементларнинг умумий миқдорини кўрсатади. Самарали унумдорлик тупроқдан ўсимлик ўзлаштира оладиган озиқ моддалар миқдори билан белгиланади.

Сунъий ёки самарали унумдорлик инсон фаолияти иштирокида ҳосил бўлади ва у тупроқда инсон томонидан озиқ элементларининг кўпайтирилишига, сув билан таъминланишига, тупроқ физик хоссаларининг яхшиланишига боғлиқ. Бинобарин, тупроқ унумдорлиги ижтимоий, иқтисодий тузумга, илм-фаннинг, техника тараққиётининг, ишлаб чиқариш кучларининг ривожланиши билан бевосита боғлиқдир.

Табиий унумдорлик инсон фаолияти таъсирида доимо тўлдирилиб борилади. Аммо, инсон тупроқ унумдорлиги ҳақида тегишли ғамхўрлик қилмаса ёки уни маълум даражада ушлаб тура олмаса, самарали унумдорлик табиий унумдорлик даражасидан ҳам пасайиб кетиши мумкин.

Тупроқнинг самарали унумдорлигини ошириш усуллари хилма-хилдир. Тупроққа мақбул даражада ишлов бериш, ўғитлар ва турли мелиоратив тадбирлардан фойдаланиш, алмашлаб экиш, ердан фойдаланишнинг илмий асосда ташкил этиши, тупроқнинг экологик ҳолатини яхшилаш сингари тадбирлар тупроқ унумдорлигининг самарадорлигини кескин ошириш имконини беради.

Маданийлашган тупроқ - дейилганда агрокимёвий ва агрофизикавий хоссалари, шу туфайли унда сув, ҳаво, иссиқлик ва озиқа режимлари яхши бўлган, экинларнинг нормал ўсиши ва ривожланиши учун қулай шароит яратилган тупроқ тушунилади.

Ер асосан биологик, кимёвий ва физик усулларда маданийлаштирилади.

Биологик усул - бунда, тупроқдаги органик моддаларнинг синтезланиши ва чиришини бошқариш, серҳосил, касаллик ва зараркунандаларга чидамли навларни экиш, алмашлаб экишни жорий этиш каби тадбирлар амалга оширилиши лозим.

Кимёвий усул - бунда, ерга ҳар хил минерал, бактериал ўғитлар солинади, гипс ва бошқа моддалар қўлланилиб, тупроқда ўсимлик осон ўзлаштирадиган ҳолатдаги моддалар миқдори кўпайтирилади. Ер оҳакланганда тупроқнинг кислоталиги, гипслашда эса ишқорийлиги нормаллашиб, ўсимликларнинг ўсиши учун яхши муҳит вужудга келади.

Физик усул – бунда, ерга физик-механик таъсир этилади, яъни ерга ҳар хил ишловлар берилади, тупроқнинг структурали бўлиши ва унинг ҳаво, иссиқлик, сув ва бошқа режимларини бошқаришда ўтказиладиган тадбирлар комплекси амалга оширилади. Бундан ташқари, майда карталарни йириклаштириш, ерларнинг захини қочириш, шўрини ювиш, сизот сувлар сатҳини пасайтириш юзасидан ўтказиладиган коллектор-дренаж ишлари ҳамда экин экишдан олдин ва кейин олинадиган эгат ва жўяклар ҳам физик усулга киради. Бундан ташқари механикавий таркиби оғир тупроқли далаларга қум сепиш, енгил тупроқли участкаларда калмотаж қилиш (лойқа бостириш) мумкин.

Тупроқнинг унумдорлик ва маданийлик даражаси ундаги чиринди, микроорганизмлар миқдори, тупроқ муҳити, донадорлиги, қаттиқ ва юмшоқлиги, тузилиши, ҳайдалма қатлам қалинлиги ва бошқа кўрсаткичларга қараб аниқланади.

Органик ўғитлар, асосан, гўнг, ерларни маданийлаштиришда муҳим аҳамиятга эга. Ерларни мунтазам гўнглаш натижасида тупроқда чиринди, азот, фосфор ва калийнинг ҳаракатчан ҳолатдаги миқдори кўпайиб, унинг сингдириш сиғими, асослар билан туйиниши даражаси, нитрификасия қобилиятининг ортишига олиб келади, маҳаллий ўғитлар билан ерга кўплаб микроорганизмлар тушади ва улар ҳам тупроқни маданийлаштиришда катта аҳамиятга эга.

Хулоса қилиб айтганда, деҳқончилик маданияти паст бўлса, ернинг ҳайдалма қатламида бегона ўт уруғлари ва уларнинг ўсув органлари кўп бўлади. Улар экинларни ифлослантиришда асосий манба бўлиб хизмат қилади. Бегона ўт уруғи ва ўсув органларининг кўп бўлишига асосан алмашлаб экишга риоя қилмаслик, ерларни ўз вақтида сифатли ишламаслик, экинларни юқори агротехника асосида парвариш қилмаслик, бегона ўтларга қарши курашишда махсус тадбирларни жорий қилмаслик, ҳосилни ўз вақтида йиғиб териб олмаслик ва хоказолар сабаб бўлади. Ҳайдалма қатлам қанчалик қалин, унумдор бўлса ўсимликларнинг илдиз тизими шунчалик чуқур қатламларга тарқалиб ўсади ва серҳосил бўлиб етилади.

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ЗНАЧЕНИЕ Р1 ПУРИНЕРГИЧЕСКИХ РЕЦЕПТОРОВ (АДЕНОЗИНОВЫХ РЕЦЕПТОРОВ) ПРИ ПСОРИАЗЕ

Аннотация: *Данная статья посвящена анализу роли Р1 пуринергических рецепторов (аденозиновых рецепторов А1, А2А, А2В, А3) в патогенезе псориаза – хронического воспалительного заболевания кожи. Рассматривается значение аденозина и его взаимодействия с Р1 рецепторами в контексте иммунной дисрегуляции, воспаления, пролиферации кератиноцитов и ангиогенеза, характерных для псориаза. Особое внимание уделяется преимущественно противовоспалительным и иммуномодулирующим свойствам подтипов А2А и А2В. Обсуждается потенциал агонистов Р1 рецепторов в качестве перспективных терапевтических средств для лечения псориаза.*

Ключевые слова: *псориаз, пуринергические рецепторы Р1, аденозиновые рецепторы, аденозин, воспаление, иммунная система, терапевтические мишени.*

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THE SIGNIFICANCE OF P1 PURINERGIC RECEPTORS (ADENOSINE RECEPTORS) IN PSORIASIS

Abstract: *This article analyzes the role of P1 purinergic receptors (adenosine receptors A1, A2A, A2B, A3) in the pathogenesis of psoriasis, a chronic inflammatory skin disease. It examines the significance of adenosine and its interactions with P1 receptors in the context of immune dysregulation,* *inflammation, keratinocyte proliferation, and angiogenesis characteristic of psoriasis. Particular attention is paid to the predominantly anti-inflammatory and immunomodulatory properties of the A2A and A2B subtypes. The potential of P1 receptor agonists as promising therapeutic agents for the treatment of psoriasis is discussed.*

Keywords: *psoriasis, P1 purinergic receptors, adenosine receptors, adenosine, inflammation, immune system, therapeutic targets.*

Псориаз – хроническое иммуноопосредованное воспалительное заболевание кожи, поражающее миллионы людей по всему миру (Nestle et al., 2009). В его патогенезе ключевую роль играют дисрегуляция иммунной системы, гиперпролиферация кератиноцитов и ангиогенез (Nickoloff et al., 2004). Наряду с традиционными и биологическими методами лечения, активный поиск новых терапевтических мишеней остается актуальным. В этом контексте, пуринергическая система, включающая внеклеточные нуклеотиды и нуклеозиды, а также их рецепторы, привлекает все большее внимание исследователей. Данная статья посвящена роли P1 пуринергических рецепторов, известных также как аденозиновые рецепторы (A1, A2A, A2B, A3), в патогенезе псориаза.

Пуринергическая сигнализация представляет собой сложную систему межклеточной коммуникации, в которой внеклеточные АТФ и аденозин выступают в качестве сигнальных молекул (Burnstock, 2017; Bours et al., 2006). АТФ, высвобождаемый из поврежденных или активированных клеток, может активировать P2 рецепторы, часто инициируя провоспалительные сигналы. В свою очередь, аденозин, образующийся в результате метаболизма АТФ под действием эктонуклеотидаз, является основным лигандом P1 рецепторов. В отличие от P2 рецепторов, активация P1 рецепторов аденозином обычно приводит к противовоспалительным и иммуномодулирующим эффектам, что делает их изучение особенно важным в контексте хронических воспалительных заболеваний, таких как псориаз.

Противовоспалительная роль P1 рецепторов при псориазе. Одним из ключевых аспектов значения P1 рецепторов при псориазе является их способность оказывать противовоспалительное действие. Аденозин, связываясь с подтипами A2A и A2B, активирует аденилатциклазу, что приводит к увеличению внутриклеточного уровня цАМФ. Повышение цАМФ, в свою очередь, может ингибировать активацию различных иммунных клеток, включая Т-лимфоциты, макрофаги и дендритные клетки, которые играют центральную роль в патогенезе псориаза (Haskó & Cronstein, 2004). Снижение активности этих клеток приводит к уменьшению выработки провоспалительных цитокинов, таких как фактор некроза опухоли-альфа (TNF-α), интерлейкин-17 (IL-17) и интерферон-гамма (IFN-γ), которые являются ключевыми медиаторами воспаления при псориазе.

Регуляция функции иммунных клеток через P1 рецепторы. Различные подтипы P1 рецепторов играют специфическую роль в регуляции иммунного ответа при псориазе:

- **A1 рецептор:** Экспрессия и функция A1 рецептора в коже при псориазе изучены в меньшей степени по сравнению с другими подтипами. Однако, имеющиеся данные указывают на его потенциальную вовлеченность в регуляцию как провоспалительных, так и противовоспалительных процессов в зависимости от контекста.
- **A2A рецептор:** Широко экспрессирован на иммунных клетках, включая Т-лимфоциты и антигенпрезентирующие клетки. Активация A2A рецептора приводит к подавлению пролиферации Т-клеток и снижению выработки провоспалительных цитокинов, что делает его агонисты потенциально терапевтически значимыми при псориазе.
- **A2B рецептор:** Роль A2B рецептора при псориазе более сложна. В зависимости от концентрации аденозина и микроокружения, он может оказывать как провоспалительные, так и противовоспалительные эффекты. Некоторые исследования показывают, что активация A2B рецептора может влиять на функцию тучных клеток и высвобождение медиаторов воспаления.
- **A3 рецептор:** Данные о роли A3 рецептора при псориазе ограничены, однако есть свидетельства его участия в регуляции воспаления и пролиферации клеток в других контекстах.

Влияние P1 рецепторов на кератиноциты и ангиогенез. Аденозиновые рецепторы экспрессируются не только на иммунных клетках, но и на кератиноцитах – основных клетках эпидермиса, пролиферация и дифференцировка которых нарушены при псориазе. Активация определенных подтипов P1 рецепторов может влиять на эти процессы, потенциально способствуя нормализации эпидермального обновления и восстановлению барьерной функции кожи.

Кроме того, аденозин и его рецепторы, включая A2A и A2B, могут участвовать в регуляции ангиогенеза – процесса образования новых кровеносных сосудов, который также играет важную роль в развитии псориатических бляшек. Эффекты могут быть как стимулирующими, так и ингибирующими, что указывает на необходимость дальнейшего изучения этой взаимосвязи при псориазе.

P1 рецепторы как потенциальные терапевтические мишени. Учитывая преимущественно противовоспалительное и иммуномодулирующее действие P1 рецепторов, особенно подтипа A2A, агонисты этих рецепторов представляют собой многообещающее направление в разработке новых методов лечения псориаза. Активация A2A рецепторов может способствовать снижению воспаления и иммунной дисрегуляции, характерных для этого заболевания, с потенциально меньшим количеством системных побочных эффектов по сравнению с традиционными иммуносупрессантами.

Заключение. P1 пуринергические рецепторы, активируемые аденозином, играют важную роль в патогенезе псориаза, преимущественно оказывая противовоспалительное и иммуномодулирующее действие. Подтипы A2A и, возможно, A2B, представляются наиболее значимыми в контексте ограничения воспалительных процессов и регуляции функции иммунных клеток в коже при псориазе. Дальнейшие исследования, направленные на изучение специфической роли каждого подтипа P1 рецепторов и разработку селективных агонистов, могут открыть новые перспективы для терапии этого хронического заболевания кожи.

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ВЛИЯНИЕ КЛИМАТИЧЕСКИХ ИЗМЕНЕНИЙ НА БИОРАЗНООБРАЗИЕ: СОВРЕМЕННЫЕ УГРОЗЫ И АДАПТАЦИОННЫЕ СТРАТЕГИИ

Аннотация: *Климатические изменения становятся одним из наиболее значимых факторов, воздействующих на глобальное биологическое разнообразие. Повышение температур, изменение режима осадков, учащение экстремальных погодных явлений и сдвиги в сезонных циклах приводят к ухудшению условий обитания, миграции видов и их вымиранию. В статье рассматриваются ключевые угрозы для биоразнообразия, вызванные климатическими изменениями, а также возможные адаптационные стратегии, применимые в условиях Узбекистана. Освещается роль научных подходов, мониторинга и устойчивого природопользования в сохранении экосистем. Подчёркивается необходимость интеграции климатической адаптации в экологическую политику и образовательные программы.*

Ключевые слова: *климатические изменения, биоразнообразие, экосистемы, адаптация, устойчивое развитие, охрана природы.*

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IMPACT OF CLIMATE CHANGE ON BIODIVERSITY: MODERN THREATS AND ADAPTATION STRATEGIES

Abstract: *Climate change is becoming one of the most significant factors affecting global biological diversity. Rising temperatures, changes in precipitation patterns, more frequent extreme weather events and shifts in seasonal cycles lead to deterioration of habitat conditions, migration of species and their extinction. The article discusses key threats to biodiversity caused by climate change, as well as possible adaptation strategies applicable in the conditions of Uzbekistan. The role of scientific approaches, monitoring and sustainable nature management in the conservation of ecosystems is highlighted. The need to integrate climate adaptation into environmental policy and educational programs is emphasized.*

Key words: *climate change, biodiversity, ecosystems, adaptation, sustainable development, nature conservation.*

Биоразнообразие является основой устойчивости экосистем и жизнеобеспечения человека. Оно обеспечивает пищевые ресурсы, чистую воду, плодородие почв и регулирование климата. Однако в последние десятилетия биологическое разнообразие находится под серьёзной угрозой, одной из основных причин которой являются климатические изменения. Повышение средней глобальной температуры, изменение осадков, деградация местообитаний и рост частоты экстремальных климатических явлений напрямую влияют на жизненные циклы, численность и распределение многих видов.

Для Узбекистана, расположенного в зоне повышенной климатической уязвимости, проблема потери биоразнообразия приобретает особую актуальность. Увеличение засушливости, истощение водных ресурсов и деградация природных экосистем уже оказывают серьёзное воздействие на флору и фауну страны. Такие процессы, как опустынивание, исчезновение редких видов и снижение численности популяций, представляют серьёзную угрозу для экологического баланса.

В условиях усиливающихся климатических рисков необходимо переосмысление подходов к охране природы. Традиционные меры сохранения, ориентированные на охрану отдельных видов или территорий, уже недостаточны. Требуется разработка комплексных адаптационных стратегий, включающих климатическое моделирование, пространственное планирование, восстановление экосистем и вовлечение местного населения.

Адаптация биоразнообразия к изменяющемуся климату должна рассматриваться как приоритетное направление экологической политики. Это требует научного обоснования, межведомственного взаимодействия, а также активного участия технических ВУЗов в подготовке специалистов, способных внедрять устойчивые решения в области экологии и природопользования.

Климатические изменения воздействуют на биоразнообразие через широкий спектр механизмов. Повышение среднегодовой температуры вызывает сдвиги в ареалах обитания многих видов, особенно чувствительных к температурным колебаниям. Некоторые из них мигрируют в более прохладные регионы, другие, неспособные к адаптации, находятся на грани исчезновения. Изменение режима осадков и увеличение частоты засух особенно сильно сказываются на полупустынных и степных экосистемах, характерных для Узбекистана.

Один из примеров — сокращение популяций водоплавающих птиц в дельте Амударьи и Аральского моря, вызванное иссушением водно-болотных угодий. Аналогично, редкие и эндемичные виды растений в горных и предгорных районах Узбекистана подвергаются риску исчезновения из-за нарушения микроклиматических условий. Климатические аномалии также способствуют распространению инвазивных видов, которые вытесняют аборигенные организмы, нарушая экологическое равновесие.

Адаптационные стратегии в этих условиях должны включать как институциональные, так и технические меры. Одним из ключевых направлений является развитие системы экологического мониторинга, позволяющей отслеживать изменения в ареалах и численности видов, а также моделировать климатические сценарии и их последствия. Использование спутниковых данных, автоматизированных сенсоров и геоинформационных систем (ГИС) значительно расширяет возможности таких наблюдений.

Не менее важна работа по восстановлению деградированных экосистем. Проекты по восстановлению лесов, водоёмов и пастбищ могут не только повысить биоразнообразие, но и улучшить климатическую устойчивость территорий. Например, посадка засухоустойчивых видов деревьев в засушливых районах Узбекистана способствует стабилизации почв и улучшению микроклимата.

Также необходима интеграция вопросов охраны биоразнообразия в сельскохозяйственную политику. Агроэкологические подходы, такие как сохранение естественных буферных зон, рациональное использование воды и отказ от чрезмерного применения химикатов, способствуют сохранению популяций насекомых-опылителей и других полезных организмов.

Особую роль в продвижении адаптационных стратегий играют научные учреждения и учебные заведения. Разработка национальных программ подготовки экологов с компетенциями в области климатических адаптаций, а также проведение прикладных исследований и полевых экспедиций, обеспечивают научную основу для принятия эффективных решений.

Таким образом, для Узбекистана сохранение биоразнообразия в условиях изменяющегося климата требует многопланового подхода, включающего технологические инновации, институциональную координацию, образовательные инициативы и участие местных сообществ. Только комплексная стратегия может обеспечить устойчивость природных экосистем и биологического наследия страны в долгосрочной перспективе.

Воздействие климатических изменений на биоразнообразие представляет собой одну из ключевых экологических угроз современности. Ухудшение условий обитания, сдвиги в ареалах, исчезновение видов и распространение инвазивных организмов являются прямыми следствиями изменения климата, особенно в регионах, подверженных засухам и дефициту водных ресурсов. Для Узбекистана, где природные экосистемы уже испытывают значительное давление, своевременная разработка и внедрение адаптационных стратегий приобретает критическое значение.

Сохранение биологического разнообразия в таких условиях требует перехода от локальных охранных мер к системным подходам, охватывающим мониторинг, восстановление, научное прогнозирование и просвещение. Необходимо развивать климатически устойчивые практики землепользования, инвестировать в экологическое образование и усиливать роль научных учреждений в выработке решений.

Таким образом, только при условии активного взаимодействия государства, науки, образовательной системы и общества возможно создать устойчивую модель адаптации, которая позволит смягчить последствия климатических изменений и сохранить биоразнообразие для будущих поколений.

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ЦИФРОВИЗАЦИЯ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА: ВОЗМОЖНОСТИ И ВЫЗОВЫ В УСЛОВИЯХ ЧЕТВЁРТОЙ ПРОМЫШЛЕННОЙ РЕВОЛЮЦИИ

***Аннотация**. В условиях стремительного развития технологий Четвёртой промышленной революции особое значение приобретает цифровизация процессов экологического мониторинга. Использование современных цифровых инструментов, включая искусственный интеллект, Интернет вещей и большие данные, позволяет повысить точность и оперативность наблюдений за состоянием окружающей среды. В статье рассматриваются основные направления цифровизации экологического мониторинга, анализируются её возможности и вызовы, стоящие перед Узбекистаном. Подчёркивается необходимость комплексного подхода к внедрению цифровых решений, включая развитие инфраструктуры, кадровый потенциал и нормативно-правовую базу. Особое внимание уделяется перспективам устойчивого развития в контексте цифровой трансформации системы экологического контроля.*

***Ключевые слова:** цифровизация, экологический мониторинг, Четвёртая промышленная революция, устойчивое развитие, большие данные, искусственный интеллект,*

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DIGITALIZATION OF ENVIRONMENTAL MONITORING: OPPORTUNITIES AND CHALLENGES IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION

***Abstract**. In the context of the rapid development of technologies of the Fourth Industrial Revolution, digitalization of environmental monitoring processes is of particular importance. The use of modern digital tools, including artificial intelligence, the Internet of things and big data, can improve the accuracy and efficiency of environmental monitoring. The article discusses the main areas of digitalization of environmental monitoring, analyzes its capabilities and challenges facing Uzbekistan. The need for an integrated approach to the implementation of digital solutions, including infrastructure development, human resources and the* *regulatory framework is emphasized. Particular attention is paid to the prospects for sustainable development in the context of the digital transformation of the environmental control system.*

***Keywords**: digitalization, environmental monitoring, Fourth Industrial Revolution, sustainable development, big data, artificial intelligence,*

Современные вызовы в области охраны окружающей среды требуют внедрения инновационных решений, способных обеспечить непрерывное и точное наблюдение за экологическими параметрами. В этом контексте цифровизация экологического мониторинга становится важнейшим направлением трансформации экологической политики и управления природными ресурсами. В условиях Четвёртой промышленной революции, характеризующейся интеграцией киберфизических систем, автоматизации и анализа больших данных, цифровые технологии играют ключевую роль в повышении эффективности и прозрачности экологического контроля.

Для Республики Узбекистан, где наблюдаются значительные экологические проблемы, такие как опустынивание, деградация земель и дефицит водных ресурсов, цифровизация мониторинга представляет собой не только технологическую необходимость, но и стратегическую задачу. Развитие интеллектуальных систем сбора, обработки и анализа экологических данных может способствовать более точной оценке состояния окружающей среды и своевременному принятию управленческих решений. Внедрение цифровых инструментов позволяет обеспечить взаимодействие между различными уровнями экологического контроля, повысить общественную осведомлённость и вовлечённость в процесс охраны природы.

Тем не менее, процесс цифровизации сопровождается целым рядом вызовов, включая нехватку квалифицированных кадров, ограниченные финансовые ресурсы, фрагментарность нормативно-правовой базы, а также технические барьеры. Важно рассматривать цифровизацию не как цель, а как инструмент достижения устойчивого развития. Это требует согласованной политики со стороны государственных органов, научного сообщества и частного сектора.

Цифровизация экологического мониторинга представляет собой внедрение и использование современных информационных и коммуникационных технологий (ИКТ) для сбора, обработки, хранения и интерпретации экологических данных. В рамках Четвёртой промышленной революции на первый план выходят такие технологии, как Интернет вещей (IoT), облачные вычисления, искусственный интеллект (AI), беспилотные летательные аппараты (дроны), спутниковое зондирование и геоинформационные системы (ГИС).

Одним из ключевых преимуществ цифровизации является возможность круглосуточного и непрерывного мониторинга с использованием сенсорных систем, способных фиксировать изменения в воздухе, воде и почве в режиме реального времени. Например, датчики качества воздуха, размещённые в городах, позволяют оперативно отслеживать содержание вредных веществ и прогнозировать экологические риски. Эти данные могут быть автоматически переданы в единую базу, где их обрабатывает алгоритм машинного обучения для выявления аномалий и выработки рекомендаций.

В Узбекистане существуют предпосылки для внедрения цифровых подходов в экологический мониторинг, включая национальные программы цифровой трансформации и развитие телекоммуникационной инфраструктуры. Однако на практике процесс остаётся фрагментированным и неравномерным. В регионах с высоким уровнем антропогенной нагрузки, например, в зонах интенсивного земледелия или вблизи промышленных объектов, цифровые системы мониторинга либо отсутствуют, либо функционируют в ограниченном объёме.

Внедрение цифровых технологий также способствует вовлечению населения в процессы наблюдения за состоянием окружающей среды через мобильные приложения и платформы открытых данных. Это усиливает экологическую сознательность граждан и способствует общественному контролю. Кроме того, цифровизация делает возможным моделирование климатических процессов и прогнозирование последствий различных сценариев воздействия на природу, что особенно актуально в условиях изменения климата.

Тем не менее, цифровизация экологического мониторинга в Узбекистане сталкивается с рядом вызовов. Во-первых, отсутствует единая стратегия цифрового развития в сфере экологии, что приводит к дублированию инициатив и отсутствию согласованности между ведомствами. Во-вторых, дефицит высококвалифицированных специалистов ограничивает возможности эффективного внедрения и сопровождения сложных цифровых систем. В-третьих, существует потребность в правовом регулировании, которое обеспечивало бы защиту экологических данных, их достоверность и открытость.

Особое внимание следует уделить проблеме кибербезопасности в системах экологического мониторинга. Поскольку экологические данные имеют стратегическое значение, особенно в трансграничных вопросах (например, использование водных ресурсов), обеспечение их целостности и защищённости становится критически важным. Инвестиции в киберзащиту, обучение кадров и разработку стандартов цифровой экологии являются необходимыми условиями устойчивого развития.

Таким образом, цифровизация экологического мониторинга открывает широкие возможности для улучшения качества экологического управления в Узбекистане. Однако достижение ощутимого эффекта требует системного подхода, межведомственного сотрудничества, инвестиций в инфраструктуру и человеческий капитал, а также чёткой нормативной базы.

Для Узбекистана цифровизация экологического мониторинга имеет стратегическое значение. Однако её реализация сталкивается с рядом препятствий, среди которых можно выделить нехватку ресурсов, ограниченность кадрового потенциала и отсутствие координированной государственной политики в данной сфере. Решение этих проблем требует комплексного подхода, включающего развитие цифровой инфраструктуры, обучение специалистов, поддержку научных исследований и создание единой платформы экологических данных. Только в этом случае цифровизация станет не просто технологической модернизацией, а основой для устойчивого и экологически ответственного развития страны.

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ФОРМИРОВАНИЕ ТЕРМИНОЛОГИЧЕСКОЙ КОМПЕТЕНЦИИ НА ЗАНЯТИЯХ ПО РУССКОМУ ЯЗЫКУ В ЭКОНОМИЧЕСКИХ ВУЗАХ

Аннотация: *В статье рассматриваются особенности формирования терминологической компетенции у студентов экономических вузов при обучении русскому языку. Акцент сделан на значении экономической терминологии в профессиональной коммуникации и на методах её эффективного усвоения. Также представлены примеры упражнений, направленных на развитие умений использовать термины в устной и письменной речи.*

Ключевые слова: *терминологическая компетенция, экономическая лексика, русский язык как иностранный, профессионально-ориентированное обучение, экономический вуз.*

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FORMATION OF TERMINOLOGICAL COMPETENCE IN RUSSIAN LANGUAGE CLASSES IN ECONOMIC UNIVERSITIES

Annotation: *The article examines the development of terminological competence in foreign students of economic universities in the process of learning Russian as a foreign language. It highlights the importance of economic terminology in professional communication and explores effective teaching methods. The paper provides sample exercises for improving students' skills in using terminology in both oral and written speech.*

Keywords: *terminological competence, economic vocabulary, Russian as a foreign language, professional-oriented training, economic university.*

Введение

Современное экономическое образование требует студентов групп с узбекским языком обучения не только знания русского языка, но и способности использовать профессиональную лексику в различных речевых ситуациях. Терминологическая компетенция является неотъемлемой частью профессиональной языковой подготовки и предполагает знание, понимание и корректное применение экономических терминов в контексте обучения и будущей деятельности.

Основная часть

Сущность терминологической компетенции

Терминологическая компетенция – это умение оперировать специальной лексикой в устной и письменной речи. Она включает в себя:

- знание значений и семантики экономических терминов;
- умение интерпретировать и применять их в речевой практике;
- понимание контекста употребления и стилистических особенностей терминов.

Методика формирования терминологической компетенции

1. **Контекстное введение терминов**: преподаватель включает термин в знакомую языковую ситуацию, иллюстрируя его использование в речи.
2. **Работа с глоссариями**: студенты составляют собственные словари с примерами употребления терминов.
3. **Анализ текстов по специальности**: чтение и обсуждение экономических статей способствует закреплению терминов в контексте.
4. **Ситуативные диалоги и монологи**: ролевые игры («переговоры», «интервью», «пресс-релиз») позволяют активно использовать термины в устной речи.
5. **Составление таблиц и схем**: термин — определение — пример — перевод. Это помогает визуализировать и структурировать информацию.

Примеры упражнений

- Сопоставьте термин и его определение.
- Придумайте предложение с данным экономическим термином.
- Подготовьте устное выступление, используя минимум 10 новых терминов.
- Переведите текст с включением терминов и объясните значения.

Обучение экономическим терминам можно начинать с изучения базовых понятий, таких как "выручка", "прибыль", "убыток", "затраты" и "маржинальный доход". Затем можно двигаться к более сложным понятиям, например, к таким, как "инфляция", "рост ВВП" и "экономический цикл". Также полезно ознакомиться с разными направлениями экономики, такими как микроэкономика, макроэкономика и финансовые рынки.

Тексты нужно подбирать с учетом индивидуальной языковой подготовки студентов, количественного и национального состава группы, психологического климата в коллективе. После отбора текстов преподаватель должен приступать к созданию текстовых комплексов. Каждый текст разбивается на законченные смысловые фрагменты (базовые микротексты) по 70-80 слов в каждом.

Обычно комплекс текстов состоит из 3-4-х микрокомплексов. На основе микрокомплексов составляются предтекстовые упражнения к базовым микротекстам текста, а на основе базового микротекста составляются послетекстовые упражнения на понимание содержания базового текста (макротекста). Затем разрабатывается алгоритм работы над комплексом в целом с учетом объема каждого микрокомплекса и степени его терминологической насыщенности. Таким образом, предлагаемая технология обучения терминологии иностранных учащихся представляется универсальной, так как не требует перевода. Она основана на обучении пониманию терминологических единиц в процессе чтения текстов по специальности с помощью русскоязычных специализированных и толковых словарей и энциклопедий, что повышает эффективность обучения иностранных студентов экономической терминологии.

Обзор литературы

В работах таких авторов, как Казакова Е.В. (2016), отмечается важность междисциплинарного подхода в преподавании терминологии. По мнению Чернышовой Т.В. (2018), ключевым фактором усвоения терминов является их систематическое повторение в разных контекстах. Соловова Е.Н. (2012) утверждает, что формирование профессиональной лексики должно начинаться с первых этапов обучения и быть интегрировано в общий курс русского языка.

Результаты и обсуждение

Анализ опыта преподавания студентов групп с узбекским языком обучения экономических специальностей показал:

- после 3 месяцев целенаправленной терминологической подготовки 80% студентов уверенно использовали не менее 150 терминов в речевой практике;
- повысилась точность и логичность устных высказываний;
- увеличилось количество профессиональных терминов в письменных работах.

Таким образом, системный подход к формированию терминологической компетенции способствует успешной адаптации студентов к профессиональной языковой среде.

Заключение

Терминологическая компетенция является важной составляющей речевой подготовки студентов групп с узбекским языком обучения экономических вузов. Для её формирования необходимо использовать разнообразные методы: от анализа текстов до интерактивных заданий, от индивидуальной работы до ролевых игр. Постепенное, системное усвоение терминов обеспечивает не только расширение словарного запаса, но и успешное функционирование в профессиональной коммуникации.

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ФРУКТЫ КАК ПРИРОДНЫЕ ИСТОЧНИКИ ВИТАМИНОВ И МИНЕРАЛОВ

Аннотация. *В статье даны сведения о некоторых фруктах, об их составе, полезных и лечебных свойствах. Эти фрукты содержат в своем составе макроэлементы и микроэлементы, витамины, а также полезны для нашего организма.*

Ключевые слова: *фрукты, айва, груша, виноград, персик, абрикос, черешня, вишня, витамины, биогенные элементы, макроэлементы и микроэлементы.*

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FRUITS AS NATURAL SOURCES OF VITAMINS AND MINERALS

Abstract. *The article provides information about some fruits about their composition, useful and medicinal properties. These fruits contain macronutrients and microelements, vitamins and are also beneficial for our body.*

Key words: *fruits, quince, pear, grape, peach, apricot, cherry, cherry, vitamins, biogenic elements, macronutrients and microelements.*

Мы почти всегда едим сладкие и спелые фрукты. Но знаете ли вы что во фруктах очень много полезных веществ, витаминов для укрепления нашего организма. Мы будем знакомиться, в каких продуктах имеются биогенные элементы, их биологическое значение и с их полезными свойствами.

Биогенные элементы входят в состав всех фруктов, мы познакомимся с некоторыми из них содержащие в своем составе макроэлементы и микроэлементы, а также о полезных свойствах для нашего организма.

Фрукты — вкусная и натуральная еда, необходимая в ежедневном меню. В чем польза и вред фруктов для здоровья, что они содержат и как влияют на организм человека. Фрукты - Наши друзья и мы ознакомимся об их составе и полезных свойствах.

Айва – одна из самых древних культур, культивируемых человечеством. Айва употребляется в пищу в сыром виде, а также из нее выжимают сок, варят варенье и компоты и делают цукаты. Айва содержит питательные вещества, витамины, микроэлементы. Из макро и микроэлементов содержится железо- 3мг, калий- 144 мг, кальций – 23 мг, магний – 14 мг, магний – 14 мг, натрий – 14 мг, фосфор – 24 мг. Айва является средне калорийным продуктом 46,5 ккал на 100 г продукта. Айва имеет полезные свойства для организма человека.

Айву с древних времен относят к лечебным растениям. При этом лекарственным свойством обладают не только свежие плоды растения, богатые железом, но и семена, собираемые во время переработки плодов.

В народной медицине из семян айвы приготавливаются отвары, применяемые в качестве несильного слабительного или обволакивающего средства. Хорошим эффектом обладает использование отвара при заболеваниях дыхательных путей для снижения кашля. Обволакивающие свойства отвара в виде примочек помогают при заболеваниях глаз. Также отвар рекомендуется к применению в качестве косметологического средства, смягчающего кожу. Плоды айвы используют как скрепляющее, кровоостанавливающее и противорвотное средство. Айва является ценным пищевым продуктом, объясняется содержанием в ней фруктозы, камеди, аскорбиновой кислоты, крахмала, гликозида амигдалина жирного масла. Свежие плоды айвы употребляются при малокровии и в качестве желчного средства. Сок зрелых плодов оказывает общеукрепляющее, мочегонное действие.

Персик – одна из самых важнейших плодовых культур субтропиков и умеренно теплых стран. Персик содержит питательные вещества, витамины, микроэлементы.

Из макро и микроэлементов содержится железо- 0,6 мг, калий- 363,0 мг, кальций – 20,0 мг, магний – 16,0 мг, магний – 14 мг, натрий – 30,0 мг, сера – 6мг, фосфор – 34 мг, хлор – 2,0 мг, алюминий – 650 мкг, йод – 2 мг, литий – 3 мкг, марганец – 140 мкг, медь - 50 мкг, никель – 4 мкг, фтор – 22 мкг, хром – 14 мкг, цинк – 100 мкг, кремний 10,0 мг. Персик является средне калорийным продуктом 40,1 ккал на 100 гр. продукта.

Полезные свойства для организма человека. Персики рекомендуются больным и истощенным в качестве питательного и общеукрепляющего средства. Персиковый сок является полезным диетическим продуктом, особенно для больных и детей. Масло из семян персика равноценно миндальному и очень ценится в фармацевтике. Оно служит растворителем некоторых лекарственных веществ, предназначенных для подкожных и внутримышечных инъекций. Его употребляют и для приготовлений жидких мазей. При ревматизме и головных болях принимают отвар из листьев персика. Персик полезен при мочекаменной болезни как мочегонное средство. В персиках содержится достаточно много солей калия, поэтому их необходимо есть больным с сердечными заболеваниями, при нарушении сердечного ритма. Свежие плоды персика стимулируют образование гемоглобина. А благодаря наличию легкоусвояемого железа персики применяют при анемии.

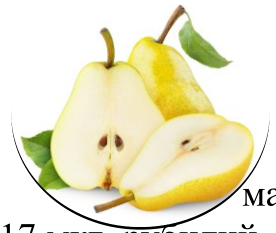
Абрикосы содержат: натрия – 30 мг, калия – 305мг, кальция – 28 мг, магния – 19 мг, фосфора – 26 мг, железа – 2,1 мг.

Высушенные фрукты (курага, кайса, урюк) содержат около 50% сахара, 1,4-3,4% органических кислот, 1,3-2,1% пектиновых веществ, аскорбиновую кислоту – до 4%, витамина РР 3 мг % , каротина 3,5мг %, витамины B_1, B

фосфор, кальций и калий. Курага содержит до 1,7 г калия в 100 г продукта.

Лечебные свойства абрикоса. Улучшает процессы кроветворения и работу сердца, способствует выведению из организма холестерина, стимулирует перистальтику кишечника, оказывает общеукрепляющее действие. Используется как нежное слабительное, жаждоутоляющее и жаропонижающее средство, как мочегонное средство, при вялой работе кишечника.

Груша – одно из древнейших плодов деревьев, культивируемых человечеством. Груша содержит питательные вещества - углеводы, жиры, белки, вода, моно и дисахариды, крахмал, пищевые волокна, органические кислоты, зола, витамины – А, В, С, Е, Н, РР, микроэлементы.



Из макро и микроэлементов содержится железо- 2,3 мг, калий- 155 мг, кальций – 19 мг, магний – 12 мг, натрий – 14,0 мг, сера – 6 мг, фосфор – 16 мг, хлор -1,0 мг, бор - 130 мкг, ванадий – 5мкг, йод – 1 мг, кобальт – 10 мкг, марганец – 65 мкг, медь - 120 мкг, молибден – 5 мкг, никель – 17 мкг, рубидий – 44 мкг, фтор – 10 мкг, цинк – 100 мкг, кремний – 6,0 мкг. Груша является средне калорийным продуктом 42,9 ккал на 100 гр. продукта.

Полезные свойства для организма человека. Одно из самых важных свойств груши является то, что это «природный антибиотик» груши используют как антимикробное средство, плоды которого создают неблагоприятную среду для болезнетворных бактерий. Груши обладают тонизирующими свойствами. Они успокаивают сердцебиение, улучшают настроение, снимают напряжение. При сахарном диабете рекомендуется регулярно принимать сок из свежих груш по 50-70 г за 30 минут до еды. При ожирении, сахарном диабете, при заболеваниях почек, печени и желчных путей в диеты входят свежие и сухие груши.

Черешня – очень сладкая ягода, почти лишённая кислого вкуса. Именно поэтому ягоду в сыром виде предпочитают и дети и взрослые и даже птицы в садах. Кстати, благодаря неравнодушию к черешне различных пернатых её и призвали «птичьей вишней».

Из минеральных элементов черешня богата кальцием и калием. Именно благодаря ним обеспечиваются полезные свойства для поддерживания «в форме» кровеносных сосудов и нормальной работы сердечной мышцы.

Кроме того, калий в составе ягоды обеспечивает нормализацию работы почек и профилактику мочекаменной болезни. Именно поэтому кстати не только черешня, но и многие другие фрукты и овощи обладают целебными свойствами выводить камни из почек и мочевого пузыря.

Много в составе черешни и железа, позволяющего организму насыщать кровь гемоглобином и справляться с анемией. И ещё очень важен йод – элемент, благодаря которому улучшается состояние щитовидной железы и нормализуется выработка ею многих гормонов.

А многие из вышеперечисленных веществ, работая в комплексе, обеспечивают и другие полезные свойства черешни. Например, эта ягода обладает хорошими тонизирующим эффектом, способна улучшать работу мозга и повышать остроту зрения. Все это делает её настоящим садовым сокровищем. И немудрено поэтому, что черешню любят. Так что летом, только встретив в продаже её твердые сладкие сорта, обязательно стоит побаловать себя и зарядиться большой порцией здоровья.

Вишня. С лечебной целью используют ягоды вишни сок, сироп, листья корни, ветки, камедь и косточки. Плоды, семена, плодоножки собирают в июле - августе ветки и листья в мае.

огата легкоусвояемыми углеводами сахарозой, фруктозой. В ней также содержатся пектин, витамины А, С, РР, органические кислоты, преимущественно яблочная и молочная, минеральные вещества – медь, калий, железо, магний.

Полезные свойства вишни. Плоды вишни обладают капилляр укрепляющим, протовосклеротическим, мочегонным, отхаркивающим и противовоспалительным действиями. Вишневый сок губительно действует на возбудителей дизентерии, стафилококки и стрептококки.

Ягоды вишни рекомендуются для больных с катарами дыхательных путей, при воспалении легких, гастритах, анемии, улучшает аппетит, пищеварение жиров и белков, утоляют жажду, снимают тошноту и рвоту прекращают понос. При этом закрепляющие свойства сушеной вишни сильнее, чем свежей. Настои мякоти плодов вишни используются в качестве освежающего и жаропонижающего средства. Сок плодов употребляют при заболеваниях печени.

Отвар плодоножек применяется при дизентерии, сильных менструальных кровотечениях, как мочегонное средство при водянке, камнях и мочевом пузыре, заболеваниях суставов и при поносах. Пригоршню плодоножек кипятят 20-30 мин в 0,5 л воды и принимают по ½ стакана 2-3 раза в день. Вишневый сок применяют при лечении трахеитов и бронхит.

Виноград – удивительно вкусная и полезная ягода,

употребляемая человеком с древнейших времен. В ягодах винограда содержится до 80% целебной и полезнейшей воды, натуральные сахара, пектины, белок, органические кислоты, углеводы и даже жиры, насыщенные и ненасыщенные жирные кислоты, эфирные масла, дубильные и красящие вещества.

Хотя ягоды винограда отлично насыщают, калорий в них мало – 72 ккал но 100 г, зато очень много витаминов и минеральных веществ. В состав винограда входят пять витаминов группы В, бета каротин, витамина А, С, Е, Н, РР; макроэлементы – кальций, магний, натрий, калий, фосфор, хлор, сера, микроэлементы – железо, цинк, йод, медь, марганец, хром, фтор, молибден, бор, ванадий, кремний, кобальт, алюминий, никель, рубидий.

Сушеный виноград называют изюмом, и в нем не только сохраняется всё ценное, что есть в свежих ягодах, но и появляются новые полезные вещества, образующиеся в процессе высушивания плодов. Железа в изюме больше, чем в свежем винограде, поэтому он очень полезен беременным и кормящим женщинам; много калия, так что людям с заболеваниями сердца он тоже может помочь.

Многие недуги можно облегчить и даже вылечить с помощью изюма: он очищает органы ЖКТ, дыхательные пути, улучшает работу печени, почек и мочевого пузыря; снимает отеки приводит в норму давление и помогает похудеть.

Итак, мы познакомились с некоторыми фруктами имеющие биогенные элементы, которые мы употребляем почти каждый день и их полезными свойствами. В нашей солнечной стране эти фрукты и сухофрукты мы можем приобрести в каждом магазине или на рынке в любое время года. Как мы познакомились, они очень полезны и нужны для здоровья наших детей, для их нормального развития и роста.

Летом все фрукты, овощи будут поспевать, и вы можете насладиться этими уникальными подарками природы побольше. Думаю, вы будете наслаждаться фруктами и пользоваться их полезными свойствами, обогащать свой организм витаминами, минералами, углеводами. Также, зная их полезные свойства, вы будете внимательными к своему здоровью и своих близких.

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ПРОБЛЕМЫ БУРЕНИЯ СОЛЯНЫХ ПЛАСТОВ НА БУХАРО-ХИВСКОМ НЕФТЕГАЗОНОСНОМ ИЗГИБЕ

Аннотация: *Приведены сведения о проблемах бурения в проницаемых пластах нефтяных и газовых скважин, выборе бурового оборудования и инструмента, трудностях, возникающих в процессе бурения, их устранении, результатах эффективных буровых работ на месторождениях.*
Ключевые слова: *пласт рапа, образование намакоба, подбор бурового оборудования и инструмента, многорежимные осложнения, аномальное давление, усадка ствола, затвердевание солей, химические реагенты, геофизические исследования в скважинах, цементирование скважин.*

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PROBLEMS OF DRILLING SALT FORMATIONS AT THE BUKHARA-KHIVSKY OIL AND GAS BEARING BEND

Annotation: *Information is provided on the problems of drilling in the shallow strata of oil and gas wells, the selection of drilling equipment and tools, the difficulties encountered during the drilling process, their elimination, and the results of effective drilling operations in the fields.*
Keywords: *rapa layer, formation of namakob, selection of drilling equipment and tools, multi-state complications, abnormal pressure, barrel shrinkage, solidification of salts, chemical reagents, geophysical studies in wells, cementing of wells.*

Опыт бурения скважин в Бешкентской излучине и Бухаро-Хивинском нефтегазоносном районе показывает, что одной из причин сложности вскрытия соляных пластов является осмотический массообменный процесс.

Эффективными мерами профилактики осложнений, вызванных процессами осмотического массопереноса, являются использование естественного соления буровых растворов или высокоминерализованных водных компонентов на безводной основе. В настоящее время степень минерализации буровых растворов определяется исключительно на основе многолетнего практического опыта. Это зачастую приводит к перерасходу реагентов при приготовлении растворов и завышению затрат на инструмент при завершении бурения скважин, без научного обоснования проводимых процессов бурения [1].

Гидрохимические и гидрогеологические исследования, проведенные в разведочных скважинах, пробуренных на месторождениях Юго-Западного Узбекистана, показывают, что с увеличением глубины скважины увеличивается и степень минерализации пластовых вод. В некоторых случаях это показывает, что степень минерализации уменьшается по мере увеличения глубины слоя. Данная ситуация в основном характеризуется аномальным верхним пластовым давлением и снижением степени минерализации. При бурении соляных пластов во многих случаях наблюдались осложнения или выходы аномальных высокоминерализованных растворов – рапасов в виде открытых фонтанов (скважина № 10 месторождения Чулкувар, 2023 г.). Пачка рапас подается нарезанной и завернутой в полоски соли. Химический состав породы различен, и часть его соответствует солям в скальных образованиях, обнаруженных в этой области. Кроме того, слои содержат также хлоридно-натриево-кальциевые и хлоридно-натриево-магниевые равнины с плотностью 1280-1380 кг/м^3 [23]. Удары являются аномально высоконапорными и оказывают значительное противодавление по отношению к преобладающему давлению промывочной жидкости. Подобное геологическое строение отмечено на ряде месторождений: Чолкувар, Алан, Кокдумалок, Зеварда, Северный Шуртан и др. Рапа - После попадания в ствол скважины буровой раствор ухудшает состав породы. В процессе бурения, поднимаясь по стволу скважины, эти растворы охлаждаются, а затем соли прилипают к стенкам скважины и оседают, особенно NaCl, который имеет низкую растворимость. Иногда при уменьшении диаметра скважины скорость входящего потока уменьшается, что приводит к увеличению разницы температур между дном и верхом скважины, что приводит к накоплению осадка и полной блокировке ствола скважины. Когда ствол скважины очистят от соли, фонтанирование возобновится. Извержение рапы через скважину обычно характеризуется выбросом больших объемов жидкости и солей. Размер частиц соли может составлять от 20 мм до 2 мм. Промывка пород с большой скоростью потока приводит к выветриванию слабых и слабосцементированных породных массивов и заклиниванию бурового инструмента. В результате скважина частично или полностью перекрывает подачу воды на поверхность. В дальнейшем при вскрытии продуктивных пластов наблюдалось большое поглощение бурового раствора. Зона интенсивного газодобычи и поглощения газа была остановлена установкой цементного моста. В период твердения цементной смеси в бетоне через башмак промежуточной колонны наблюдалась трещина при расходе 7 м^3/час. Скважина была остановлена без загрузки на три месяца. Скважина была остановлена при разбуривании кристаллизованных солей (дебит скважины вновь увеличился до 46 м^3/сут). Аналогичная ситуация сложилась на скважинах 11, 9, 17 и 15 Шуртанского рудника. Наиболее благоприятные условия для борьбы с образованием рапы создаются при одновременной разработке соленосных и продуктивных пластов. В этом случае верхние терригенные отложения укрепляются промежуточными колоннами и создаются условия обрушения при бурении скважины из зоны рапа-пласта [5]. Однако углубление скважины вызвало трудности в вскрытии XV продуктивного пласта. Таким образом, параметры бурового раствора поддерживались на заданном уровне. Проявление рапы на месторождении Кокдумалак наблюдалось также при бурении многих скважин, большинство из которых было остановлено. Расход воды реки ограничен величинами от 21,2 м^3/сут (скважина № 69) до 4752 м^3/сут (скважина № 74), 5184 м^3/сут (скважина № 14) и выше (скважина № 275). Плотность породы изменялась от 1220 кг/м^3 (скважина № 16) до 1349 кг/м^3 (скважина № 55). Показатель pH воды варьировался от 2,8 (скважина № 55) до 7,2 (скважина № 125). Температура рапы во время кладки составляла 87-90 °C. Общая минерализация рапы колебалась от 280,912 г/л (скважина № 16) до 721,62 г/л (скважина № 55). Глубина залегания Рапы колебалась от 2280 м (скважина № 275) до 2720 м (скважина № 125), 2693 м (скважина № 48) и 2701 м (скважина № 16). Содержание хлорида кальция в составе рапы изменяется от 18,44 г/л (скважина № 16) до 102,23 г/л (скважина № 55), а содержание хлора - магния - натрия изменяется от 18,0 г/л (скважина № 16) до 79,18 г/л (скважина № 55). Рапа содержит ионы натрия, калия, хлора, кальция, магния, сульфата и карбонаты. Рапа во всех скважинах прорвана киммерийско-титанскими солевыми отложениями. Формирование рапы скважины № 125 было отложено на 70 суток для разгрузки зоны рапы. Однако через 10 дней рапани перестали выходить на поверхность из-за кристаллизации рапани и образования соляных пробок вдоль ствола скважины. Через 133 дня началось бурение скважины и началась закачка бурового раствора плотностью 1160 кг/м^3, обработанного КМС, угольно-щелочным раствором и каустической содой. Возникли трудности при эксплуатации скважины из-за сокращения ствола скважины и провисания ее стенки, что привело к застреванию бурового инструмента. Один интервал перерабатывался несколько раз, и на обработку ствола скважины до глубины 2776 м ушло два месяца. В это время вид реки возобновился, расход составил 15 л/с, а в течение 5 дней расход снизился на 5 л/с. При обработке ствола скважины использовано 600 м^3 раствора, 30 т. бурового раствора, 1,2 тонны КМС, 36 тонн бурового угля, 6 тонн каустической соды, 6 тонн кальцинированной соды, 6 буровых установок, а общее время работы буровой бригады составило 2907 часов [3]. Аналогичные работы запланированы на скважинах № 48 и 111, где наблюдается выход рапы. Ствол скважины перерабатывается до глубины 580 м (110 м ниже башмака кондуктора), бурение начато на глубине 480 м (128 м ниже башмака кондуктора), буровой инструмент поднят. Колонна поднята, скважина остановлена для предотвращения застревания бурового инструмента. В это время при вскрытии соляных пластов на разведочных месторождениях АО «Узбурнефтегаз» произошла утечка. При бурении на разведочных площадях для перекрытия терригенных и хемогенных отложений предварительно подбирается колонна арматуры конструкции скважины. При бурении стволов эксплуатируемых скважин на нефтяных и газовых месторождениях в нашей республике и за рубежом применяются сложные конструкции скважин, то есть заранее рассматривается применение арматурной колонны для герметизации терригенных отложений. В соляной потолок опускается техническая колонна диаметром 245 мм, цементируется и для вскрытия соляных пластов применяются утяжеленные буровые растворы [5]. Процесс вскрытия гемогенных залежей на эксплуатируемых месторождениях проще, чем на разведочных скважинах. Использование тяжелых буровых растворов при строительстве простых скважин ограничено и приводит к дополнительным затратам времени и средств, что отрицательно сказывается на стоимости строительства нефтяных и газовых скважин. При бурении скважин на геологоразведочных площадях применяются соленасыщенные буровые растворы, приготовленные по следующим технологиям, и имеющие следующие параметры: плотность - 1320-1350 кг/м^3, условная вязкость - 40-45 с; водопроницаемость - 8,0-10,0 см^3/30 мин; толщина глинистой корки 1,5-2,0 мм; водородный показатель pN = 8,0-9,0 [26]. В процессе углубления скважин наблюдается резкое увеличение условной вязкости циркулирующего бурового раствора, при этом остальные технологические параметры остаются неизменными. В дальнейшем, с течением времени, относительная вязкость, водопроницаемость и водородосодержание в циркулирующем буровом растворе снижались. Ухудшение технологических показателей циркуляции рабочего бурового раствора свидетельствует о том, что солевые отложения имеют форму линз. Через некоторое время рапануи начал двигаться с разной скоростью. Такая ситуация, в свою очередь, может вызвать различные осложнения (рассеивание и выветривание стенки скважины, заклинивание бурового инструмента). При бурении скважины № 5 на месторождении Западный Алан, достигшей глубины 2600 м, было отмечено приток рапана из соляных отложений скважины с расходом 10 л/сек. В этом случае бурильная колонна была поднята из скважины, и скважина была под наблюдением. Через несколько дней поток воды уменьшился, и вода из колодца перестала течь. Принято решение продолжить бурение скважины, плотность бурового раствора установлена 1450 кг/м^3. В результате наблюдалось ухудшение технологических показателей бурового раствора при обработке скважин. Плотность циркулирующего бурового раствора снизилась до 1220 кг/м^3, относительная вязкость – до 20-22 с, а скорость фильтрации жидкости снизилась до 40 см^3/ч за 30 мин. Продолжение буровых работ на скважине не представлялось возможным. По мере того, как бурение продолжалось вниз по скважине, буровые инструменты заклинило, когда они достигли глубины 1800 м [26]. Для предотвращения заклинивания бурового инструмента была установлена третья масляная ванна. Для этого 92 м^3. объем использованного масла. Для повторной обработки ствола скважины использовался вновь приготовленный буровой раствор, что привело к ухудшению технологических показателей бурового раствора и его впитыванию в трещиноватые породы. В связи с невозможностью продолжить бурение скважины № 5 на месторождении Западный Алан скважина была остановлена по геологическим причинам. В соляной пласт на глубину 2262 м была спущена техническая колонна диаметром 219 мм и для дальнейшего углубления скважины использовался утяжеленный буровой раствор. Для этого ствол скважины был обработан до глубины 2262 м от места спуска колонны арматуры, а циркуляционному буровому раствору были заданы требуемые технологические параметры и выбрана плотность 1450 кг/м^3. Резко ухудшились технологические показатели бурового раствора при обработке ствола скважин. Плотность раствора снизилась до 1200 кг/м^3, относительная вязкость до 18 с, а скорость фильтрации до 40 см3/30 мин. Ухудшение технологических показателей произошло из-за появления ржавчины.

Обработка ствола скважины производилась циркулирующим буровым раствором, содержащим защищенные реагенты, такие как каустическая и кальцинированная сода, тальковый щёлок, а также полимерные реагенты, такие как крахмал, КМС и К-4. Для предотвращения застревания бурового инструмента в буровой раствор добавляют масло и графит. При постепенной обработке технологические показатели бурового раствора изменились в лучшую сторону, даже при смешивании с рапой. После этого буровая колонна была поднята и начались геофизические работы. Буровые работы прошли успешно, в результате чего в стенках скважины образовались полости, заполненные грязевыми растворами. Дальнейшая обработка ствола скважины проводилась двумя спиральными калибраторами лопастного типа. При спуске бурильной колонны буровой раствор не обрабатывался химическими реагентами, стенка скважины не обрабатывалась, стенка не промывалась, а транспортировался на забой скважины. Бурильная колонна была поднята со дна скважины, при подъеме бурового инструмента не возникло никаких осложнений и трудностей. Обработка бурового раствора проводилась в два цикла, а его технологические параметры при повторном измерении имели следующие значения: плотность 1260-1280 кг/м^3; условная вязкость 70-80 с; фильтрация 8,0 см^3 /30 мин; pH 10,0-11,0. Обсадная колонна скважины промыта и начат подъем бурильной колонны. После подъема бурильной колонны в скважину немедленно опускалась обсадная колонна. Арматурная колонна была спущена в скважину на глубину 2262 м в течение 26 часов. Результаты показывают, что в районе расположения аргиллита образовались большие отверстия. После спуска обсадной колонны в скважину производилась промывка ствола скважины в течение однократной циркуляции бурового раствора и замеры параметров технологической жидкости. По результатам измерений величина технологических параметров при циркуляции бурового раствора не изменилась даже при остановке бурового насоса. Работы по цементированию скважины были завершены за 2 часа 30 минут, в скважину было закачано 8 м^3 цементной смеси и цементная смесь была полностью поднята из заднего кольца обсадной колонны. Так, скважина № 5 на месторождении Западный Алан была успешно завершена, несмотря на произошедшую утечку, и дала 2 млрд кубометров нефти. были потрачены огромные суммы денег. Следует отметить, что данный процесс требует большого количества химических реагентов и большого количества материала для поддержания технологических параметров на требуемом уровне. Причиной резкого ухудшения технологических показателей буровых растворов является их смешивание с пульпой, что можно назвать осмотической ситуацией.

Известно, что агрессивные ионы минеральных солей в составе пульпы заряжены положительно, а частицы бурового раствора — отрицательно. Рекомендуется учитывать эти обстоятельства в первую очередь и использовать при бурении скважин в скоротечных зонах растворы, состоящие из положительно заряженных частиц [5].

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АНАЛИЗ ПРОБЛЕМ ИЗМЕРЕНИЯ АУДИТОРИИ В СЕГМЕНТЕ ЦИФРОВОЙ НАРУЖНОЙ РЕКЛАМЫ В РОССИИ

Аннотация: *В статье исследована проблема измерения аудитории в сегменте цифровой наружной рекламы (DOOH) в России на основе кабинетного анализа. Проанализированы технологии Bluetooth-логгинга, видеоаналитики с AI, QR/NFC-атрибуции, программатик-метрик и независимой верификации RADAR с точки зрения их технологической точности, затрат и соответствия законодательству (ФЗ-152). Установлено, что Bluetooth-логгинг обеспечивает быстрый и масштабируемый охват (r = 0,92), AI-видеоаналитика — высокую точность dwell-time и демографии, QR/NFC-атрибуция — связь офлайн-онлайн, а RADAR усиляет доверие рынка. Представлены практичные рекомендации для операторов и рекламодателей по построению гибридной measurement-системы с учётом норм и стандартов.*

Ключевые слова*: DOOH, измерение аудитории, Bluetooth-логгинг, AI-видеоаналитика, QR/NFC-атрибуция, programmatic-метрики, RADAR, цифровая наружная реклама*

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THE CHALLENGE OF AUDIENCE MEASUREMENT IN RUSSIA’S DIGITAL OUT-OF-HOME ADVERTISING

Abstract: *This study addresses the challenge of audience measurement in Russia’s digital out-of-home (DOOH) advertising. Through a desk (cabinet) review of publicly available sources—spanning Bluetooth logging (Page et al., 2018), AI-powered video analytics (StackAdapt, 2024), QR/NFC attribution (AdMobilize, 2025), programmatic metrics, and the RADAR independent verification platform—this research examines the technological capabilities, cost efficiency, and regulatory compliance (per Federal Law 152) of each method. Findings indicate* *that Bluetooth offers scalable and anonymous reach measurement (r = 0.92); AI-video systems deliver precise dwell-time and demographic data but require investment and data anonymization; QR/NFC enables direct offline-to-online tracking, albeit with limited user engagement; while RADAR enhances credibility as a neutral auditor. The study proposes a hybrid measurement framework, combining these technologies to improve transparency, ROI, and regulatory adherence in DOOH campaigns.*

Keywords: *DOOH, audience measurement, Bluetooth logging, AI-video analytics, QR/NFC attribution, programmatic metrics, RADAR, digital out-of-home advertising*

В условиях стремительного роста цифровой наружной рекламы (DOOH) в России становится особенно актуальным вопрос объективного измерения её аудитории — охвата, времени взаимодействия, частоты повторных контактов и демографической структуры. В отличие от онлайн-платформ с отлаженной аналитикой, цифровая наружка остаётся «чёрным ящиком», что порождает дефицит доверия среди рекламодателей и снижает эффективность медиабюджетов. В этом контексте нарастает интерес к технологиям Bluetooth-логгинга, видеокамер с AI-анализом, QR/NFC-атрибуции и независимой верификации через платформу Radar, хотя все они требуют учёта нормативных ограничений и инвестиций.

Кроме того, необходимо обеспечить баланс между технической точностью, правовой безопасностью (в рамках ФЗ-152 «О персональных данных») и затратами. Цель нашего кабинетного исследования — всесторонняя оценка этих методов измерения, выявление их сильных и слабых сторон, сопоставление с законодательством и выработка практических рекомендаций для операторов и рекламодателей.

Для анализа использован контент- и сравнительный анализ по следующим источникам. Во-первых, Bluetooth-логгинг на основе исследования «Measuring Audience Reach of Outdoor Advertisements Using Bluetooth Technology» (Ehrenberg-Bass Institute, 2018), где корреляция с ручным подсчётом достигла r = 0,92. Во-вторых, AI-видеоаналитика как описано в материалах StackAdapt, позволяющая оценивать dwell-time, impressions и демографию. Третьим компонентом стала QR/NFC-атрибуция (обзор Admobilize «Measuring What Matters», 2025), дающая возможность устанавливать связь между офлайн-воздействием и действиями аудитории online. Четвёртым методом исследования стала интеграция programmatic-метрик — StackAdapt и Broadsign описывают использование мобильных ID и геоданных для определения CPM, ARP, dwell-time и offline-attribution. Пятым элементом анализа является независимая система Radar, позиционируемая как отраслевой стандарт для верификации охвата. Также учтены нормативные аспекты — требования ФЗ-152 и международных подходов Cdti, обеспечивающих защиту персональных данных при использовании технологии распознавания лиц или BLE-трекинга.

Результаты анализа позволяют сказать, что Bluetooth-логгинг представляет собой конструктивный старт: он анонимен, экономичен, развёртывается быстро и обеспечивает масштаб измерений, однако он чувствителен к концентрации устройств у прохожих и работает не одинаково в разных условиях (плотные зоны — лучше, удалённая локализация — хуже). AI-видеоаналитика оправдывает свою сложность благодаря точности измерения dwell-time и демографии, формируя сырьё для современных KPI; но внедрение требует значительных инвестиций в камеры, системы AI и внимание к защите данных. QR/NFC-атрибуция даёт прямую ссылку между офлайн-баннером и online-активностью (например, переход на сайт или скачивание приложения), но её статистическая значимость ограничена низкой вовлечённостью пользователей. Интеграция в programmatic-модели делает измерения более прозрачными: play-log вместе с мобильными ID и геоданными формируют комплексный отчёт по CPM, ARP, dwell-time и conversion, но здесь требуется техническая интеграция DSP и SSP. Наконец, Radar-платформа усиливает доверие к DOOH, действуя как независимый аудитор эффективности и обеспечивая контроль корректности заявленных охватов; однако она вызывает потребность в отраслевой консолидации и стандартной методике измерений.

Важным итогом анализа является осознание необходимости соблюдения ФЗ-152: камеры и BLE-сенсоры обязаны работать в анонимном режиме, зоны размещения оформляются специальными знаками, а данные используются лишь в агрегированном виде, иначе оператору угрожают штрафы и репутационные потери.

На основании изложенного, оптимальным выходит гибридный подход: Bluetooth-логгинг для массового охвата, AI-видеоаналитика — для детального анализа и Dwell-time, QR/NFC — для атрибуции действий, programmatic — для отчетности и прозрачности закупки, а Radar — для независимой проверки. Операторам рекомендуется объединяться для принятия отраслевых стандартов и развития measurement-инфраструктуры, рекламодателям — включать dwell-time и QR/NFC в KPI, регуляторам — поддерживать создание ГОСТов и сертификацию measurement-сегмента.

Такой подход предлагает DOOH-рынку инструментарий для объективного измерения, повышения ROI и создания прозрачной экосистемы взаимодействия участников рынка.

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ОСНОВНЫЕ ПОДХОДЫ К ОПРЕДЕЛЕНИЮ КАЧЕСТВА ПОДГОТОВКИ ВЫСОКОКВАЛИФИЦИРОВАННЫХ СПЕЦИАЛИСТОВ В ВУЗОВ

Аннотация. *В статье рассматриваются факторы, влияющие на качество подготовки специалистов в высших учебных заведениях и вопросы их оценки. Затронуты специфические аспекты оценки качества подготовки специалистов в высшей школе.*

Ключевые слова: *образование, педагогическая система, инновация, квалификация кадров, образовательный процесс, образовательные услуги, материальные факторы, социальные факторы.*

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MAIN APPROACHES TO DETERMINING THE QUALITY OF TRAINING HIGHLY QUALIFIED SPECIALISTS IN UNIVERSITIES

Abstract. *The article examines the factors influencing the quality of training specialists in higher education institutions and issues of their assessment. Specific aspects of assessing the quality of training specialists in higher education are touched upon.*

Key words: *education, pedagogical system, innovation, qualification of personnel, educational process, educational services, material factors, social factors.*

Инновационная фаза развития общества характеризуется тем, что в этот период наблюдается стремление людей к получению качественных знаний, что непосредственно проявляется как производительная сила. Поэтому проблема повышения эффективности качественных образовательных технологий и увеличения спроса на них считается актуальной в плане подготовки высококвалифицированных специалистов.

Качество профессиональной подготовки в высших учебных заведениях нашей страны считается главным критерием выбора абитуриентами высшего учебного заведения. Это результат функционирования педагогической системы и ее динамического взаимодействия с окружающей средой. Качество подготовки молодых специалистов определяется соответствием квалификации выпускников требованиям рабочего места, обеспечением требований государственных образовательных стандартов.

В настоящее время в процессе профессиональной подготовки высококвалифицированных специалистов в высших учебных заведениях нашей страны необходимо на каждом этапе формирования компетентности (по каждому предмету, изучаемому в учебном плане) строить и реализовывать цикл следующих качеств:

- формирование целевых инструкций в виде модели компетенций;
- входной контроль компетенций каждого обучающегося (оценка текущего уровня);
- построение индивидуальной (групповой) траектории обучения;
- реализация выбранных для каждого обучающегося образовательных траекторий (образовательный процесс);
- проведение выходного контроля уровня компетентности в процессе испытаний (аттестации, оценка уровня полученных знаний);
- оценка уровня удовлетворенности потребителей образовательных услуг;
- компетентность обучающегося, цели и критерии оценки компетентности, а также организация учебного процесса и осуществление корректирующих действий в отношении образовательных программ.

Образовательный процесс 21 века отличается от системы образования предыдущих периодов рядом особенностей и требует определенных изменений в содержании образовательного процесса и его организации. Внедрение изменений и нововведений является неотъемлемой частью развития системы образования. Соответственно, например, внедрение технических новшеств в систему образования приводит к технологическим изменениям в проведении обучения и управлении им, в результате чего происходят изменения и в системе подготовки специалистов (1. 31-36-стр).

На современных этапах развития государства и общества уровень образованности населения, масштабы и традиции системы высшего образования обеспечивают ее конкурентоспособность в эпоху различных политических, социальных и экономических осложнений. Именно кластер «Образование-Наука-Культура» позволяет обществу и государству занять место на передовых позициях развития. Многие исследователи подчеркивают, что высшее образование является ведущей силой в национальных системах образования, что является фактором качества кадрового потенциала общества, развития других звеньев образования, повышения инновационного потенциала общества.

В настоящее время отчетливо видно, что высшие учебные заведения приобретают все большее значение в создании современных гуманитарных и производственных технологий, в реализации научно-обоснованных технических и социокультурных проектов. Именно усилиями системы высшего образования по подготовке высококвалифицированных специалистов общество может перейти к этапу конструктивной модернизации, которая может быть достигнута в результате следующих условий:

- высокий уровень развития педагогической науки, формирование психолого-педагогического коллектива, его взаимодействия со смежными научными направлениями;

- что система образования ориентирована на дух человеколюбия и практической деятельности, что она ориентирована на целостность воспитательной работы;

- развитие научных исследований в системе высшего образования, наличие методики подготовки научных кадров, отработанных форм интеграции образовательного и научного процессов;

- сформировано наличие множества инновационных разработок содержательного, методического и организационного характера в вузах, возможность их внедрения в государственные целевые образовательные программы и процесс повышения квалификации педагогов-преподавателей вузов (2. 99-101-стр).

В то же время применительно к системе высшего образования возникает необходимость решения ряда важных задач модернизации высших учебных заведений в части подготовки высококвалифицированных специалистов, к которым можно отнести следующие:

1. В действующем законодательстве о системе высшего образования ряд проблем в деятельности высших учебных заведений в условиях рыночных отношений по отдельным вопросам (например, использование внебюджетных источников средств, установление отношений между производством и наукой на основе рыночных отношений, развитие инновационной деятельности, вопросы защиты интеллектуальной собственности) что решение реализуется недостаточно эффективно;

2. Неспособность образовательных программ быстро адаптироваться к требованиям реального рынка труда, неразвитость форм активного обучения, в результате чего у специалистов не формируется достаточная компетентность для решения практических вопросов в реальных производственных условиях;

3. Структура учебных заведений и номенклатура специальностей не всегда соответствуют требованиям социальной сферы и экономического развития, имеют место случаи ведомственного разобщения высших учебных заведений;

4. Несформированность эффективной системы управления качеством и оценки подготовки высококвалифицированных специалистов;

5. В результате различных материальных, социальных и других факторов происходит снижение качества профессорско-преподавательского состава, задержки в привлечении молодых и талантливых специалистов в систему высшего образования, наличие случаев «старения» научного потенциала педагогического коллектива вуза;

6. Недостатки в формировании материально-технической базы высших учебных заведений;

7. Таких, как наличие административных ограничений в финансово-хозяйственной деятельности, препятствующих формированию эффективной системы управления высшим учебным заведением, развитию стратегического планирования для обеспечения развития образовательного учреждения, организации эффективной академической среде высшего учебного заведения (3. 320-стр).

Теперь мы ясно видим, что ведущим принципом подготовки высокообразованных специалистов является подготовка специалистов узкой специализации. Однако Закон Республики Узбекистан «Об образовании» определяет правовые основы многоуровневой подготовки специалистов по системе «бакалавр-магистр» по различным направлениям. Соответственно, можно сказать, что многоуровневая система подготовки высококвалифицированных специалистов способна более оперативно реагировать на изменения запросов и потребностей социальной сферы и экономики, полностью отвечает интересам личности с точки зрения стать совершенным человеком.

Процесс подготовки высококвалифицированных специалистов и его результат будут доступны в виде реального проекта, реализуемого в деятельности педагогов и студентов, осуществляющих образовательный процесс, и руководителей, управляющих этим процессом. Этот процесс, в свою очередь, зависит от мотивационных, кадровых, информационных, нормативно-правовых, материально-технических, финансовых, научно-методических, организационных условий его осуществления (5. 321-стр).

Повышение эффективности деятельности образовательных учреждений в системе высшего образования, в свою очередь, требует осознания необходимости принятия мер по проведению изменений в соответствии с изменениями внешней среды, проведению диагностики организационной культуры.

В системе высшего образования нашей страны актуальность проблемы качества профессиональной подготовки высококвалифицированных специалистов заключается в способности специалистов адаптироваться к требованиям рынка труда, выявить факторы, влияющие на качество профессиональной подготовки высококвалифицированных специалистов. этих специалистов с целью повышения их способности принимать правильные решения в различных ситуациях, которые могут возникнуть в их будущей профессиональной деятельности, и их воспитания, видится в необходимости находить возможности для применения на месте.

Для выполнения этих задач необходимо выполнить следующее:

- глубокое изучение актуальных проблем подготовки высококвалифицированных специалистов в системе высшего образования нашей страны;

- категоризация внешних и внутренних факторов, влияющих на качество подготовки специалистов в вузе;
- описывать и оценивать каждый внешний и внутренний факторы по категориям.

Изучение внешних и внутренних факторов, влияющих на качество подготовки специалистов в системе высшего образования, закладывает основу для эффективной организации процесса подготовки высококвалифицированных специалистов.

Один из внешних факторов является абитуриенты. Для характеристики уровня знаний абитуриентов, подавших заявление о приеме в высшее учебное заведение, то есть качества их подготовки к обучению в высшем учебном заведении, в оборот вводится показатель качества поступающих. На качество абитуриентов влияет средний балл документа (аттестата) о среднем специальном образовании, в каком регионе они учились в общеобразовательном учреждении, баллы вступительных экзаменов или зачетов, участие в различных экзаменах и олимпиадах, уровень владения иностранным языком приобретение.

Статистические данные по большинству указанных факторов собрать сложно, поэтому учитываются баллы поступающих на вступительных экзаменах или зачетах в вузы. При этом показатель качества абитуриента представляет собой средний балл абитуриента по специальности в данном вузе.

Для оценки процесса трудоустройства выпускников рекомендуется ввести новый качественный показатель, характеризующий качество их трудоустройства. Название этого показателя соответственно называется коэффициентом трудоустройства выпускников. Этот показатель считается относительным, так как определяется на основе функциональной зависимости. И в то же время имеет еще и качественный признак, который формируется в результате его безразмерности и характеризует качество результатов набора.

Внутренние факторы, влияющие на процесс подготовки специалистов в высшем учебном заведении, в основном делятся на пять факторов - управленческие, кадровые, материально-техническое и информационное обеспечение, экономические и факторы студенческого состава.

В обеспечении конкурентоспособности вуза в плане подготовки квалифицированных специалистов важными считаются факторы, связанные с его кадровым составом. В научной литературе, посвященной изучению этих факторов, кадровый состав вуза признается одним из важнейших факторов, от которого зависит качество образовательной услуги и уровень ее инновационности. От того, насколько большим будет влияние кадрового состава, будет напрямую зависеть деловой потенциал вуза, его конкурентоспособность и уровень качественной подготовки специалистов.

Исходя из этого, по окончании данной научной работы было признано необходимым выдвинуть ряд предложений по повышению качества подготовки высококвалифицированных специалистов в высших учебных заведениях нашей страны:

1. В целях повышения качества подготовки высококвалифицированных специалистов в высших учебных заведениях необходимо категоризировать факторы, влияющие на образовательный процесс, описать каждую их группу и создать систему принятия решений, связанных с образовательным процессом на это основа.

2. В качестве одного из важнейших факторов, влияющих на процесс подготовки высококвалифицированных специалистов, необходимо сформировать кадровый потенциал вуза на достаточном уровне и добиться его непрерывного развития.

3. В целях повышения качества подготовки высококвалифицированных конкурентоспособных специалистов в высшем учебном заведении необходимо принять меры по модернизации материально-технической базы учебного заведения и ее эффективному использованию.

4. Достижение регулярного учета требований рынка за счет усиления связи ОТМ с потребителями.

Таким образом, качество подготовки высококвалифицированных специалистов является актуальной педагогической проблемой, и высшие учебные заведения нашей страны ставят задачу подойти к педагогическому процессу подготовки знающих, высококвалифицированных и высококонкурентноспособных специалистов с духом творчества, тем самым повышая качество системы образования. Для достижения поставленной цели представляется целесообразным эффективное использование различных факторов и подходов, влияющих на процесс подготовки высококвалифицированных специалистов.

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О НЕКОТОРЫХ ГИСТОХИМИЧЕСКИХ ИЗМЕНЕНИЯХ СЛИЗИСТОЙ ОБОЛОЧКИ ПИЩЕВОДА У КРЫС В УСЛОВИЯХ ЭКСПЕРИМЕНТА

Резюме: *В статье изучены особенностей некоторых гистохимических реакций в пищеводе у крыс в норме и при воздействии на него определенным раздражителем. Гистологические срезы окрашивались гематоксилин-эозином и по ван-Гизон. Нейтральные полисахариды выявлялись при посредстве PASS-реакции (контроль амилазой слюны), а кислые мукополисахариды - толуидиновым - синим (PH среды 3,2 и 7,4). При гистологическом исследовании выяснилось, что утолщение слизистой оболочки органа происходило, в основном, за счет гиперплазии клеток всех слоев многослойного плоского эпителия.*

Ключевые слова: *крысы, пищевод, гематоксилин-эозином, по ван-Гизон, мукополисахариды, базальный слой, нуклеопротейдов.*

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ON SOME HISTOCHEMICAL CHANGES IN THE MUCOUS MEMBRANE OF THE ESOPHAGUS IN RATS UNDER EXPERIMENTAL CONDITIONS

Abstract: *The article studies the features of some histochemical reactions in the esophagus in rats under normal conditions and when exposed to a certain irritant. Histological sections were stained with hematoxylin and eosin and van Gieson. Neutral polysaccharides were detected using the PASS reaction (saliva amylase control), and acidic mucopolysaccharides were detected with toluidine blue (medium pH 3.2 and 7.4). Histological examination revealed that the thickening of the organ mucosa occurred mainly due to hyperplasia of cells of all layers of the stratified squamous epithelium.*

Keywords: *rats, esophagus, hematoxylin and eosin, van Gieson, mucopolysaccharides, basal layer, nucleoproteins*.

Введение. Обычно при двух заболеваниях пищевода: врожденном пороке развития -атрезии и рубцовой стриктуре после ожога, вызванного приемом коррозивно действующего химического вещества, формируется контингент больных, которым необходима эзофагопластика [1.2]. Реконструктивная хирургия пищевода в настоящее время остается одним из сложнейших разделов клинической хирургии. Это связано с имеющимися техническими сложностями оперативных вмешательств, высоким процентом послеоперационной летальности, большим количеством осложнений, низким качеством жизни оперированных больных [3]. В этой связи, изучение функционального состояния надэпителиального слизистого слоя желудочно-кишечного тракта после различных видов эзофагопластик может быть перспективно для понимания физиологической роли, условий образования и функционирования слизистого слоя, коррекции возникающих нарушений и выбора оптимального способа пластики пищевода [4,5].

Цель исследования. Нами были изучено особенностей некоторых гистохимических реакций в пищеводе у крыс в норме и при воздействии на него определенным раздражителем.

Материалы и методы исследования. Были изучены 25 пищеводов крыс, получавших в течение длительного времени per os по 0,2 мл 0,1% раствора 3, 4-бензпирена (опытная серия). Другие 25 крыс составляли вторую, контрольную группу. Эти животные не подвергались никаким воздействиям. Исследуемый материал фиксировался в жидкостях Карнуа, Шабадаш и в 12% нейтральном формалине. Гистологические срезы окрашивались гематоксилин-эозином и по Ван-Гизон. Нейтральные полисахариды выявлялись при посредстве PASS-реакции (контроль амилазой слюны), а кислые мукополисахариды - толуидиновым - синим (PH среды 3,2 и 7,4). Рибонуклеиновая (РНК) и дезоксирибонуклеиновая (ДНК) кислоты изучались при окраске срезов раствором галлоцианина (контроль 0,1% раствором рибонуклеазы при T° 37° в- течение 1-3 часов). ДНК выявлялась также реакцией Фёльгена. Содержание, ДНК и РНК определялось цитофотометрическим методом на приборе МУФ-5. Количество нуклеиновых кислот определялось как произведение оптической плотности на объем ядра. Оптическая плотность вычислялась по кривым, полученным с помощью регистрирующего устройства прибора. Объем ядра определялся по произведению двух его радиусов (Ч.хЧг)2. Радиусы ядер измерялись окуляр-микрометром.

Результаты исследования. Проведенные исследования показали, что после длительного воздействия канцерогеном (через 150 дней) у крыс опытной серии в пищеводе выявлялись очаговые плотные утолщения слизистой оболочки белесоватого цвета, округлой или неправильной формы. При гистологическом исследовании выяснилось, что утолщение слизистой оболочки органа происходило, в основном, за счет гиперплазии клеток всех слоев многослойного плоского эпителия. При этом преимущественно разрастался его базальный слой. Клетки последнего имели неправильную или полигональную форму, крупные гиперхромные ядра. Удлиненные клетки средних слоев эпителия содержали светлые ядра. Плоские клетки поверхностных слоев эпителия были лишены ядер. Клетки базального слоя эпителия пролиферировали и формировали тяжи и ячейки, погружающиеся в подлежащие ткани слизистой оболочки. Последние были инфильтрированы лимфоцитами, гистиоцитами и плазмоцитами. При изучении нейтральных полисахаридов установлено, что PASS - позитивный материал в эпителии пищевода у крыс распределялся неравномерно. В большом количестве он выявлялся в поверхностных слоях гиперплазированных участков эпителия, где цитоплазма клеток окрашивалась периода фуксином в фиолетово-вишневый цвет. Специфическая окраска этих клеток исчезала после обработки срезов амилазой. Это свидетельствовало о том, что полисахарид, содержащийся в клетках, является гликогеном. Гранулы гликогена были равномерно распределены во всей цитоплазме клеток. Напротив, в клетках других слоев гиперплазированного эпителия пищевода нейтральные полисахариды не выявлены. Не обнаружены они и в тех участках пищевода, где отсутствовала гиперплазия эпителия. Отмеченные особенности распределения нейтральных полисахаридов в эпителий пищевода имеют определенное значение в свете общепринятого мнения о том, что гликоген является основным энергетическим запасным веществом клеток. Увеличение количественного содержания РНК отмечалось в цитоплазме интенсивно делящихся клеток базального слоя гиперплазированного эпителия пищевода и в его отшнуровавшихся ячейках, погружающихся в подлежащие ткани слизистой оболочки вследствие чего цитоплазма клеток диффузно окрашивалась в серо-синий цвет. В ядрах этих клеток выявлялось также повышенное содержание ДНК. Известно, что нуклеопротеиды, в особенности РНК, накапливаются и играют большую роль при интенсивном роге клеток. Снижение митотической активности клеток сопровождается уменьшением содержания в них нуклеопротейдов В наших опытах в пищеводе крыс, подвергавшихся воздействию канцерогеном, четко выявлялись эти особенности распределения нуклеопротеидов, т. к. РНК и ДНК в большом количестве определялись только в участках усиленного роста клеток. Так, если в неизвестном эпителии пищевода количество ДНК составляло 3,81=0,23, то в очаге его гиперплазии -4,1810,21. (увеличение на 9,7%). Для РНК эти данные соответственно составляли 3,84+0,32 Я 4,72 0,31 (увеличение на 22,9%). Реакция метахромазии не была выражена в неповрежденном и в гиперплазированном эпителии, а также и в подлежащей соединительной ткани слизистой оболочки пищевода, что свидетельствовало об отсутствии в них кислых мукополисахаридов.

Вывод. На основании проведенных исследований можно заключить, что в очагах гиперплазии многослойного плоского эпителия пищевода крыс, вызванной воздействием канцерогена, происходило значительное увеличение содержания РНК и ДНК, причем количество РНК нарастало более высокими темпами, чем ДНК. Одновременно в поверхностных слоях клеток гиперплазированного эпителия отмечалось также значительное увеличение содержания гликогена. Не выявлено каких-либо изменений в отношении содержания кислых мукополисахаридов в гиперплазированном эпителии и в подлежащих тканях слизистой оболочки пищевода крыс.

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ВОПРОСЫ СТАБИЛИЗАЦИИ ВОЗДЕЙСТВИЯ ГИДРОТЕХНИЧЕСКИХ СООРУЖЕНИЙ НА ОКРУЖАЮЩУЮ СРЕДУ КАШКАДАРЬИНСКОЙ ДОЛИНЫ

Аннотация: *В данной статье подробно проанализировано влияние гидротехнических сооружений, расположенных в Кашкадарьинской долине, на экологическую среду, а также рассмотрены вопросы разработки и практического внедрения необходимых мер по снижению негативного воздействия. Приведены аналитические данные о значении гидротехнических сооружений для развития орошаемого земледелия в долине, особенностях использования воды и систем орошения. Изучены негативные процессы, возникающие в экологическом состоянии долины вследствие орошения, и предложены рекомендации по их устранению.*

Ключевые слова: *гидротехнические сооружения, система орошения, подземные воды, водохранилища, канал, коллектор, устойчивое развитие.*

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ISSUES OF STABILIZING THE IMPACT OF HYDRAULIC STRUCTURES ON THE ENVIRONMENT OF THE KASHKADARYA VALLEY

Abstract: *This article provides a detailed analysis of the impact of hydraulic structures located in the Kashkadarya Valley on the ecological environment, as well as considerations for the development and practical implementation of necessary measures to reduce negative effects. Analytical data are presented regarding the importance of hydraulic structures for the development of irrigated agriculture in the valley, features of water use, and irrigation systems. Negative processes affecting the ecological state of the valley due to irrigation have been studied, and recommendations for their elimination are proposed.*

Keywords: *hydraulic structures, irrigation system, groundwater, reservoirs, canal, collector, sustainable development.*

Введение

Обострение отношений между обществом и природой, рост численности населения и увеличение потребительского спроса сделали вопрос обеспечения «продовольственной безопасности» ещё более актуальным. Проблема продовольственной безопасности напрямую связана с развитием сельскохозяйственного производства и требует дальнейшего совершенствования данной отрасли. Кашкадарьинская долина является одним из регионов нашей республики с развитым сельским хозяйством, где преимущественно развиты залежные и орошаемые земледелие. При развитии отрасли в долине важное значение имеет строительство гидротехнических сооружений, основными из которых являются магистральный канал Карши (МКК), оросительные сети, река Зарафшан, а также Кашкадарья и её притоки. Для эффективного использования воды и предотвращения её дефицита в вегетационный период, а также для упорядоченной организации водопользования в долине построено более десяти водохранилищ, которые составляют оросительную систему Кашкадарьинской долины.

В государственных программах развития Республики Узбекистан — «Стратегия действий» на 2017–2021 годы и «Стратегия развития» на 2021–2030 годы — в дорожных картах, как подчеркивается, важным является осуществление ряда мероприятий по дальнейшему развитию сельского хозяйства в регионе и эффективному экономному использованию воды, что способствует решению задачи продовольственной безопасности. В «Стратегии действий» на 2017–2021 годы по развитию республики обозначены ключевые задачи по обеспечению продовольственной безопасности через развитие сельского хозяйства, в частности — улучшение мелиоративного состояния орошаемых земель, развитие сети мелиоративных и ирригационных объектов, внедрение интенсивных методов в сельскохозяйственном производстве, прежде всего современных агротехнологий, экономящих воду и водные ресурсы, а также разработка соответствующих дорожных карт по реализации этих мер. Для решения этих актуальных задач в нашей республике, в частности, в высокоразвитой с точки зрения земледелия Кашкадарьинской долине, ведется ряд практических работ.

Объект и методология исследования

В нашем научном исследовании рассматривается использование ирригационных сооружений Кашкадарьинской долины, где развито земледелие, для дальнейшего развития сельского хозяйства, а также устранение допущенных ошибок в охране окружающей среды и оптимизация экологического состояния ландшафтов. В Кашкадарьинской долине с древних времён развиты залежное и орошаемое земледелие, при этом завислое земледелие характеризуется высоким уровнем развития. Уровень водоснабжения долины очень низок — обеспечение природными запасами воды составляет всего 15–20%. Основными природными водными ресурсами являются река Кашкадарья и её притоки.

В 1950–60-х годах началось освоение земель, пригодных для орошаемого земледелия, с целью улучшения ирригации и дополнительного водоснабжения в долине было построено 13 водохранилищ, магистральный канал Карши (МКК), а также оросительные сети, каналы и коллекторы. Развитие орошаемого земледелия оказало определённое воздействие на ландшафт долины, что привело к формированию антропогенных ландшафтов на месте природных. Изменения ландшафтов вокруг водоёмов способствовали формированию агроирригационных ландшафтов. На формирование и особенности антропогенных ландшафтов повлияли природные и социальные факторы, такие как увеличение использования земель, рост числа населённых пунктов, что в определённой степени нарушило природное равновесие и вызвало дисбаланс экологической системы. Стабилизация негативного воздействия гидротехнических сооружений на окружающую среду является одной из актуальных задач современности, выполнение которой способствует стабилизации экологического состояния региона и повышению эффективности использования воды.

Результаты и обсуждение

Площадь земель, используемых в сельском хозяйстве в долине, составляет 2 856 779 гектаров, из которых пашня занимает 672 171 гектар. Около 70% пашни, а именно 416 987 гектаров, приходится на орошаемые земли. Формирование и развитие агроирригационных ландшафтов в долине имеют свои характерные особенности. При антропогенных изменениях ландшафтов на орошаемых землях происходят изменения компонентов ландшафта, прежде всего биотических компонентов (почва, гидрологический режим, климат, рельеф). Таким образом, на орошаемых землях человек в процессе хозяйственной деятельности изменяет все компоненты ландшафта, кроме геологической основы, что ведет к формированию антропогенного ландшафта.

Строительство гидротехнических сооружений, использование подземных вод и повышение уровня грунтовых вод в процессе орошения являются одними из главных факторов формирования специфических ландшафтов на орошаемых землях. Изменения рельефа, гидрогеологических условий, процессов почвообразования и, как следствие, изменения почв наблюдаются в районах орошения. В результате орошения ускоряются физические, химические и микробиологические процессы в почвах, что ведет к разложению органических веществ. Особенно широкое применение минеральных удобрений в сельском хозяйстве ускоряет этот процесс и способствует повышению щелочности почв. Подъем уровня грунтовых вод при орошении вызывает увеличение степени засоленности. Согласно данным М.А. Панкова (1974), скорость подъема уровня минерализованных грунтовых вод в Карашском пустынном районе составляет: на землях с давним орошением — 30–40 см, на вновь орошаемых землях — до 1 метра. В геологически изолированном, с большими запасами солей в почвенно-грунтовом слое Карашском пустынном районе в зоне серых почв степень минерализации грунтовых вод на орошаемых землях варьируется от 1–3 г/л до 5–25 г/л [4]. Особенности сельского хозяйства и системы орошения Кашкадарьинской долины обобщены в таблице 1.

Таблица 1. Информация о сельском хозяйстве и системах орошения Кашкадарьинской долины.
(Данные Кадастрового управления Кашкадарьи, 2022 г.)

Показатели	Ma'lumotlar
Общая площадь земель	2 856 779 гектаров
Площадь пашни	672 171 гектар
Площадь орошаемых земель	416 987 гектаров (~70% от пашни)
Основные водные ресурсы	река Кашкадарья, река Зарафшан, Каршинский магистральный канал (КМК)
Количество водохранилищ	13
Уровень обеспечения природными запасами воды	15-20%
Степень засоленности на орошаемых землях	50% (половина орошаемых земель имеют разную степень засоления)
Степень минерализации грунтовых вод	от 1-3 г/л до 5-25 г/л (Каршинская пустыня)

Непосредственно на орошаемых землях и в ихблизи изменяется первоначальный состав и география животного мира. На орошаемых территориях нарушаются места обитания животных, исчезают укрытия, и в результате часть животных гибнет из-за ухудшения экологических условий, другие адаптируются к новым условиям или мигрируют в неосвоенные территории. Таким образом, вследствие изменений компонентов ландшафта на орошаемых землях возникает новый баланс — агроирригационный ландшафт, который по своим характеристикам отличается от природных ландшафтов, сохраняя при этом некоторые общие черты [7].

Расширение площади агроирригационных ландшафтов в регионе приводит к увеличению земель, требующих улучшения мелиоративного состояния. При использовании агроирригационных земель не всегда учитывается их склонность к негативным процессам, что вызывает рост площадей земель, подвергшихся вторичному засолению, ирригационной эрозии, дефляции и суффозионным процессам, что отрицательно сказывается на сельскохозяйственном производстве. Эта ситуация требует проведения ряда мелиоративных мероприятий с целью оптимизации использования агроирригационных ландшафтов [5].

Вместе с увеличением площади орошаемых земель возрастает площадь засоленных земель. Так, в 1965 году в Кашкадарьинской области площадь орошаемых земель составляла 154,9 тыс. гектаров, из которых лишь 21,5 тыс. гектаров были засолены в разной степени. В настоящее время около половины существующих орошаемых земель имеют различные степени засоления. В процессе деградации агроирригационных ландшафтов усиливается влияние ирригационной эрозии. Ирригационная эрозия приводит к изменению физико-химических и агрономических свойств почв, вызывая их ухудшение. В результате уменьшается содержание гумуса, азота и других питательных веществ в почве, что требует значительного увеличения дозы минеральных удобрений.

Улучшение мелиоративного состояния орошаемых земель Кашкадарьинской впадины в первую очередь достигается за счет понижения уровня грунтовых вод и снижения засоленности почв, что имеет важное значение для обеспечения экологической устойчивости. Экологические проблемы оросительных систем и пути их решения обобщены в следующей таблице (Таблица 2).

Таблица 2. Экологические проблемы оросительной системы Кашкадарьинской впадины и их влияние на экологическую среду

Экологическая проблема	Воздействие	Рекомендации
Засоление почв	Снижение плодородия почв, уменьшение урожайности культур	Снижение уровня подземных вод, улучшение дренажных систем
Орошационная эрозия	Размывание почвы, потеря питательных веществ	Внедрение водосберегающих технологий, защита почвы
Подъем уровня грунтовых вод	Усиление засоления, ухудшение качества почвы	Развитие дренажных систем, оптимизация управления водными ресурсами
Формирование антропогенных ландшафтов	Нарушение природного баланса, изменения в животном мире	Модернизация гидротехнических сооружений для экологической устойчивости
Чрезмерное использование минеральных удобрений	Повышение щелочности почвы, нарушение экологического равновесия	Увеличение использования органических удобрений, рациональное применение удобрений

Соблюдение гидротехнических норм при эксплуатации водохозяйственных сооружений в бассейне, повышение коэффициента полезного действия водохранилищ, а также реконструкция каналов и коллекторов с заменой глиняных арыков на бетонные каналы является одним из ключевых факторов обеспечения экологической устойчивости. Эффективное использование водных ресурсов через применение водосберегающих технологий в обеспечении орошаемых сельскохозяйственных земель способствует дальнейшему развитию экономики, поддержанию экологического баланса в ландшафтах и повышению эффективности эксплуатации гидротехнических сооружений, что в свою очередь обеспечивает экологическую устойчивость ландшафтов.

Заключение.

Гидротехнические сооружения играют важную роль в развитии сельского хозяйства бассейна Кашкадарьи, однако их негативное воздействие на окружающую среду, в частности процессы солеобразования почв, ирригационной эрозии и повышение уровня грунтовых вод, представляют угрозу экологической устойчивости региона. Для решения данных проблем необходимо внедрение современных ресурсосберегающих агротехнологий, а также модернизация дренажных систем и гидротехнических сооружений. Эти меры позволят не только повысить эффективность сельскохозяйственного производства, но и обеспечить экологический баланс ландшафтов бассейна.

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ФАКТОРЫ, ВЛИЯЮЩИЕ НА КАЧЕСТВО ВОДЫ РЕК НАМАНГАНСКОЙ ОБЛАСТИ

Аннотация: *В данной статье изучены факторы, влияющие на качество воды рек Наманганской области, в частности изучены изменения качества воды рек Нарын, Карадарья и Чодаксой в результате влияния промышленных, сельскохозяйственных и коммунально-бытовых сточных вод.*

Ключевые слова: *водные ресурсы, загрязнение, качество воды, река, сточные воды.*

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FACTORS AFFECTING WATER QUALITY OF NAMANGAN REGION'S RIVERS

Abstract: *This article studied the factors affecting the water quality of the rivers of the Namangan region, in particular, the changes in the water quality of the Naryn, Karadarya and Chodaksay rivers as a result of the influence of industrial, agricultural and municipal wastewater.*

Key words: *water resources, pollution, water quality, river, wastewater.*

В настоящее время дефицит водных ресурсов и ухудшение качества воды становятся причиной многих экологических проблем. Основным потребителем водных ресурсов является орошаемое земледелие. В условиях быстрого роста численности населения, развития сельского хозяйства и промышленности потребность в воде продолжает расти. Поэтому изучение качества воды рек приобретает особую важность.

На качество речной воды постоянно влияют как природные, так и антропогенные факторы. Быстрое развитие сельскохозяйственного производства приводит к изменению химического состава природных вод (в водоёмы попадают нитраты, нитриты, пестициды, нефтепродукты и фенолы). Орошаемое земледелие способствует увеличению засоленности почв. Полигоны твердых и жидких отходов, места их захоронения, шлаки и зольные остатки, склады минеральных удобрений, животноводческие комплексы, пыль и стоки с автомобильных дорог, городские аэрозоли и другие источники — всё это приводит к изменению химического состава природных вод.

Ведущими факторами формирования минералогического состава природных вод являются породы, расположенные в зоне формирования стока. Потоки воды, протекающие через осадочные и коренные породы, обогащаются различными ионами легкорастворимых минералов, содержащихся в этих породах. Химический состав природных вод в значительной степени определяется выветриванием или химическим разложением горных пород.

Еще одним из основных факторов, формирующих химический состав воды, является климат региона. Атмосферные осадки снижают степень засоленности как поверхностных, так и подземных вод. В то же время испарение поверхностных вод способствует увеличению их минерализации. Атмосферные воды являются начальным этапом формирования как поверхностных, так и подземных вод. В результате техногенных катастроф в атмосферу могут попадать вредные примеси. Растворённые в атмосферной влаге, они могут переноситься на большие расстояния и загрязнять природные водоёмы, находящиеся далеко от места выбросов. Таким образом, атмосферные воды оказывают влияние на химический состав и качество природных вод, а сами атмосферные осадки подвержены воздействию антропогенных факторов.

Факторы, влияющие на качество речной воды, в зависимости от характера воздействия подразделяются на химические, физические, механические и биологические (табл. 1).

В результате потепления климата в водных ресурсах Узбекистана происходят значительные изменения. С повышением температуры воздуха большая часть осадков выпадает в виде дождя, увеличиваются потери стока за счет испарения, уменьшается накопление зимнего снега в горах, продолжается сокращение ледников. Например, по прогнозам, изменения в уровне осадков приведут к снижению водных ресурсов Сирдарьи и Амударьи на 28 и 40 % соответственно. В случае реализации экстремального сценария сток Амударьи сократится до одной трети, а сток Сирдарьи — до одной пятой [1]. Из-за уменьшения накопления снега наполнение рек снизится, и период половодья сместится на один месяц раньше.

Таблица 1

Факторы, влияющие на качество воды

№	Вид фактора	Содержание
1	Химические факторы	Гидрохимические показатели состава воды
2	Физические факторы	Климатические условия
3	Механические факторы	Взаимное движение водных масс
4	Биологические факторы	Растения, микроорганизмы и микробиология водоема
5	Антропогенные факторы	Промышленные предприятия, сельское хозяйство, коммунальное хозяйство

Известно, что влажные воздушные потоки в Ферганскую долину преимущественно приходят с западной стороны. Из-за того, что Ферганский хребет, являющийся водосборным бассейном Карадарья, расположен поперёк этих потоков, количество осадков составляет от 500 до 1000 мм, а в некоторые годы бывает и больше [2]. Большое количество атмосферных осадков является одним из факторов, влияющих на качество воды в Карадарья [3]. Из-за значительного количества осадков и состава горных пород в водосборном бассейне, содержание взвешенных частиц в воде высокое. В Карадарья месячный сток взвешенных частиц может варьироваться от 4 кг до 4,8 тонн в секунду. Месяцы с наибольшим содержанием взвешенных частиц — апрель-август. Среднегодовой сток взвешенных частиц составляет 250 кг/сек. В среднем за год проходит около 7 миллионов 800 тысяч тонн взвешенных частиц, а в некоторые годы эта цифра может достигать 25 миллионов тонн [3].

Количество осадков в бассейне реки Норин значительно меньше. В верхних частях бассейна и на склонах Тянь-Шаня на высоте 2000–3700 метров количество осадков составляет 300–400 мм в год. По мере продвижения на запад количество осадков увеличивается и в некоторых местах достигает 600–650 мм.

Уровень загрязнённости воды реки Нарын также достаточно высок. Среднегодовое содержание взвешенных веществ составляет около 1,5 кг на кубометр воды и иногда достигает 25 кг. В среднем за год с водами Нарын в Ферганскую долину поступает около 25 миллионов тонн взвешенных наносов [3].

Из-за различий в водосборных бассейнах рек Нарын и Карадарья, а также в количестве атмосферных осадков, содержание химических веществ в их воде также различается (табл. 2).

Таблица 2

Химический состав воды рек Нарын и Карадарья

Река Карадарья			Река Нарын		
HCO_3^-	200	мг /л	HCO_3	153,1	мг /л
SO_4^-	120,3	мг/л	SO_4	84,8	мг/л
$C1^-$	12,7	мг/л	C1	28,8	мг/л
Ca^{2+}	76,2	мг/л	Ca	62,7	мг/л
Mg^{2+}	25,4	мг /л	Mg	16,3	мг /л
$Na^+ + K^+$	18,2	мг/л	Na + K	30,8	мг/л

На химический состав воды реки Нарын оказывают влияние несколько сбросы промышленных объектов и коммунально-бытовые сбросы. Их сточные воды без какой-либо очистки непосредственно сбрасываются в реку, что приводит к изменениям в составе воды. Очистные сооружения города

Наманган, принадлежащие предприятию «Наманганводоснабжение» (построены в 1967 году и реконструированы в 1984 году), имеют проектную мощность 100 тыс. $м^3$ в сутки, однако в настоящее время находятся в непригодном состоянии.

В очистное сооружение сточных вод, принадлежащее АО «Учкурганег», расположенное районном центре, поступают загрязнённые воды из общественных зданий и домов, которые затем сбрасываются в реку Нарын.

В настоящее время на месте старого очистного сооружения в Чусте построена современная станция очистки сточных вод, которая находится на стадии запуска. Очистное сооружение сточных вод в Попе было построено в 1984 году. В настоящее время реконструкция этого объекта осуществляется в рамках проекта «Модернизация систем питьевого водоснабжения и канализации в Наманганской области» на сумму 74,6 млн. долларов США, финансируемого за счёт кредитов ЕБРР. В рамках проекта разработана концептуальная документация на объект «Реконструкция очистных сооружений сточных вод в Попском районе». Очищенные воды сбрасываются в реку Сырдарья, что влияет на качество воды в реке.

Любые изменения в окружающей среде неизбежно влияют на природные ресусрсы. Из всех природных ресурсов вода является самым важным и значимым. Степень и количество загрязнения сточных вод, поступающих в природные воды, зависят от типа перерабатываемого сырья на предприятиях, видов добавляемых химических веществ и стадии технологических процессов. Существуют более 150 тысяч видов веществ, загрязняющих поверхностные и сточные воды, однако на сегодняшний день методы определения и обезвреживания разработаны лишь для 250–300 из них. Если провести анализ гидрохимического и гидроэкологического состояния поверхностных вод нашей республики на содержание остатков нефтепродуктов различными методами, можно наблюдать что, в воде реки Сырдарья обнаружено от 0,002 до 0,46 мг/л остатков нефтепродуктов. В сточных водах региона выявлено содержание сульфатов от 54 до 11 084 мг/л.

Верхняя часть бассейна реки Чодаксай включает южный склон Ангренского плато, высота которого не превышает 3200 метров. Отсюда река течёт по широкой ровной долине, проходя через низкие и невысокие горы и предгорья, и выходит в равнинную часть Ферганской долины. Между селами Гурумсарой и Пунгон река делится на несколько рукавов и впадает в реку Сырдарья [4].

Химический состав воды реки Чодаксай очень разнообразен. Формирование химического состава воды начинается ещё в атмосфере с минерализации осадков, выпадающих в бассейн реки, и продолжается на поверхности земли. В составе снега и дождя, падающих в бассейн реки, содержится от 28 до 112 мг/л минералов. Особенно заметна изменчивость состава воды в осенне-зимний и весенне-летний периоды (табл. 3).

Таблица 3

Химический состав воды реки Чодаксай

Осенне-зимний сток			Весенне-летний сток		
HCO_3^-	103,7	мг /л	HCO_3	29,3	мг /л
SO_4^{2-}	9,9	мг/л	SO_4	5,1	мг/л
C1	15,9	мг/л	C1		мг/л
Ca^{2+}	28,9	мг/л	Ca	10,2	мг/л
Mg^{2+}	4,6	мг /л	Mg		мг /л
$Na^+ + K^+$	14,8	мг/л	Na + K	2,8	мг/л
NO_3^-	3,0	мг/л	NO_3	2,93	мг/л
NO_2^-	0,001	мг/л	NO_2	0,0001	мг/л

Кроме того, в осенне-зимнем стоке содержится фосфаты в количестве 0,0006 мг/л, кремний — 4,6 мг/л, железо — 0,03 мг/л.

В реке Чодаксай количество взвешенных веществ составляет 0,025 г/л в апреле, 918 г/л в мае и 0,009 г/л в июне [3].

Одним из важных факторов, влияющих на качество воды в реках, является использование воды в сельском хозяйстве и сброс возвратных вод непосредственно в реки. В Наманганской области орошаемые площади составляют 136 309 гектаров, обеспеченных оросительными каналами и арыками. Общая протяжённость каналов составляет 5 073,2 км. Из них 1 813,8 км — межхозяйственные каналы, 3 229,8 км — внутренние открытые каналы хозяйств и 29,6 км — закрытые лотковые арыки. Поскольку 143 294 гектара орошаемых земель состоят из суходольных и предгорных участков, необходимости в строительстве каналов и арыков нет — эти земли имеют естественный сток, и возвратные воды уходят через балки и овраги. Из-за того, что большая часть воды, используемой в сельском хозяйстве, попадает в открытые водоемы, качество воды в реках ухудшается.

По результатам исследований, химический состав воды, её загрязнённость и температура в целом изменяются в зависимости от внешних факторов, влияющих на качество воды. По данным Министерства экологии, охране окружающей среды и изменения климата Республики Узбекистан деятельность большинства очистных сооружений не соответствует требованиям. Согласно имеющейся информации, эффективность очистки сточных вод на некоторых объектах не превышает 50%. Это касается коммунальных предприятий крупных городов и населённых пунктов, таких как Учкурган, Пап, Чуст и других, а также промышленных предприятий.

Данные факты указывают на необходимость совершенствования и разработки новых методов очистки сточных вод.

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ТУРКИСТОНДА МАТБУОТНИ РИВОЖЛАНТИРИШДА ДЕВОРИЙ ГАЗЕТАЛАРНИНГ ЎРНИ

Аннотация. *Мақолада Туркистонда деворий газеталарнинг социализм қурилишидаги ўрни таҳлил қилинади. Деворий газеталар ташвиқот воситаси сифатида халқ ва ҳукумат ўртасида алоқа кўприги вазифасини бажарган. Уларнинг жамоатчиликни фаоллаштиришдаги таъсири кенг ёритилган.*

Калит сўзлар: *деворий газета, Туркистон, ташвиқот, мухбир, матбуот*

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THE ROLE OF WALL NEWSPAPERS IN THE DEVELOPMENT OF THE PRESS IN TURKISTAN

Annotatsion. *The article explores the role of wall newspapers in the construction of socialism in Turkestan. These publications acted as a communication bridge between the government and the people, promoting ideological engagement. Their impact on public mobilization is critically analyzed.*

Key words: *Wall newspaper, Turkestan, propaganda, correspondent*

Кириш

Туркистонда 1918 йилда болшевиклар матбуоти ташкил қилингач, уни ривожлантиришда бир қанча йўллар билан борилди. Газеталарни ташкил этишда жидид зиёлилари ишга олинди. Энди шўро кадрларини тайёрлаш масаласи длдзарб бўлиб турарди. Бунинг учун деворий газеталардан унумли фойдаланилди. Туркистонда ҳам матбуот социализм қурилишида энг муҳим восита бўлиб хизмат қилиши керак эди. Аҳолининг газета ўқийдиган қатлами озчиликни ташкил қилар эди. Шунинг учун биринчи ўринда, фирқа, ҳукумат идораларида ишлайдиган ходимлар газета ишига жалб қилинди. 1920 йили матбуот ходимларининг биринчи съездида ҳамма жойларда партия, касаба союзлари ва бошқа ташкилотларда адабий коллегияларин вужудга келтириш, шўролар ва фирқа масъул хизматчиларини газеталарга тартибли равишда мухбирлик этиб туришга мажбур этиш[144] кўрсатмаси берилди.

[144] Матбуот хизматчилари съездида қабул этилган қарорлар.// Қизил байроқ. 1920-йил 21 декабр.

Матбуот кенг халқ оммаси учун нашр этилиши, омма фикри-зикрини, ўй-интилишларини, орзу умидларини ифода қилишидагина эмас, балки айни чоқда шу кенг халқ оммасининг матбуотда ўзи фаол иштироки билан ҳам номоён бўлиши, ишчи-деҳқонлар матбуотнинг асосий муаллифи бўлиши лозим эди. Ленин кўрсатмалари асосида ишчи деҳқон мухбирлари кўнгилли ҳаракатини ривожлантириш, уни социалистик қурилишнинг муҳим факторига айлантириш лозим эди. Бу иш бутун совет даврида матбуотнинг ленинча оммавийлик принципи дея улуғланди.

Адабиётлар таҳлили ва методология

Ўзбекистон к(б)пнинг 1925 йил март ойида бўлган і съезди “матбуот соҳасида” деб аталган қарорида: “матбуот органларимизнинг қишлоқ ва шаҳарнинг кенг аҳоли оммаси билан алоқа воситаси бўлган ишчи мухбирлари, деҳқон мухбирлари ва ёшлар мухбирлари шаҳобчалари изчил ташкил қилиниб борилсин. Мухбирлар армиясининг маданий-сиёсий савияси ва обрўси оширилсин”, деб кўрсатди.

шўро ҳокимияти матбуотга ходимлар тайёрлашда, халқни газетага жалб қилишда, “халқни ҳукумат билан яқинлашдириш”да деворий газеталардан самарали фойдаланди. Социализм қурилишида деворий газеталар энг муҳим ташвиқот-тарғибот воситаси бўлди. Янги мафкура билан қуролланган мухбирлар армиясини шакллантиришда улар бошланғич мактаб вазифасини ўтади. “деворий газеталар бир томондан матбуотга ўқувчилар етишдирсалар, иккинчи томондан ёзувчиларни, яъни омманининг энг яхши табақасидан мухбирлар етишдирадирлар”[145], дейилади матбуотда чоп этилган мақолади.

зиё саид “деворий газета буюк ўктабр ўзгаришининг бизга берган энг тотли самарасидир”[146], дейди. Бошқа мақола муаллифи эса деворий газеталар “ўзгаришгача ишчиларни уюшдириш, уларнинг синфий, сиёсий онг-фикрларини ортдириш, инқилобға тайёрлашда катта рол ўйнадилар. Ўзгаришдан кейин уларнинг аҳамияти яна ҳам ортди”[147], дея юқори баҳо беради.

зиё саиднинг таъкидлашича, 1923-1925 йилларга келиб, туркистонда ҳам деворий газеталарга эътибор кучайди. Матбуотда деворий газеталарни ташкил этиш, бошқариш бўйича кўрсатмалар бериб борилди. 1925 йилда чоп этилган мақолада деворий газетанинг вазифалари: “завод, фабрикаларда, конларда, ҳукумат муассасаларида ишчилар билан идоралар ўртасидағи, қишлоқларда деҳқонлар билан ҳукумат ўртасидағи муносабатларни тўғри йўлға қўйиш”, “эски турмушнинг қолғон кутқанлариға, саводсизликка, диний хурофотларға қарши кураш”иш, “янги турмушнинг йўлларини”, “фирқа, ҳукуматнинг ҳамма фармон, буйруқ, қонун ва тадбирларини амалга ўтказишга, айниқса, ҳар хил компанияларда халққа компаниянинг мақсад ва

[145] Нурмат. Деворий газеталар. // “Қизил Ўзбекистон” газетаси, 1926 йил 27 ўктабр.
[146] Зиё Саид. Бурунғи вақтли матбуот тарихига матеиаллар. Самарқанд: Ўзбекистон Давлат нашриёти. 1927. 163 бет.
[147] Нурмат. Деворий газеталар. // “Қизил Ўзбекистон” газетаси, 1926 йил 27 ўктабр.

вазифаларини, аҳамиятини тушунтиришга ёрдам кўрсатиш”, “омма ўртасида ташвиқот-тарғибот юргизиб, уларни фирқа, ҳукумат атрофига уюшдирадириш” сингари ишлар деб кўрсатилган[148]. Деворий газеталарни “тараққий қилдириш” шаҳарда ёки туманда уларнинг кўргазмаларини (“вистафка”) ўтказиш, умумйиғилиб чиққан газеталарни муҳома қилиш, кенг омма ўртасида деворий газета нималигини тушунтириш, фикр тарқатиш учун 5 май – матбуот кунида, “деворий газетанинг 2-3 йил тўлиши кунида” ёки 50-сони, 100-сони чиққанда мажлис ва кечалар, мусобақалар ўтказиш орқали амалга оширишни таклиф қилади.

Бу таклифнинг ижросини 1926 йил матбуотда чоп этилган мақолада кўриш мумкин. Шу йили 9 февралда марказий ишчилар қлубида эски тошкандда чиқадиган деворий газеталар кўргазмасининг ёпилиш маросими бўлади. Кўргазма 5 январда очилиб, 20 январгача давом этган. 20 январда самарқандда ўтказилган маориф ходимларининг қурултойи муносабати билан самарқандга кўчирилган. Ўн кун давомида газеталарни мингдан ортиқ киши ўқиган. Кўргазмада ғолиб газеталар мукофотланган: “бинокорлар ячейкасидан чиқадирғон “ёш ишчилар” газетасига 1 йиллик “қизил ўзбекистон” ҳамда “коммунист” журнали билан 48 тахта катта қоғоз, бир шиша сиёҳ, 2 қути ранг, чўтка ҳам қалам, “хотун қизлар овози” газетасига 4 ойлиқ “қизил ўзбекистон” ҳам “коммунист” журнали, 12 тахта қоғоз, бир шиша сиёҳ, чўтка ҳам ранг, кашшофларнинг “қизил аланга” газетасига 8 тахта катта қоғоз, бир шиша сиёҳ ҳам бир қалам берилди...”[149] кейин эски шаҳарда чиқадиган газеталарни бошқариб бориш учун бюро сайланади. Комилжон алимов унга фахрий аъзо ҳам бюро раҳбари этиб тайинланади.

Натижалар

1926 йили ўтказилган мухбирлар қурултойидан кейин матбуотда катта ўзгаришлар бўлди. Мухбирлар кўпайди, деворий газеталар кутилмаган даражада ҳамма ерда чиқа бошлади. Ташкилотлардан, катта маҳаллаларда деворий газета чиқаришга, хабарчилик қилишга оммада ҳаракат кучайди. Деворий газета ёнинда мухбирлар тўгараги ташкил қилинди.[150]

1927 йили матбуотда босилган мақолада “мухбирлар тўгарагини деворий газеталар қошида тузишга ҳаракат зўр. Бунга тошканддаги ҳаракатни мисол қилиб кўрсатсак бўлади. Тошканднинг ўзида сўнгғи ойларда 20 лаб деворий газеталар қошида мухбирлар тўгараги ташкил қилинди”[151], дейилади. Зиё саид деворий газеталарга ўша даврда фирқа ва катта газеталар раҳбарлик қилганини ёзади.

Унинг таъкидлашича, коммунистлар фирқасининг: “фирқа ҳам комсомул ячейкасининг шаҳар ва қишлоқдағи энг муҳим ишларидан биттаси деворий газета ишларини уйишдириш бўлиши керак”, деган кўрсатмасидан кейин “деворий газета чиқариш иши шундай муҳим ўрун тутдиким, қайси бир

[148] Нурмат. Деворий газеталар. // “Қизил Ўзбекистон” газетаси, 1926 йил 27 ўктабр
[149] Н. Деворий газеталар кўргазмаси. // “Қизил Ўзбекистон” газетаси, 1926 йил 17 феврал.
[150] Биринчи мухбирлар семинарияси // “Қизил Ўзбекистон” газетаси, 1927 йил 8 май.
[151] Ўзбекистоннинг матбуот қўшунлари ҳаракати. // “Қизил Ўзбекистон” газетаси, 1927 йил 5 май.

уюшманниг деворий газетаси бўлмаса, ул уюшманиннг иши сустга ўхшаш кўринадурғон бўлди... Айникса, бу иш ўзбекистон мухбирларининг биринчи қурултойларидан кейин жуда ҳам кучайди... Ёза билувчиларгина эмас, ҳатто ёзишни билмаганлар ҳам бошқаларға ёздириб ўз тилакаларини газеталарга юборадирлар. Бу билан қишлоқ ўзининг жонсиз даволидан ўз камчилигини эшитадурғон, унга қараб етишсизликларини тузатудурғон бўлди. Бугина эмас, ижроқум раиси қишлоқ талабини бир чеккага ирғитиб туриб, улоқ чопишға, гап ейишга, тўй-томошаларда ўйнаб юришга "жонсиз девор"дан ҳайиқадурғон бўлди. Шундай қилиб, ўлкамизда ўктабрдан илгариги 2 минг соқов девол ҳозирғи кунларда тилга келди... 2000 адад деворий газета янги тилаклар билан майдонға чикди".

Деворий газетага қўйиладиган талаблар: у омманинг "энг пастки табақасига бағишланган" бўлиши; мақолалар босилган вақтига тааллуқли бўлиши; "кичик жумлалар билан ёзилиб, шу жумла кўб маъно англатадурғон" бўлиши; "ҳар масалада сиёсий жиҳатдан оммага яқин" бўлиши; "техник жиҳатдан унча катта бўлмасин (чап томондан ўнг томонға узун бўлса ҳам, аммо пастдан юқорига томон бир-бир ярим газ бўлса яхшидир); "унда ҳар кимнинг эътиборини жалб қиладирғон шиорлар бўлиши"; "одамлар кўброқ юрадирғон йўлларига деворға қўйилиши"; "қаерда чиқса, ўша ердаги одамларнинг ҳаммаси иштирок этиши" лозим деб белгиланди.[152]

Хулосалар

Хулоса қилиб айтганда, деворий газеталар матбуотнинг бошланғич бўғини сифатида кенг тарғиб қилинди. Ҳар йили деворий газеталар учун кўргазмалар, турли тадбирлар ташкил этилди. Улар моддий рағбатлантирилди. Бу матбуотда доимий ёритиладиган мавзулардан бирига айланди. Масалан, 1926 йили "қизил ўзбекистон" газетасида чоп этилган мақолада шундай дейилади: "вилоят ва марказий газеталарга мухбирлар еткариб беришда зўр ўрун тутқон деворий газеталар ҳозирғи вақтда яхшилаб илдиз отмоқда. Бироқ бу ўсиш деворий газеталарнинг сон жиҳатиға бўлиб сифат ёғидан қониқарлиқ эмас. Маҳаллий деворий газеталарининг энг зўр вазифаси пастки ишчи деҳқон оммасини деворий газета атрофига тўплаш, уларни газетага ёзишға ўргатиш, уларни тарбиялаш ва шу йўлда тезтез мажлислар ўтказишдан иборатдир.[153]

Деворий газеталарга эътибор қаратиш уларнинг қошида тўгараклар ташкил этилмаган бўлса, ташкил этиш, деворий газетага ёзиб турувчи мухбирларни кўпайтириш, қлуб, қироатхона, ленин бурчаги, қизил чойхона ва шундай оқартиш уйларида деворий газеталарнинг кўргазмаларини ташкил этиш каби ишларни қилиш вазифси қўйилди.[154]

1927 йилда в.к.ф.(б)ўрта осий бюросининг пленумида қилинган маърузада "ишчи-деҳқон мухбирлар ҳаракати ва деворий газеталарнинг

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[152] Нурмат. Деворий газеталар. // "Қизил Ўзбекистон" газетаси, 1926 йил 27 ўктабр.
[153] В.Валиев. Деворий газеталар ҳақида. // "Қизил Ўзбекистон" газетаси, 1926 йил 12 ноябр
[154] Меҳнаткашлар матбуотининг 10 йиллиқ ҳайити олдидан. // "Қизил Ўзбекистон" газетаси, 1926 йил 12 ноябр

ниҳоят даражада тез ўсиши (ёлғиз бир эски тошкентнинг ўзида юзга яқин деворий газета бор) олдимизға бир мунча масалаларни келтириб қўйдиким, булар ҳалигача тугал равишда ҳал бўлғонлари йўқ" деб ахборот берилди[155].

Матбуотда деворий газеталарга раҳбарлик ишларига эътиборсизлик қилинаётгани танқид қилинди. "фирқа ячейкалари, маҳаллий қўмиталар раҳбарлик қилишни унутғонлар"[156]

шу тарзда совет ҳукумати ташвиқот усулларидан бири сифатида деворий газеталардан ҳам унумли фойдаланди. Матбуот учун кадрларни, жамоатчи мухбирларни тайёрлашда улар мактаб вазифасини ўтади.

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ИСПОЛЬЗОВАНИЕ МЕТОДА ЛУДОГРАФА ДЛЯ ПСИХОЛОГИЧЕСКОГО АНАЛИЗА НАРОДНЫХ ИГР УЗБЕКИСТАНА

Аннотация: *В данной статье рассматривается психологический анализ народных узбекских игр с использованием метода лудографа. Анализ, проведённый с применением лудографического подхода, выявил различия в структуре игр по показателю наличия игровых задач. Выяснено, что народные игры обладают психологической универсальностью, способствуют развитию разнообразных двигательных навыков, выполняют тренинговую функцию в осознании социальных ценностей и моделей поведения.*
Ключевые слова: *народные узбекские игры, лудограф, единицы анализа, структурная единица, игровая деятельность, линейная структура, звездообразная структура.*

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THE USE OF THE LUDOGRAPH METHOD FOR THE PSYCHOLOGICAL ANALYSIS OF FOLK GAMES IN UZBEKISTAN

Abstract: *This article presents a psychological analysis of traditional Uzbek games using the ludograph method. The analysis conducted through the ludographic approach revealed differences in the structural composition of the games based on the presence of game-related objectives. It was found that traditional games possess psychological universality, contribute to the development of a wide range of motor skills, and serve a training function in understanding social values and behavioral models.*
Keywords: *traditional Uzbek games, ludograph, units of analysis, structural units, play activity, linear structure, star-shaped structure.*

Введение. В истории каждого народа накоплен и передается из поколения в поколение огромный арсенал разнообразных детских игр, в которых дети, играя и забавляясь, познают окружающий мир, совершенствуют свои способности, овладевают различными способами человеческой деятельности. Каждое общество различными путями сознательно или стихийно влияет на содержание детских игр (М.Мид, С. Сеттон-Смит, О.-К.Монтенегро, И. С. Кон и др.).Каждая игра (детская - национальная) представляет собой разнообразный мир и является средством воспитания нравственности, физической выносливости, отрешения к достижению цели. Особенностью игр, связанных со спортом и физической подготовкой, является их объединение с поэтическим словом, мелодией и танцами. Многие другие игры также сопровождаются музыкой и пением. Через многие игры, особенно связанные с образами животного мира, растений дети познают природу родного края.

Психологическое содержание народных игр бросается специалисту в глаза уже в чисто описательном материале. Вместе с тем более глубокое исследование психологического содержания и развивающей функции народных игр требует применения специальных методов.

Результат и обсуждение. Анализируя народные игры методом лудографа (графическое изображение структуры игры), нами были определены пять видов структуры узбекских народных детских игр для детей дошкольного и младшего школьного возраста. Условно называем эти виды таким образом:

1) Круговая структура игры- «прятанные тюбетейки», «солай-солай»;
2) Параллельная или лицом к лицу- «ласточкин стук», «белый тополь, зеленый тополь»;
3) Линейная, например, «канатоходцы», «перетягивание веревки»;
4) Полукруговая или дугообразная структура- «у кого камешек», «летает, летает»;
5) Свободная структура игры- «беш тош», «хола-хола», «андукми-сандук?».

по первому виду всего 17 игр, ко второму относится 15 игр, 7 игр являются линейными, к четвертому виду принадлежит 14 игр, остальные примерно более 25 игр относится к свободно-выборочному виду.

Исходя из этого, можно сказать, что дети предпочитают пятый вид игр, где не ограничено поле действия и его можно свободно выбирать.

Графическое изображение сети игровых задач применительно к анализу народных игр представлялось нам заманчивой перспективой, но первые же попытки применить метод «лудограф» вызвали значительные трудности. Метод лудограф вошел как бы в противоречие с заданностью игровой задачи в традиционной народной игре. Если подходить к народной игре исключительно как игре в рамках жестких правил, освященных вековыми традициями, то метод лудограф должен быть заменен всего лишь графической схемой игры, т.е. той схемой и описанием правил, которые достаточны при констатирующем наличие игры подходе. Такой документалистский подход необходим и оправдывает себя в этнографическом или историческом исследовании. Психолог же имеет дело в первую очередь с детской игровой деятельностью, которая не только опирается на правило, но и преодолевает его.

В правиле игра замирает, в игре правило оживает и теряет свою консервативность в живом взаимодействии играющих детей. Учитывая высказанные выше соображения, нами был использован метод лудограф применительно к таким играм как «Солай-солай» (подбрасывание платка), «Тапур-тупир калдиргоч» (ласточкин стук), «Овозимдан топ» (черт), «Ок суяк» (белая кость) и другие.

Все эти игры требуют от играющих с одной стороны следовать определенным правилам (игровым традициям), а с другой - выполнений этих правил требует проявления инициативы, изобретательности. Таким образом, игра имеет как бы три слоя: канонический (жесткие правила, делающие данную игру именно данной игрой) + регламентирующий поведение участников относительно правила и взаимодействия при его реализации; + эвристический, представляющий игровое поведение каждого участника, его собственный способ решения или даже постановки той или иной игровой задачи. Так, например, в игре «Солой - солой» играющие должны следить как бы ведущий не подложил незаметно тому или иному игроку платок. Здесь ведущий помимо своих прямых обязанностей, определяемых правилом, постоянно ставит и разрешает игровые задачи общения, основанные на хитростях, отвлекающих движениях. Такое поведение ведущего интересно играющим, и они в свою очередь не только все время «начеку», но и его подлавливают нарочитой беспечностью. Этот своеобразный слой игры, названный нами эвристическим, придает игре особую увлекательность.

Итак, в любой игре присутствуют игровые задачи, часть игровых задач задана основным правилом игры- ее каноном. Другая часть игровых задач определяется «регламентом» игры. И, наконец, часть игровых задач, которая привносится в игру самим играющим.

Применение в нашей работе метода лудографа позволило сделать вывод о том, что сеть игровых задач определяется их смысловой конфигурацией, в той или иной ситуации возникающей в игре. Под смысловой конфигурацией в данном случае понимается взаимозависимость игровых задач в смысловом поле игры (С.Л.Новоселова). Способы решения детьми канонических, регламентирующих и эвристических задач имеют самое разнообразное содержание. Это и мимика, и телодвижения, и реплики, и быстрые перемещения, отдельные способы решения игровых задач носят комплексный характер: бег и возгласы, пение и ритмическое движение, традиционные жесты и особый стиль реагирования.

Заключение. Анализ народных игр показал, что они вырабатывают и развивают у детей такие важные и необходимые в жизни качества, как наблюдательность, находчивость, изобретательность (игры в прятки, «летает, летает», «кор хат», «тош кимда»), внимание ("солой-солой», «найди, кто пришел», «если можешь угадай»), умение ориентироваться в необычной обстановке («найди по голосу», «белая кость»), смелость, догадливость, сообразительность, волю «ласточкин стук», «ошик», «прятаннсолой-солой», «найди, кто пришел», «если можешь угадай»), умение ориентироваться в необычной обстановке («найди по голосу», «белая кость»), смелость, догадливость, сообразительность, волю («ласточкин стук», «ошик», «прятанные тюбетейки»), а также развивают и тренируют в своеобразной форме волевые качества («муш кетди», «богланди» и др.).

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РАЗРАБОТКА И РАСЧЁТ НОВОЙ КОНСТРУКЦИИ КОЛОСНИКОВОЙ РЕШЕТКИ НА УПРУГИХ ОПОРАХ ОЧИСТИТЕЛЯ ХЛОПКА-СЫРЦА

Аннотация:*Статъя посвящена для составления дифференциалъных уравнений вынужденных колебаний стержня колосника на упругих опорах, теоретического решения вопросов прочности, разработки предложений для определения оптималъных параметров колосниковой решетки и снижения металлоемкости машины.*

Ключевые слова: *хлопковое волокно, колосниковая решетка трубчатый стержень, упругий опор, вынужденная колебания, балка, технологическая распределенная нагрузка, пильчатый барабан, вынужденная колебания, очиститель хлопка от крупного сора.*

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DEVELOPMENT AND CALCULATION OF A NEW DESIGN OF A GRATE ON ELASTIC SUPPORTS OF A RAW COTTON CLEANER.

Abstract: *The article is devoted to the compilation of differential equations of forced oscillations of the grate bar on elastic supports, a theoretical solution to the problems of strength, the development of proposals for determining the optimal parameters of the grate and reducing the metal intensity of the machine.*

Keywords: *cotton fiber, grate, tubular rod, elastic supports, forced vibrations, beam, technological load distributed, saw tooth drum, forced vibrations, cotton cleaner from large litter.*

В мировом рынке хлопковое волокно является основным изделием текстилъной промышленности. По сведениям международного консулътативного комитета (ICAC) «2015-2016 годы по импорту хлопкового волокна такие страны как Бангладеш, Вьетнам, Китай, Турция, Индонезия, Пакистан были ведущими». В годы независимости в республике осуществлены широкие мероприятия, касающиеся по созданию управлением систем, приводящих к улучшению потребителъских свойств хлопковых изделий в технологическом процессе первичной обработки. В этих направлениях в частности, в хлопкоочистителъных предприятиях в зависимости от первичных показателей по получению хлопкового изделия с намеченными качествами, по улучшению техники и технологии очистки хлопка от мелкого сора достигнуты ощутимые резулътаты. В стратегии движении Республики Узбекистан в 2017-2021 годы намеченные задачи в частности повышению конкурентоспособности националъной экономики, уменьшение расходов энергии и ресурсов, широкие внедрения энергосберегающих технологий в производств. В пути осуществления этих задач создание новых технологий первичной обработки хлопка, в особенности усовершенствование техники и технологии очистки от мелкого сора и внедрение в производства является одним из важных задач хлопковой промышленности.

Для осуществления задач, поставленных в Указ президента Республики Узбекистан от 7 февраля 2017 годы номером ПФ-4947 «Стратегия действий развития Республики Узбекистан, В решениях Кабинета министров Республики Узбекистан 3 апреля 2017 года номером 70 , «Программа модернизации и реконструкции предприятий хлопкоочистителъной промышленности», 22 декабря 2016 года ПК 2692, «Ускоренное обновление физически изношенных и моралъно устаревших машин и оборудований в промышленных предприятиях, а также дополнительные меры по уменьшение производственных затрат» и в других перечнях правовых документах это диссертационное исследование в распределенной степени заслуживает внимание [1].

В последние годы значителъно возросли требования к качеству хлопка - волокна и семян. Для получения высокого качества хлопка-волокна и семян комплексно решаются вопросы совершенствованийй конструкций рабочих органов машин первичной обработки хлопка, особенно очистителей хлопка от крупных сорных примесей. [2].

Нашей промышленностъю выпускаются различные колосниково - пилъчатые очистители. В создании очистителъного эффекта болъшую ролъ играет колосниковые решетки. Сорные примеси под действием центробежной силы и воздушного потока выпадают через зазоры между колосниками [3].

Существующая колосниковая решетка состоит из пяти трубчатых стержней, двух болъших и трех малых сегментов, соединенных определенным образом путем сварки и составляет жесткую конструкцию. На основании обобщения конструкций колосниковых решеток и видов их очистки отечественными технологическими машинами, а также зарубежных стран была разработана новая конструкция колосниковой решетки, колеблющейся за счёт упруго – податливых опор от действия хлопка-сырца (А.С. № 874776).

Данная работа является основой для составления дифференциалъных уравнений вынужденных колебаний стержня колосника на упругих опорах, теоретического решения вопросов прочности, разработки предложений для определения оптималъных параметров колосниковой решетки и снижения металлоемкости машины.

Проведенные экспериментальные исследования показали, что превалирующей динамической нагрузкой от технологического сопротивления на стержни, является нагрузка, приходящаяся в радиалъном направлении пилъчатого барабана. Обработка резулътатов эксперименталъных исследований выявила, что технологическая распределенная нагрузка по длине стержня имеет форму, описываемую по закону: $q_1 = \int S^* \sin\frac{\pi x}{L}$, а вынужденные колебания стержня колосника вибрационной нагрузкой по закону q(x)sinθt.

В первом приближение стерженъ колосника рассматривается как балка с равномерно-распределенной нагрузкой (от веса стержня), опирающаяся на пять упругих опор. При составлении уравнений движения не учитываются: возбуждение стержня от ударных нагрузок перпендикулярных к радиалъному направлению из-за незначителъности, влияние колебаний других стержней колосниковой решетки и нагрузки в осевом направлении стержня. При учете вышеперечисленных допущений имеем неразрезную балку на упругих опорах. Данная балка для динамического расчёта обращается в однопролетную, статически неопределимую путем исключения всех промежуточных опор и замены их действия на балку неизвестными силами реакций. Жесткости упругих опор C_1 в точка А и Е равны между собой и определяются как обратная величина податливости резиновых втулок установленных в этих точках. Жесткости промежуточных опор C_2, C_3 в точках В, С, Д определяются с учетом податливости резиновых втулок и жесткости самой балки. Для составления дифференциального уравнения вынужденных колебаний балки на упругих опорах при вибрационной нагрузке дважды продифференцируем уравнение изогнутой оси балки [3]

$$\text{EY}\frac{\partial^4 y}{\partial x^4} + m\frac{\partial^2 y}{\partial x^2} + \sum P_k = \text{q(x)sin}\,\theta t \qquad (1)$$

где y – перемещение балки в сечении

m$\times\frac{\partial^2 y}{\partial x^2}$ - интенсивность инерционных сил, направленных вверх

$\sum P_k = R_A + R_B + R_C + R_D + R_E$ - силы сопротивления движению, направленные вверх

q(x)sin(θt) вибрационная нагрузка, вызывающая вынужденные колебания балки

$\theta -$ угловая частота.

ЕУ $=$ const т.к. балка однородна и имеет одинаковые поперечные сечения по всей длине. В связи с тем, что свободные колебания балки с течением времени от сопротивлений затухают, то в установившемся движении будут только вынужденные колебания, поэтому в уравнении (1) не учтены свободные колебания балки.

Частное решение уравнения (1) будем искать в виде:

$$У_{част}(\text{x}, \text{т}) = (\text{x}).\sin(\theta.t)$$

Подставив его в исходное уравнение получим

$$У_4^{IV}(X) - S^4.y(X) = \frac{q(X)}{EУ} \qquad (2)$$

где $S^4 = \frac{m\theta^2}{EУ}$

Общее решение уравнения (2) имеет вид

$$У_{обш}(\text{X}) = Q \cdot A_{sx} + b \cdot B_{sx} + c \cdot C_{sx} + d \cdot D_{sx}$$

где A_{sx}, B_{sx}, C_{sx}, D_{sx} - функции влияние, определяются по методике, предложенной в [5].

Частное решение (2), если q(x) не многочлен

$$У_{част}(X) = \frac{q(x)}{S^4 EУ}$$

Тогда общее решение (полный интеграл) (2) будет:

$$(X) = У_{обш}(X) + У_{част}\,(X) = Q \cdot A_{sx} + b \cdot B_{sx} + c \cdot C_{sx} + d \cdot D_{sx} + \frac{q(x)}{S^4 EY}$$

(3)

где a, в, c, d определяются путем последователъных дифференцирований уравнения (3), исполъзуя началъные условия:

y(0); $y'(0)$; M(0) = EJ$y''(0)$; Q(0) = EJ$y'''(0)$ [6]

Подставляя найденные значения a, в, c, d в уравнение (3) и его последователъные производные $y'(x)$, $y''(x)$ получим:

$$y(x) = y(0)A_{sx} + \frac{y'^{(0)}}{S}.Bsx - \frac{Q(0)}{S^3E.Y}Dsx - \frac{Q(0)}{S^4E.Y}.(A_{sx} - 1) \quad (4)$$

$$y'(x) = y(0)\,SD_{sx} + \gamma'(0).A_{sx} - Q(0).\frac{C_{sx}}{S^2EJ} - q(0).\frac{D_{sx}}{S^3EJ} \quad (5)$$

$$M(x) = -EYy''(x) = Q(0)\frac{Bsx}{S} + \frac{q(0)}{S^2}C_{sx} - S^2EJy(0)C_{sx} - SEJy(0) \quad (6)$$

В связи с тем, что в рассматриваемой балке (рис. 1) имеются разрывы в точках В, С, Д куда приложены силы реакции упругих опор, поэтому необходимо для каждого участка балки составить отделъные уравнения началъных параметров:

I участок $0 \le X \le L/4$

$$y_1(x) = y(0)A_{sx} + \frac{y'(0)}{S}B_{sx} - \frac{RA}{S_3EY}D_{sx} - \frac{q+q1}{S^4EJ}(A_{sx} - 1) \quad (7)$$

$$M_1(x) = \frac{RA}{S}B_{sx} - \frac{q+q1}{S^4EJ}C_{sx} - S^2EYy'(0)D_{sx} \quad (8)$$

II участок $L/4 \le X \le L/2$

$$y_2(X) = y_1(X) + \frac{R_b}{S^3}.D_s(X - \frac{L}{4})$$

$$M_2(X) = M_1(X) + \frac{R_b}{S}.B_s(x - \frac{L}{4}) \quad (9)$$

III участок $L/2 < X \le 3/4.L$

$$y_3(X) = y_2 + \frac{R_c}{S^3}.D_s(X - \frac{L}{4})$$

$$M_3(X) = M_2(X) + \frac{R_c}{S}.B_s(X - \frac{L}{2}) \quad (10)$$

IV участок ¾.L$< X \le L$

$$y_4(X) = y_3(X) + \frac{R_D}{S^3}Ds(X - \frac{3}{4}.L)$$

$$M_4(X) = M_3(X) + \frac{R_D}{S}Bs\left(X - \frac{3}{4L}\right) \quad (11)$$

Неизвестные параметры y(0), y1(0), R_A, R_B, R_c определим исполъзуя дополнителъные условия накладываемые на перемещения по направлению исключенных опор. Неизвестные опорные реакции в точках Д и Е в силу симметричности нагрузок равны: $R_A = R_E$, $R_B = R_D$

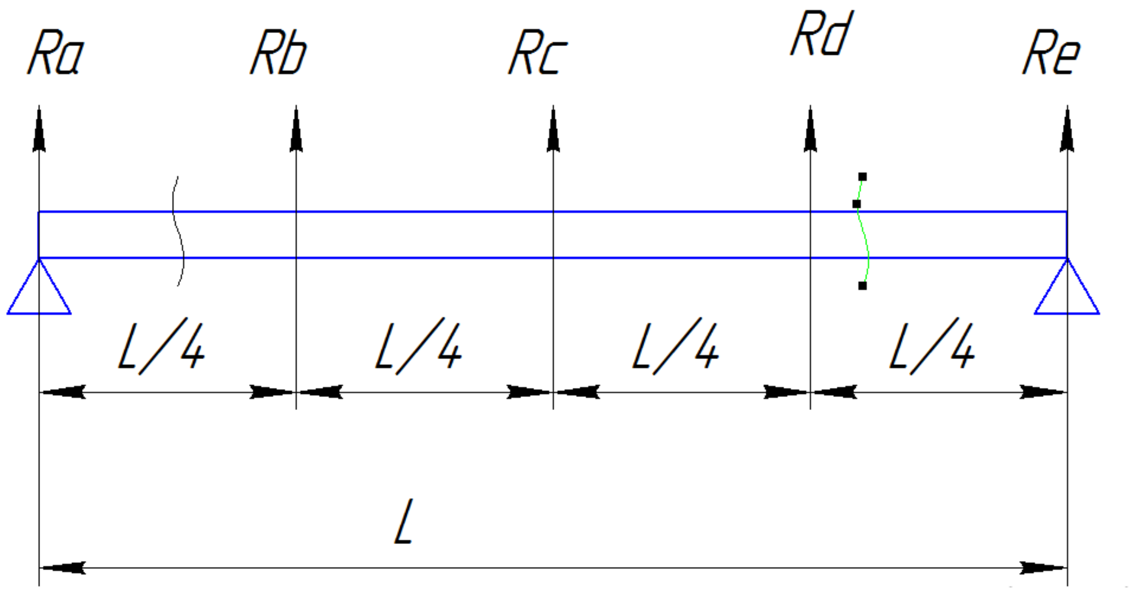

Рис.1. Сила, действующей на реакцией опор колосниковой решетки очистителя хлопка-сырца от крупного сора.

При этом

$$y(0)=\frac{R_A}{C_1};y\left(\frac{L}{4}\right)=\frac{R_B}{C_2};\ \ y\left(\frac{L}{2}\right)=\frac{R_c}{C_3};y\left(\frac{3}{4L}\right)=\frac{R_D}{C_2}; \qquad (12)$$

Следователъно:

$$У(L/4)=y(0)\frac{AsL}{4}+\frac{y'(0)}{S}.\frac{B_sL}{4}+\frac{q+q_1}{S^4EJ}.(\frac{A_sL}{4}-1)=\frac{R_B}{C_2} \qquad (13)$$

$$y(L/4)=y(0)\frac{A_sL}{4}+\frac{y^1(0)}{S}B_sL/4 \qquad (14)$$

После решения системы уравнений по определению и подставляя их значения в уравнения (7)- (14) можно определить перемещения и изгибающие моменты в любом сечении балки. По резулътатам решения уравнений (7) - (14) и проведения прочностных расчетов на ЭВМ при различных вариациях исходных данных определены рабочие параметры новых колосниковых решеток относителъно существующих очистителей с жесткими колосниками. Сложные условия работы колосников, а также зависимостъ характера колебаний от многих факторов показывают необходимость создания динамической модели колосника на упругих опорах для расчета его рационалъных параметров. В качестве динамической модели выбрали одномассовую колебателъную систему. Характер и величина технологического сопротивления были получены тензометрированием при экспериментальных исследований. Дальнейшая обработка опытных осциллограмм позволила представить $F_{t.b.}$ как сумму ряда гармонических сил и случайной, представляющей нелинейную силу. Дифференциалъное уравнение движения одномассовой колебателъной системы вид:

$$m\dot{x}+в\dot{x}+c\dot{x}=F_{t.b.};\ F_{t.b}\ =M(F_{t.b)}\pm\delta(F_{t.b}$$

где m- масса колосника; С- коэффициент жесткости упругой опоры; в- коэффициент вязкого сопротивления упругой опоры; М($F_{t.b}$), $\delta(F_{t.b})$ – математическое ожидание технологического возмущения на колосник и ее случайное составляющее. Аналитическое решение данного нелинейного дифференциального уравнения практически представляет значительную трудность, поэтому его решение произведено на ЭВМ типа «Pentium-IV» с применением программы «Maple» методом Рунге-Кутта. Для определения наилучших динамических параметров системы и нахождения связи между ними, проведены вариационные исследования исходных параметров, полученных экспериментально:

$$m = 1{,}8\frac{Hc^2}{m};\;\; C = 12500\frac{H}{m};\;\; b = 50\,H\frac{c}{m};\;\; F_{t.b} = M(F_{t,b}) \pm \delta(F_{t.b})$$

$$M\left(F_{t,b}\right) = 30 + 3.97\cos 30x - 2.28\sin 30x + 0.73\cos 60x + 0.52\sin 60x$$

где, $\delta(F_{t.b})$ - случайная ставляющая технологической нагрузки от хлопка. Зададим ее в виде генератора случайных чисел с частотой 34 Гц и амплитудой 15 Н.

Диапазон варирования значения жесткости установлен по результатам проведенных экспериментов С=6250, 18750, 25000, 37500 Н/м. Важность вариации жесткости упругой втулки обусловлена тем, что ее значение непосредственно влияет на весь динамический процесс в системе, определяет возникновение вынужденных колебаний определенной амплитуды, что обеспечивает эффективность протекания технологического процесса очистки хлопка. На рис. 2 а показаны теоретические кривые изменения перемещения массы системы X, ее скорости $\dot{X}$ и ускорения $\ddot{X}$ при технологическом режиме работы с варьированием коэффициента жесткости упругой опоры колосника. Анализ этих графических зависимостей показывает довольно быстро нашение собственных колебаний одномассовой системы (около 0,1 с) и соответствие вынужденных колебаний массы колосника характеру аппроксимированной технологической нагрузки. Ясно видно и уменьшение амплитуды низкочастотных колебаний с увеличением коэффициента жесткости упругой опоры (рис. 1).

Учитывая, что значительные изменения амплитуды колебаний колосника приводят к превышению пределов зазора между пильчатом барабаном и колосником, наилучшими значениями коэффициента жесткости упругой опоры, обеспечивающие необходимую величину зазора, являются

$$\text{С} = (1{,}8 \div 2{,}5) * 10^4\ \frac{\text{н}}{\text{м}}.$$

Диапазон варьирования значений коэффициента диссипации, характеризующей упругую опору, установлен по результатам эксперимента для резины марки НО-68 (в= 25; 75; 100; 150 Н $*$ с/м). Учет диссипации обусловлен способностью поглашать свободные колебания и часть вынужденных колебаний. На рис. 2 б показаны зависимости изменения параметров системы X, $\dot{X}$, $\ddot{X}$ при изменении с Рекомендуемые значения коэффициента диссипации $(80 \div 100)$ Н $\frac{\text{с}}{\text{м}}$. Результаты экспериментальных исследований показали 3, 4, что колосник на упругом основании испытывает нагрузки от протаскиваемого пильным барабаном хлопка-сырца в $2 \div 3{,}5$ раза меньше относительно нагрузки, приходящейся на колосник с жесткой опорой (серийный вариант).

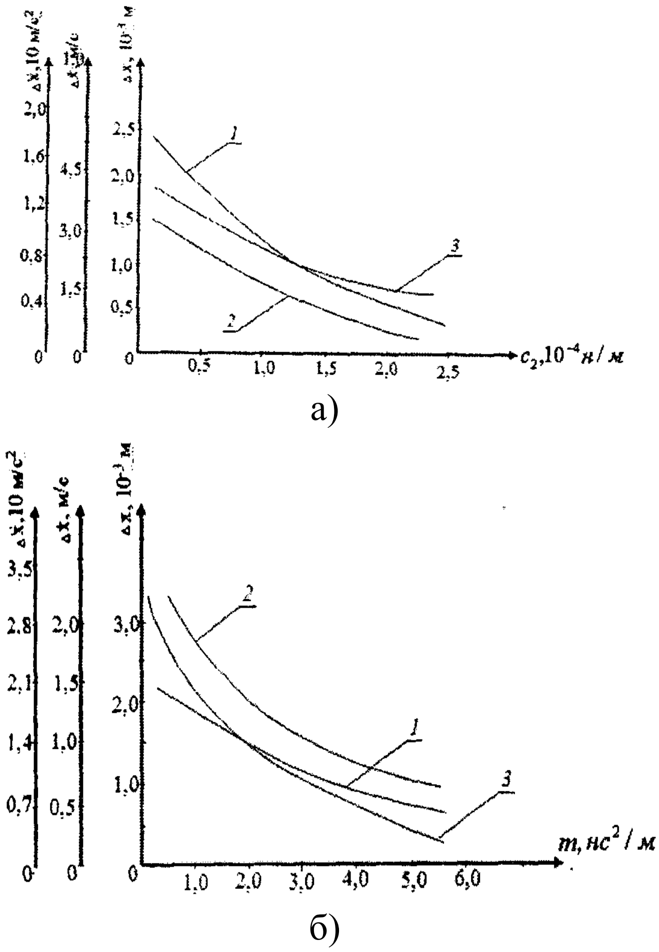

Рис. 2. Теоретические кривые изменения перемещения массы системы X, ее скорости $\dot{X}$ и ускорения $\ddot{X}$ при технологическом режиме работы с варьированием коэффициента жесткости (а) и коэффициента диссипации (б) колосника.

Это, в свою очередь, допускает возможность уменьшения металлоемкости колосниковой решетки за счёт применения полых трубчатых стержней. Из анализа графиков варьирования массы колосника (0,9; 2,7; 3,6; 5,4 Н $с^2/м$) видно, что с увеличением массы возрастает амплитуда колебаний, но наблюдается уменьшение частоты колебаний. Наилучшими по результатам анализа исследований является m= (1,2÷ 1,8) Н$\frac{с^2}{м}$.

Важность учета технологических нагрузок от хлопка на стержнях колосника объясняется тем, что их величина меняется в широких пределах, в зависимости от подачи хлопка (производительности машины) и имеет случайный характер воздействия, скорости и ускорения колосника в функции технологической нагрузки от хлопка-сырца. Детерминирующей составляющей колебания нагрузки является низкая частота 5 Гц, что соответствует частоте вращения пильчатого барабана очистителя. Высокочастотное составляющее 34 Гц обусловлено неравномерностью подачи хлопка-сырца. При расчетной нагрузке в системе колосники совершают с малой амплитудой колебания, 0,8 ÷ 1,0 мм. Увеличение же нагрузки до 60 Н приводит к увеличению амплитуды колебаний колосника до 1,8 ÷ 2,2 мм. Но, при этом увеличение скорости колебания незначительное, 0,6 ÷ 0,8 м/с. При дальнейшем увеличении нагрузки на практике обычно происходит забой хлопка-сырца между колосником и пильным барабаном. Таким образом, разработанная конструкция колосниковой решетки на упругих опорах очистителя хлопка от крупного сора с рекомендованными рациональными параметрами обеспечивает повышение очистительного эффекта и производительность машины.

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ЭПИДЕМИОЛОГИЯ И ПРОФИЛАКТИКА СТРЕПТОКОККОВОЙ ИНФЕКЦИИ СРЕДИ НАСЕЛЕНИЯ

Аннотация. *Статья посвящена актуальной проблеме эпидемиологии и профилактики стрептококковой инфекции. Рассматриваются общие сведения о возбудителе, путях передачи и клинических проявлениях заболеваний, вызываемых стрептококками группы А. Анализируются современные подходы к диагностике, лечению и профилактике стрептококковых инфекций, применяемые в развитых странах, включая использование экспресс-тестов, антибиотикотерапию и меры общественного здравоохранения. Особое внимание уделено эпидемиологической ситуации в странах Центральной Азии, в частности в Узбекистане, где стрептококковая инфекция остается значимой проблемой здравоохранения. Обсуждаются существующие практики профилактики и контроля, а также предлагаются рекомендации по их совершенствованию с учетом региональных особенностей. Подчеркивается важность комплексного подхода, включающего эпидемиологический надзор, своевременную диагностику, адекватное лечение и санитарно-просветительскую работу среди населения для снижения бремени стрептококковой инфекции.*

Ключевые слова: *стрептококковая инфекция, Streptococcus pyogenes, БГСА, эпидемиология, профилактика, диагностика, лечение, антибиотикорезистентность, острая ревматическая лихорадка, постстрептококковый гломерулонефрит, Центральная Азия, Узбекистан.*

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EPIDEMIOLOGY AND PREVENTION OF STREPTOCOCCAL INFECTIONS AMONG THE POPULATION

Abstract: *This article addresses the current problem of the epidemiology and prevention of streptococcal infections. It discusses general information about the causative agent, transmission routes, and clinical manifestations of diseases caused by Group A streptococci. Modern approaches to the diagnosis, treatment, and prevention of streptococcal infections used in developed countries are analyzed,* *including the use of rapid tests, antibiotic therapy, and public health measures. Particular attention is paid to the epidemiological situation in Central Asian countries, particularly in Uzbekistan, where streptococcal infection remains a significant public health problem. Existing prevention and control practices are discussed, and recommendations are offered for their improvement, taking into account regional characteristics. The importance of a comprehensive approach, including epidemiological surveillance, timely diagnosis, adequate treatment, and health education among the population, is emphasized to reduce the burden of streptococcal infection.*

***Keywords**: streptococcal infection, Streptococcus pyogenes, BHSA, epidemiology, prevention, diagnosis, treatment, antibiotic resistance, acute rheumatic fever, post-streptococcal glomerulonephritis, Central Asia, Uzbekistan.*

Введение. Общая характеристика стрептококковой инфекции.

Стрептококковая инфекция, вызываемая бактериями рода *Streptococcus*, представляет собой одну из наиболее значимых и многоликих проблем современной медицины и общественного здравоохранения во всем мире. Эти грамположительные микроорганизмы, особенно β-гемолитические стрептококки группы А (БГСА, *Streptococcus pyogenes*), являются причиной широкого спектра заболеваний у человека – от относительно легких поверхностных инфекций кожи и слизистых оболочек до тяжелых, инвазивных форм, способных привести к жизнеугрожающим состояниям и серьезным пост-инфекционным осложнениям [1, 2]. Актуальность проблемы подчеркивается не только повсеместным распространением стрептококков, но и их способностью вызывать эпидемические вспышки, особенно в организованных коллективах, а также развитием негнойных осложнений, таких как острая ревматическая лихорадка (ОРЛ) и острый постстрептококковый гломерулонефрит (ОПСГН), которые вносят существенный вклад в структуру заболеваемости и инвалидизации населения, особенно в детском и молодом возрасте [3, 4].

Источником инфекции при заболеваниях, вызванных БГСА, является больной человек или бессимптомный носитель. Основной путь передачи – воздушно-капельный, реализующийся при кашле, чихании, разговоре. Однако возможен и контактно-бытовой путь (через загрязненные руки, предметы обихода), а также алиментарный (при употреблении инфицированных пищевых продуктов). Восприимчивость к стрептококковой инфекции всеобщая, но наиболее уязвимыми являются дети дошкольного и школьного возраста, а также лица с ослабленным иммунитетом [1, 5]. Сезонность также играет роль: в странах с умеренным климатом пик заболеваемости респираторными формами (ангина, фарингит, скарлатина) приходится на осенне-зимний и ранний весенний периоды, тогда как кожные инфекции (импетиго, рожа) чаще встречаются в теплое время года [3].

Клинические проявления стрептококковой инфекции чрезвычайно разнообразны. Наиболее часто БГСА вызывают острый тонзиллит/фарингит (ангину), скарлатину, импетиго, рожу, целлюлит. Однако спектр заболеваний включает и такие серьезные состояния, как некротизирующий фасциит, синдром стрептококкового токсического шока (ССТШ), пневмонию, менингит, сепсис, эндокардит [2, 6]. Особую опасность представляют постстрептококковые осложнения – ОРЛ, поражающая сердце, суставы и нервную систему, и ОПСГН, приводящий к поражению почек. Эти осложнения развиваются через несколько недель после перенесенной острой инфекции и связаны с аутоиммунными реакциями, запускаемыми компонентами стрептококка [4, 7].

Эпидемиологический надзор за стрептококковой инфекцией включает мониторинг заболеваемости различными клиническими формами, отслеживание вспышек, изучение циркулирующих штаммов БГСА, их серотипового разнообразия и чувствительности к антибактериальным препаратам. Основой профилактики являются меры, направленные на разрыв путей передачи инфекции и повышение неспецифической резистентности организма. К ним относятся соблюдение правил личной гигиены (мытье рук, использование индивидуальных предметов ухода), регулярное проветривание и влажная уборка помещений, изоляция больных на период заразности, особенно в детских коллективах [1, 5]. Важную роль играет санитарно-просветительская работа, направленная на повышение осведомленности населения о симптомах стрептококковых заболеваний и необходимости своевременного обращения за медицинской помощью. Специфическая профилактика (вакцинация) против БГСА в настоящее время находится на стадии разработки, что подчеркивает важность неспецифических мер и эффективного лечения для контроля над инфекцией [8].

Современные подходы к эпидемиологии и профилактике в развитых странах

В экономически развитых странах мира за последние десятилетия достигнуты значительные успехи в контроле над стрептококковой инфекцией, хотя она и продолжает оставаться актуальной проблемой здравоохранения. Эти успехи во многом обусловлены внедрением комплексных стратегий, включающих совершенствование методов диагностики, стандартизацию подходов к лечению и реализацию эффективных профилактических программ [9, 10].

Одним из ключевых достижений стала широкая доступность и использование экспресс-тестов для выявления антигена БГСА непосредственно у постели больного или в амбулаторных условиях. Эти тесты, основанные на иммунохроматографическом или иммуноферментном анализе мазка из ротоглотки, позволяют получить результат в течение нескольких минут. Хотя их чувствительность может варьировать (современные оптические иммунологические тесты показывают чувствительность 80-90% и высокую специфичность >95%), они играют важную роль в быстрой диагностике стрептококкового фарингита/тонзиллита [6, 11]. Положительный результат экспресс-теста позволяет незамедлительно начать этиотропную терапию, что критически важно для предотвращения развития гнойных и негнойных осложнений, а также для сокращения периода заразности пациента. В случае отрицательного результата у детей, учитывая более высокий риск осложнений в этой возрастной группе, часто рекомендуется подтверждение культуральным методом, который остается «золотым стандартом» диагностики [1, 6]. Во многих странах, например, во Франции, использование экспресс-тестов рекомендовано на национальном уровне для рационализации применения антибиотиков [9].

Подходы к лечению стрептококковых инфекций в развитых странах базируются на принципах своевременной и адекватной антибиотикотерапии. Препаратами выбора для лечения БГСА-фарингита остаются пенициллины (пенициллин V для перорального приема, бензатин бензилпенициллин для однократного внутримышечного введения при низкой комплаентности) или амоксициллин, благодаря их доказанной эффективности, узкому спектру действия и низкой стоимости [2, 9]. БГСА до сих пор сохраняют практически универсальную чувствительность к β-лактамным антибиотикам. При аллергии на пенициллины используются макролиды (эритромицин, азитромицин, кларитромицин) или цефалоспорины первого поколения (цефалексин) [6, 10]. Однако растущая резистентность БГСА к макролидам в некоторых регионах вызывает обеспокоенность и требует мониторинга чувствительности и обоснованного выбора альтернативных препаратов [12]. Стандартная длительность курса антибиотикотерапии при фарингите составляет 10 дней (для азитромицина – 5 дней), что необходимо для полной эрадикации возбудителя и предотвращения осложнений, в первую очередь ОРЛ [9]. Лечение других форм стрептококковой инфекции (кожные инфекции, инвазивные заболевания) требует индивидуального подхода, часто с использованием парентеральных антибиотиков и, в ряде случаев, хирургического вмешательства [2, 6].

Профилактические стратегии в развитых странах включают как меры общественного здравоохранения, так и индивидуальную профилактику. Эпидемиологический надзор позволяет отслеживать динамику заболеваемости, выявлять вспышки и контролировать распространение резистентных штаммов. Важное значение придается санитарно-гигиеническим мероприятиям в организованных коллективах (детские сады, школы, воинские части), включая изоляцию больных, дезинфекцию, проветривание помещений [1, 5]. Программы скрининга беременных на носительство стрептококка группы B (СГВ, *Streptococcus agalactiae*) с последующей антибиотикопрофилактикой в родах позволили значительно снизить частоту неонатального сепсиса и менингита, вызванных этим возбудителем [13].

Индивидуальная профилактика включает соблюдение правил личной гигиены, особенно мытья рук. Антибиотикопрофилактика показана в особых случаях, например, для лиц, перенесших ОРЛ (вторичная профилактика рецидивов с использованием бензатин бензилпенициллина), или для контактных лиц в очагах тяжелых инвазивных инфекций [4, 9]. Разработка эффективной и безопасной вакцины против БГСА является приоритетным направлением исследований, однако создание такой вакцины затруднено из-за большого антигенного разнообразия возбудителя (более 200 M-серотипов) и потенциального риска аутоиммунных реакций [8, 14]. Тем не менее, достигнут определенный прогресс в разработке мультивалентных вакцин, нацеленных на консервативные эпитопы M-протеина и другие факторы вирулентности, что дает надежду на появление средств специфической профилактики в будущем [14].

Эпидемиологическая ситуация и профилактика в Центральной Азии и Узбекистане

Ситуация со стрептококковой инфекцией в странах Центральной Азии, включая Узбекистан, имеет свои особенности и представляет собой серьезную проблему для систем здравоохранения региона. В отличие от многих развитых стран, где бремя тяжелых форм БГСА-инфекции и ее осложнений, таких как ОРЛ и ОПСГН, значительно снизилось благодаря улучшению социально-экономических условий, доступности медицинской помощи и широкому применению антибиотиков, в Центрально-Азиатском регионе эти заболевания по-прежнему регистрируются с относительно высокой частотой [4, 15].

Ограниченность опубликованных эпидемиологических данных по некоторым странам региона затрудняет точную оценку масштабов проблемы. Тем не менее, имеющиеся исследования и отчеты указывают на сохраняющуюся актуальность стрептококковых инфекций, особенно среди детского населения. Например, исследования, проведенные в Узбекистане, свидетельствуют о значительной роли БГСА в этиологии острых тонзиллитов и фарингитов [1,7]. Высокая плотность населения в некоторых районах, особенности бытовых условий и, возможно, недостаточная доступность качественной медицинской помощи в сельской местности могут способствовать более интенсивному распространению инфекции [15]. По данным ВОЗ, бремя ОРЛ и связанной с ней ревматической болезни сердца остается высоким именно в развивающихся странах, к которым относятся и государства Центральной Азии [4]. Сообщается о миллионах людей, страдающих тяжелыми заболеваниями, вызванными БГСА, и значительном количестве новых случаев ежегодно, причем основной удар приходится на регионы с ограниченными ресурсами [15].

Диагностические возможности в регионе могут быть ограничены. Хотя культуральный метод диагностики доступен во многих лабораториях, его использование не всегда является рутинным при амбулаторном приеме пациентов с фарингитом. Экспресс-тесты на антиген БГСА, широко применяемые в развитых странах для быстрой диагностики и рационального назначения антибиотиков, могут быть менее доступны или использоваться не так широко из-за стоимости или логистических трудностей [9]. Это может приводить как к избыточному назначению антибиотиков при вирусных фарингитах, так и к несвоевременному началу лечения при бактериальной инфекции, что повышает риск осложнений.

Подходы к лечению стрептококковых инфекций в Центральной Азии и Узбекистане в целом соответствуют международным рекомендациям, с акцентом на использование пенициллинов как препаратов первого ряда [8]. Однако проблемы могут возникать с комплаентностью пациентов (соблюдением полного курса лечения), доступностью лекарственных средств в отдаленных районах и мониторингом антибиотикорезистентности. Данные о распространенности устойчивых к макролидам штаммов БГСА в регионе ограничены, что затрудняет выбор оптимальной терапии при аллергии на пенициллины [1,2].

Профилактические мероприятия в значительной степени опираются на санитарно-гигиенические меры и санитарно-просветительскую работу [5,8]. В Узбекистане действуют нормативные документы, регламентирующие эпидемиологический надзор и профилактику стрептококковой инфекции, включая мероприятия в очагах (например, при скарлатине) [9]. Однако эффективность этих мер может зависеть от ресурсного обеспечения системы здравоохранения, уровня санитарной культуры населения и координации усилий различных ведомств.

Для улучшения ситуации с эпидемиологией и профилактикой стрептококковой инфекции в Узбекистане и других странах Центральной Азии необходим комплексный подход, включающий следующие направления:

1. Совершенствование эпидемиологического надзора: Усиление системы регистрации и учета всех форм стрептококковой инфекции, включая ОРЛ и ОПСГН. Проведение регулярных исследований по изучению циркулирующих серотипов БГСА и их чувствительности к антибиотикам. Создание региональных референс-лабораторий.

2. Улучшение диагностики: Расширение доступа к современным методам диагностики, включая экспресс-тесты на БГСА, особенно на уровне первичного звена здравоохранения. Обучение медицинских работников правилам их использования и интерпретации результатов.

3. Оптимизация лечения: Обеспечение бесперебойной доступности эффективных антибиотиков, в первую очередь пенициллинов. Повышение приверженности пациентов к полному курсу лечения через разъяснительную работу. Разработка и внедрение национальных клинических рекомендаций, основанных на доказательной медицине и учитывающих локальные данные по антибиотикорезистентности.

4. Усиление профилактических мер: Активизация санитарно-просветительской работы среди населения, особенно родителей, школьников, работников детских учреждений, о путях передачи, симптомах и мерах профилактики стрептококковой инфекции, а также о важности своевременного обращения за медицинской помощью и полного курса лечения.

5. Развитие программ вторичной профилактики ОРЛ: Обеспечение регулярного диспансерного наблюдения за лицами, перенесшими ОРЛ, и бесперебойное снабжение их препаратами для длительной антибиотикопрофилактики (бензатин бензилпенициллин).

6. Научные исследования: Проведение исследований по изучению факторов риска, генетической предрасположенности к развитию ОРЛ и ОПСГН в местной популяции, а также оценка эффективности различных профилактических вмешательств.

Реализация этих мер потребует политической воли, адекватного финансирования, межсекторального взаимодействия и активного участия как медицинского сообщества, так и населения. Только совместными усилиями можно добиться существенного снижения бремени стрептококковой инфекции и ее последствий в регионе Центральной Азии.

Заключение. Стрептококковая инфекция группы А остается глобальной проблемой здравоохранения, требующей неослабевающего внимания как в развитых, так и в развивающихся странах. Несмотря на значительные успехи в диагностике и лечении, достигнутые в экономически развитых регионах благодаря внедрению экспресс-тестов и стандартизированных протоколов антибиотикотерапии, бремя заболевания, особенно его тяжелых инвазивных форм и пост-инфекционных осложнений, таких как острая ревматическая лихорадка и постстрептококковый гломерулонефрит, все еще непропорционально высоко в странах с ограниченными ресурсами, включая регион Центральной Азии и, в частности, Узбекистан.

Анализ ситуации показывает, что для эффективного контроля над стрептококковой инфекцией в Узбекистане и сопредельных странах необходим многогранный подход. Усиление эпидемиологического надзора, включая мониторинг циркулирующих штаммов и их антибиотикочувствительности, является фундаментом для разработки обоснованных стратегий. Расширение доступа к современным диагностическим средствам, прежде всего экспресс-тестам, на уровне первичной медико-санитарной помощи позволит оптимизировать назначение антибиотиков и своевременно выявлять случаи, требующие лечения. Обеспечение доступности эффективных антибактериальных препаратов и повышение приверженности пациентов лечению остаются критически важными для предотвращения осложнений.

Особое значение приобретает усиление профилактических мер, включая активную санитарно-просветительскую работу среди населения и медицинских работников, а также совершенствование программ вторичной профилактики ОРЛ. Необходимы дальнейшие научные исследования для лучшего понимания региональных особенностей эпидемиологии и патогенеза стрептококковых заболеваний.

Преодоление вызовов, связанных со стрептококковой инфекцией в Центральной Азии, требует скоординированных усилий со стороны систем здравоохранения, научного сообщества и общества в целом. Инвестиции в укрепление инфраструктуры здравоохранения, обучение кадров и повышение медицинской грамотности населения являются ключевыми факторами для снижения заболеваемости, смертности и долгосрочных последствий этой многоликой инфекции, приближая регион к глобальным целям по борьбе с инфекционными заболеваниями.

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РЕГУЛИРОВАНИЕ ЦЕН КАК ИНСТРУМЕНТ ПОВЫШЕНИЯ ДОСТУПНОСТИ МЕДИКАМЕНТОВ: ЛИТЕРАТУРНЫЙ ОБЗОР

Аннотация: *В статье рассматриваются теоретические и практические аспекты государственного регулирования цен на фармацевтическом рынке как одного из ключевых инструментов повышения доступности медикаментов для населения. Проведен обзор отечественных и зарубежных научных публикаций, аналитических отчетов Всемирной организации здравоохранения (ВОЗ), ОЭСР и национальных стратегий лекарственного обеспечения. Выделены основные подходы к регулированию, включая установление предельных цен, фиксированные надбавки, референтное ценообразование. Проанализированы последствия регулирования для цен, ассортимента, инновационной активности и устойчивости фармацевтического рынка. Сделан вывод о том, что грамотное и сбалансированное ценовое регулирование способствует повышению доступности жизненно необходимых лекарственных средств, однако требует комплексного подхода с учетом экономических и социальных факторов.*

Ключевые слова: *доступность лекарств, регулирование цен, фармацевтический рынок, ЖНВЛП, лекарственная политика.*

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PRICE REGULATION AS A TOOL TO INCREASE THE AVAILABILITY OF MEDICINES: A LITERARY REVIEW

Abstract: *The article examines the theoretical and practical aspects of government price regulation in the pharmaceutical market as one of the key instruments for improving access to medicines. A comprehensive review of domestic and international scientific publications, analytical reports by the World Health Organization (WHO), the OECD, and national pharmaceutical strategies has been conducted. The main regulatory approaches are identified, including price caps, fixed markups, and external reference pricing. The impact of price regulation on medicine prices, product assortment, innovation, and the sustainability of the pharmaceutical market is analyzed. The review concludes that well-balanced and properly implemented price regulation can significantly enhance the availability of* *essential medicines, but requires a complex and context-sensitive approach considering both economic and social factors.*

Keywords: *access to medicines, price regulation, pharmaceutical market, essential medicines, pharmaceutical policy.*

Введение. В современных условиях рынок лекарственных средств сталкивается с рядом вызовов, среди которых особую значимость приобретают проблемы дороговизны и ограниченной доступности медикаментов для широких слоёв населения. Повышение цен на жизненно необходимые препараты, особенно в странах с низким и средним уровнем доходов, нередко приводит к снижению уровня охвата лекарственной помощью, росту самоназначения и отказу от лечения. Это усугубляет социальное неравенство и ставит под угрозу реализацию права на охрану здоровья.

Одним из наиболее распространённых инструментов государственного вмешательства в рынок медикаментов является регулирование цен. Этот механизм применяется в целях обеспечения экономической доступности лекарственных средств, особенно из категории жизненно необходимых и важнейших (ЖНВЛП). Формы регулирования варьируются от прямого установления предельных цен до сложных схем референтного и договорного ценообразования.

Тем не менее, вопрос об эффективности регулирования цен остаётся предметом активной научной дискуссии. С одной стороны, существуют доказательства, подтверждающие положительное влияние регулирования на снижение цен и расширение доступа к лекарствам. С другой стороны, есть данные, свидетельствующие о побочных эффектах, таких как сокращение ассортимента, снижение привлекательности рынка для производителей и рост дефицита отдельных препаратов.

В связи с этим целью настоящего литературного обзора является обобщение и критический анализ существующих научных подходов и результатов исследований, касающихся влияния регулирования цен на доступность медикаментов. Обзор направлен на выявление закономерностей, преимуществ и рисков данной политики в разных странах, с особым акцентом на социально-экономические и фармакоэкономические аспекты.

Материалы и методы исследования. В качестве метода исследования был использован систематический обзор научной и аналитической литературы по вопросам регулирования цен на лекарственные средства и его влияния на доступность медикаментов. Основными источниками информации послужили статьи из баз данных Scopus, Web of Science, PubMed, отчёты Всемирной организации здравоохранения (ВОЗ), ОЭСР, а также национальные документы. Классификация и сравнительный анализ источников позволили обобщить мировую практику и выявить ключевые закономерности, риски и возможности регулирования.

Результаты. Ценовое регулирование на фармацевтическом рынке представляет собой совокупность механизмов, направленных на обеспечение доступности медикаментов для населения и сдерживание роста расходов на здравоохранение. В мировой практике применяются различные подходы, которые могут отличаться как по форме реализации, так и по охвату регулируемых лекарственных средств.

Типы регулирования цен

1. Прямое ограничение отпускной и/или розничной цены. Этот подход предполагает установление государством фиксированных или предельных цен на определённые лекарственные препараты. Он широко используется в странах с централизованной системой здравоохранения и применяется, как правило, к препаратам из перечня жизненно необходимых.

2. Регулирование торговой надбавки. Суть этого метода заключается в ограничении уровня наценки, который могут применять оптовики и розничные аптеки. Надбавки устанавливаются как фиксированные значения или в виде процента от отпускной цены, часто с дифференциацией по ценовым категориям или группам препаратов.

3. Внешнее референтное ценообразование (External Reference Pricing – ERP). Метод основан на сравнении цен на лекарственные препараты с их стоимостью в других странах. В большинстве случаев страны ориентируются на среднюю цену по определенному перечню государств. Данный подход распространён в странах ЕС и служит инструментом установления предельных отпускных цен для импортных препаратов.

4. Регулирование в рамках перечней ЖНВЛП

Во многих странах формируются перечни жизненно необходимых и важнейших лекарственных препаратов (ЖНВЛП), на которые устанавливаются государственные ограничения по цене и наценке. Эти меры обеспечивают приоритетную доступность ключевых медикаментов, применяемых для лечения наиболее распространенных заболеваний.

Международные примеры регулирования

В странах ЕС используется смешанный подход, включающий внешнее референтное ценообразование, регулирование надбавок и внутренний мониторинг цен. Например, в Германии и Франции активно применяется ERP, а в Великобритании действует система добровольных соглашений с производителями на основе стоимости лечения (value-based pricing) [Vogler et al., 2018].

В России регулирование цен распространяется на препараты, включенные в перечень ЖНВЛП. Устанавливаются предельные отпускные и розничные цены, регулируются надбавки на всех этапах движения препарата. С 2020 года внедрена система государственной регистрации цен на препараты из перечня.

В Узбекистане применяется административное ценообразование на препараты из перечня ЖНВЛП, а также регулирование надбавок через постановления Кабинета Министров. В последние годы развиваются цифровые инструменты контроля цен (платформа “DavlatDorixona.uz”).

Фармацевтический рынок США преимущественно нерегулируемый, и цены формируются на основе рыночных механизмов. Лишь отдельные программы, такие как Medicaid и Medicare, предусматривают ценовые ограничения или скидки. В то же время отсутствует единая система предельных цен, что делает рынок одним из самых дорогих в мире.

Исследования Всемирной организации здравоохранения (WHO, 2020), Европейского наблюдательного центра по лекарственным средствам (Vogler et al., 2018), а также аналитические материалы OECD (2019) демонстрируют разнообразие подходов к ценовому регулированию и их адаптацию к конкретным экономическим и институциональным условиям стран.

Страна / Регион	**Основной подход к регулированию**	**Применение перечней ЖНВЛП**	**Регулирование торговых надбавок**	**Особенности**
Германия	Внешнее референтное ценообразование (ERP), договорное ценообразование	Есть	Да	Система AMNOG: оценка терапевтической пользы перед ценообразованием
Франция	ERP, централизованное регулирование	Да	Да	Национальный комитет устанавливает цены на основе сравнительной эффективности
Великобритания	Добровольное соглашение с производителям и (value-based pricing)	Нет	Частично	Оценка стоимости лечения через NICE (Национальный институт клинической эффективности)
Россия	Предельные отпускные и розничные цены на ЖНВЛП	Да	Да	Обязательная государственная регистрация цен на ЖНВЛП
Узбекистан	Регулируемые надбавки, фиксированные цены на ЖНВЛП	Да	Да	Постановления правительства устанавливают правила ценообразования и онлайн-мониторинг

Страна / Регион	Основной подход к регулированию	Применение перечней ЖНВЛП	Регулирование торговых надбавок	Особенности
Казахстан	Предельные цены на ЖНВЛП, ERP	Да	Да	Интеграция с системой обязательного медицинского страхования
США	Рыночное ценообразование	Нет	Нет	Ограниченное регулирование только в рамках Medicare/Medicaid; высокая стоимость ЛС
Канада	ERP и внутреннее референтное ценообразование	Да	Частично	Регулируются цены на запатентованные препараты через PMPRB

Таблица 1. Международные практики регулирования цен на лекарственные средства
ERP — External Reference Pricing (внешнее референтное ценообразование)
ЖНВЛП — Жизненно необходимые и важнейшие лекарственные препараты
PMPRB — Patented Medicine Prices Review Board (Канада)

Ценовое регулирование в фармацевтическом секторе направлено на повышение доступности медикаментов, однако его эффективность и побочные эффекты варьируются в зависимости от выбранной модели и особенностей национального рынка. Анализ научной литературы позволяет выделить как положительные, так и отрицательные последствия государственного вмешательства в ценообразование.

Ряд исследований подтверждает, что регулирование цен способствует снижению стоимости лекарств, особенно в сегменте жизненно необходимых препаратов. Так, по данным Vogler (2011), введение предельных цен в странах Восточной Европы позволило снизить розничные цены на ЖНВЛП в среднем на 20–30% в течение первого года после внедрения мер.

Всемирная организация здравоохранения (WHO, 2019) отмечает, что ценовое регулирование может значительно увеличить охват населения медикаментозной помощью, особенно в уязвимых группах. Это особенно важно для стран с ограниченными ресурсами, где даже незначительное снижение цен делает лечение более доступным.

Исследование Mackintosh et al. (2016) показало, что в странах с регулируемыми ценами отмечается увеличение объема продаж дженериков, поскольку ценовые меры создают стимулы для использования более дешевых и эффективных аналогов.

Несмотря на очевидные преимущества, регулирование цен также может вызывать нежелательные побочные последствия, особенно при жестких или негибких подходах.

Согласно Simoens (2013), ценовые ограничения снижают рентабельность отдельных препаратов, что может привести к уходу производителей с рынка, особенно в отношении оригинальных или инновационных ЛС. Это, в свою очередь, уменьшает конкуренцию и выбор для потребителей.

Kaplan & Laing (2005) подчеркивают, что сокращение ассортимента — частый эффект ценового давления: дистрибьюторы и аптеки отказываются от продажи нерентабельных позиций, что ведет к локальным дефицитам.

Наконец, Danzon (2000) в своем исследовании указывает на то, что длительное и жесткое регулирование может снижать мотивацию фармацевтических компаний к инновационной деятельности, так как ограниченный доход от новых препаратов делает инвестиции в НИОКР (научные исследования и опытно-конструкторские разработки) менее привлекательными.

Таким образом, регулирование цен действительно может служить эффективным инструментом социальной политики, однако для достижения устойчивой доступности медикаментов важно учитывать:

- экономику фармацевтического сектора;
- рыночные стимулы;
- возможные последствия для инноваций и обеспечения ассортимента.

Эффективная стратегия требует гибкого, дифференцированного подхода, основанного на постоянном мониторинге рынка, участии всех заинтересованных сторон и адаптации к изменениям в спросе и логистике.

Показатель	**Положительное влияние**	**Отрицательное влияние**
Цена на лекарства	Снижение цен на ЖНВЛП и дженерики *(Vogler, 2011)*	Потенциальное повышение цен на нерегулируемые препараты *(Simoens, 2013)*
Доступность для населения	Рост охвата медикаментозным лечением *(WHO, 2019)*	Возможные перебои в поставках, особенно в отдалённых регионах *(Kaplan & Laing, 2005)*
Ассортимент лекарств	Расширение использования дженериков *(Mackintosh et al., 2016)*	Сокращение ассортимента нерентабельных или узкоспециализированных ЛС *(Simoens, 2013)*
Инновационная активность	Косвенное стимулирование локального производства дешёвых аналогов	Снижение мотивации к разработке новых препаратов *(Danzon, 2000)*
Стабильность рынка	Упорядочивание ценообразования, борьба со спекуляцией	Уход производителей с рынка, снижение конкуренции *(Vogler et al., 2018)*

Показатель	Положительное влияние	Отрицательное влияние
Социальное неравенство	Повышение доступности лечения для малообеспеченных групп	Возможное ухудшение качества предоставляемых ЛС при чрезмерной экономии *(Kaplan & Laing, 2005)*

Таблица 2. Положительные и отрицательные эффекты регулирования цен на лекарственные средства

Анализ эмпирических данных, полученных в рамках научных исследований и аналитических обзоров, позволяет глубже понять реальное влияние регулирования цен на лекарства в различных странах и условиях. Ниже приведена таблица с кратким сравнением ключевых исследований, отражающих как положительные, так и отрицательные аспекты ценового контроля.

Автор, год	Страна/регион	Метод исследования	Основной вывод
Vogler et al., 2015	15 стран ЕС	Регрессионный анализ	Ценовое регулирование способствует снижению розничных цен, но может сужать ассортимент
Kaplan & Laing, 2005	Глобальный обзор	Литературный и сравнительный анализ	При отсутствии гибкости регулирование может приводить к дефициту медикаментов
Simoens, 2013	Бельгия	Опрос аптечных дистрибьюторов	Долгосрочное регулирование снижает мотивацию бизнеса к поставкам малорентабельных ЛС
Mackintosh et al., 2016	Развивающиеся страны	Качественный и количественный анализ	Расширение регулирования цен стимулировало рост потребления дженериков
Danzon, 2000	США и ЕС	Эконометрический анализ	Чрезмерное регулирование может негативно сказаться на инвестициях в инновации
WHO, 2019	Международный отчет	Сбор статистических данных и кейсов	Правильное регулирование повышает доступность медикаментов и уровень охвата лечением

Таблица 3. Краткий обзор эмпирических исследований по регулированию цен на лекарства

Обсуждение. Ценовое регулирование в фармацевтической сфере представляет собой двойственную стратегию, находящуюся на пересечении социальной ответственности государства и рыночных механизмов. С одной стороны, государство стремится обеспечить максимальную доступность лекарственных средств для населения, особенно социально уязвимых групп. С другой стороны, чрезмерное вмешательство в ценообразование может подорвать экономическую устойчивость фармацевтической отрасли и сдерживать инновации.

Таким образом, возникает ключевая дилемма: регулирование против рыночной эффективности.

- Жесткое регулирование позволяет снизить цены и расширить охват лечением, но нередко приводит к дефициту, уходу производителей и сокращению ассортимента.
- Свободный рынок стимулирует конкуренцию и инновации, однако сопровождается риском недоступности дорогостоящих препаратов для широких слоев населения.

В этой связи очевидна необходимость поиска баланса между тремя ключевыми факторами:

5. Доступность — обеспечение справедливого доступа к базовым медикаментам.
6. Ассортимент — сохранение разнообразия и наличия препаратов разных ценовых категорий.
7. Инновации — поддержка разработок новых лекарственных средств и технологий.

Анализ международных практик показывает, что универсального решения не существует. Механизмы регулирования должны быть гибкими, контекстно-зависимыми и экономически обоснованными. В странах с высоким уровнем доходов допустимы более мягкие меры, основанные на страховании и договорных моделях. В развивающихся странах при ограниченных бюджетах целесообразно применять регулирование преимущественно на препараты из перечня ЖНВЛП, дополняя его мерами поддержки локального производства и цифрового мониторинга цен.

Кроме того, важно учитывать не только экономические эффекты, но и социальные последствия регулирования, включая доверие населения к системе здравоохранения, снижение самоназначения и уменьшение бремени финансовых катастрофических расходов.

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РАЗВИТИЕ ОРГАНИЗАТОРСКОЙ КОМПЕТЕНЦИИ У СТУДЕНТОВ ПЕДАГОГИЧЕСКОГО ВУЗА В УСЛОВИЯХ СТУДЕНЧЕСКОЙ АКАДЕМИИ

Аннотация. *Статья посвящена проблеме формирования организаторской компетенции у студентов педагогического вуза в условиях деятельности студенческой академии. Раскрывается сущность организаторской компетенции, ее структура, обосновываются педагогические условия развития организаторской компетенции у будущих учителей.*

Ключевые слова: *организаторская компетенция, развитие, студенты педагогического вуза, студенческая академия.*

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DEVELOPMENT OF ORGANIZATIONAL COMPETENCE IN STUDENTS OF PEDAGOGICAL UNIVERSITY IN THE CONDITIONS OF STUDENT ACADEMY

Abstract. *The article is devoted to the problem of forming managerial competence of pedagogical degree students involved in student Academy activity. The essence of the managerial competence, its structure is revealed, pedagogical framework of forming managerial competence of future teachers is justified.*

Keywords: *managerial competence, development, students of pedagogical university, student Academy.*

Одной из важных задач ученых, педагогов, психологов, социологов, методистов, просветительных работников является выработка условий, мер и механизмов развития всесторонне развитого поколения. Одним из действенных факторов и механизмов реализации данной задачи является Национальная программа по подготовке кадров, которая направлена на воспитание новой формации граждан республики, формирование «духовно-богатой и нравственно цельной, гармонично развитой личности, обладающей независимым мировоззрением и самостоятельным мышлением, опирающейся на бесценное наследие наших предков и общечеловеческие ценности».

Развитие организаторских способностей способствует развитию самостоятельности и самоуправления, повышает эффективность воспитательного воздействия и расширяет возможности каждого обучаемого в будущем активно участвовать в организации хозяйственного и культурного строительства. Эффективность подготовки будущих воспитателей к их профессиональной деятельности во многом зависит от степени разработанности психолого-педагогических основ процесса формирования и развития организаторских способностей в период их обучения в высшем учебном заведении.

Развитие личности, адекватной приоритетам демократического общества, происходит под влиянием двух факторов - непосредственно социальной практики и целенаправленного воспитания и образования. Каждый человек становится личностью, лишь пройдя через систему образования, социального воспитания и развития, профессионального становления. Важнейшими показателями эффективности социализации человека является его осознанное участие в общественных процессах и влияние на их ход развития. Организаторские способности - это одна из форм проявления социальной характеристики личности, общественной её активности.

Поэтому необходимо подготовить студентов высших учебных заведений к организаторской деятельности, т. к. они являются организаторами учебно-воспитательного процесса и воспитателями всесторонне развитого поколения.

Основы организаторских качеств закладываются в дошкольные годы, когда ребёнок учится овладевать различными видами деятельности (игровой, учебной, художественно-речевой и др.). Следовательно, воспитатель. Работающий с детьми и родителями, должен обладать общими и специфическими организаторскими способностями и качествами. Первые включают практичность и глубину ума, активность и инициативность, настойчивость в достижении поставленных целей и самообладания в сложных ситуациях, организованность, наблюдательность, общительность. Что касается вторых - специфических способностей, то особо значимыми для организационной деятельности личностными качествами являются такие, как: организаторское чутье, которое проявляется в интуиции; практический ум как находчивость при распределении заданий среди детей с учетом их индивидуальных психических и физических возможностей; психологический такт - чуткость, внимательность к детям, простота и естественность в обращении, справедливость и объективность.

Проблемой развития организаторских знаний, умений и способностей в системе профессиональной деятельности преподавателей занимались такие ученые, как Н.А. Ершова, И.А. Зимняя, Б.Д. Краковский, А.Я. Магаберидзе, М.В. Макарова, И.Л. Руденко, О.В. Тюптя, Л.И. Уманский и др. В диссертационном исследовании Ю.С. Ценч организаторская компетенция понимается как способность педагога мобилизовать в профессиональной деятельности знания, умения и способы выполнения организаторских действий.

Основное условие успеха в работе учителя - его организаторские способности, представляющие собой следующий компонент организаторской компетенции.

Способности – индивидуальные особенности личности, являющиеся субъективными условиями успешного осуществления определенного рода деятельности. Способности не сводятся к имеющимся у индивида знаниям, умениям, навыкам. Они обнаруживаются в быстроте, глубине и прочности овладения способами и приемами некоторой деятельности и являются внутренними психическими регулятивами, обусловливающими возможность их приобретения.

Впервые понятие «способности» ввел в науку Платон. Он считал, что человек рождается с уже готовыми способностями и в дальнейшем изменить их не может. Современная наука считает, что способности человека не являются врожденными. Ребенок рождается с задатками, которые и являются природными предпосылками развития способностей.

Организаторские способности, по мнению В.А. Крутецкого, – это, во-первых, способность организовать ученический коллектив, сплотить его, воодушевить на решение важных задач и, во-вторых, способность правильно организовать свою собственную работу. Организация собственной работы предполагает умение правильно планировать и самому контролировать ее. У опытных учителей вырабатывается своеобразное чувство времени – умение правильно распределять работу во времени, укладываться в намеченные сроки.

Склонность к организаторской деятельности - избирательная направленность индивида на работу организатора, потребность заниматься ею. Она проявляется в виде задатков в стремлении человека брать на себя ответственность, не бояться риска, следовать сказанному слову и выполнять данные обещания, быть справедливым и доброжелательным к детям, коллегам, родителям и др.

Не менее существенными для развития личности, развития у подрастающего поколения организаторских способностей является также характер и направленность той активности, которую проявляет личность в организуемой деятельности. Можно, например, проявлять активность и взаимопомощь в труде, стремясь добиться общего успеха класса и школы, а можно быть активным, чтобы только показать себя, заслужить похвалу и извлечь для себя личную выгоду. В первом случае будет формироваться коллективист, во втором - индивидуалист или даже карьерист. Все это ставит перед каждым педагогом задачу - постоянно стимулировать активность учащихся в организуемой деятельности и формировать к ней положительное и здоровое отношение. Отсюда следует, что именно деятельность и отношение к ней выступают как определяющие факторы воспитания и личностного развития учащегося.

Вышеизложенное свидетельствует, что формирование и развитие у подрастающего поколения организаторских способностей является не только психолого-педагогической проблемой, но и приобрело социальную значимость.

Развитие организаторских качеств в период ранней юности способствует развитию самостоятельности и самоуправления, повышает эффективность воспитательного воздействия и расширяет возможности каждого обучаемого в будущем активно участвовать в организации хозяйственного и культурного строительства. Эффективность подготовки будущих воспитателей к их профессиональной деятельности во многом зависит от степени разработанности психолого-педагогических основ процесса формирования у личности организаторских качеств в период их обучения в высшем учебном заведении.

Формирование и развитие организаторских способностей у студентов высших учебных заведений предполагает решения следующих задач:

1. Высшее образование как социальный институт выполняет экономическую, социальную и культурную функции. Для реализации указанных функций в высших учебных заведениях необходимо создание педагогических условий, т. е. обстановки, в которой возможно формирование дисциплинированности, самостоятельности, инициативности, работоспособности, целеустремленности. Данные качества необходимы каждому студенту для реализации себя как специалиста, так и личности в целом.

2. Для создания педагогических условий формирования у студентов высших учебных заведений организаторских способностей необходимо знание педагогом психологических особенностей развития личности.

3. На основе стратегии развития личностного потенциала обучаемого образовательный процесс следует осуществлять с использованием технологии концентрированного обучения, предусматривающего комплексность применяемых форм, методов обучения по формированию и развитию у учащихся самостоятельности, инициативности, работоспособности, целеустремленности, творческой активности.

4. Идея совершенной личности испокон веков была заветной мечтой нашего народа, органичной частью его духовности. Глубокое изучение и анализ произведений Фараби, Беруни, Ибн Сины, Наваи и многих других великих мыслителей Востока, в произведениях которых красной нитью проходит мысль о необходимости нравственного воспитания подрастающего поколения, уважения личности ребенка, изучении его интересов с учетом природных и возрастных особенностей. На этой основе формировать у студентов положительных и преодоление отрицательных черт характера. К положительным прежде всего относятся: дисциплина, принципиальность, целеустремленность, инициатива, предприимчивость, стойкость, умение преодолевать трудности. Среди отрицательных черт чаще всего приходится сталкиваться с эгоизмом, лживостью, грубостью, неуважением к старшим.

5. Целенаправленно проводить работу по развитию организаторских качеств у студентов высших учебных заведений в процессе занятий и

проведения различных мероприятий. Организовывать специальные тренинги, деловые игры с целью расширения знаний об организаторской деятельности будущих учителей.

Следовательно, для решения вышеуказанных задач, современному педагогу необходимо обладать высоким профессионализмом и профессиональной компетентностью, сущность которых составляют системное мировоззрение и модельное мышление, профессиональное творчество педагогической деятельности, информационная вооруженность, компетентность деятельности общения и саморазвития, конкретно-предметные знания.

Эти все требования отражаются в Национальной Программе Республики Узбекистан по подготовке кадров, которая направлена на воспитание новой формации граждан республики, развитие духовно-богатой и нравственно цельной, гармонично развитой личности, обладающей независимым мировоззрением и самостоятельным мышлением, опирающейся на бесценное наследие наших предков и общечеловеческие ценности.

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КОНЦЕПТУАЛЬНЫЕ ОСНОВЫ ФОРМИРОВАНИЯ СТРАТЕГИИ ТЕХНОЛОГИЧЕСКОГО РАЗВИТИЯ МЕЖДУНАРОДНЫХ КОМПАНИЙ

Аннотация. *В статье раскрыто понимание реализации стратегии технологического развития и приведены примеры зарубежных компаний.*
***Ключевые слова*:** стратегия, внедрение, нейросети, интеграция.

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CONCEPTUAL BASIS FOR FORMING A STRATEGY FOR TECHNOLOGICAL DEVELOPMENT OF INTERNATIONAL COMPANIES

Abstract. *The article reveals an understanding of the implementation of the strategy of technological development and provides examples of foreign companies.*
Keywords: *strategy, implementation, neural networks, integration.*

Введение

Эволюция общественного развития тесно связана с технологическим развитием, этапы которого охватывают достаточно длительный период и характеризуются как этапы развития науки и технологий. Цель статьи - выявить теоретическо-методологические основы формирования стратегии технологического развития международных компаний.

Методы и исследования**.** В статье использовались системный подходы общетеоретические методы: анализ и синтез, абстракции и конкретизации, сопоставления и генерализации, а также статистические методы обработки данных.

Результаты исследования

Обострение конкуренции между крупными компаниями, что особенно стало заметно в 50-е годы прошлого века, привело к тому, что в экономике и менеджменте утвердилась военная терминология – компании стали заявлять не просто о политике в области технико-технологического развития, а стали разрабатывать «стратегии»[157].

В русскоязычных словарях стратегия – это «план действий, которого вы будете придерживаться в будущем для достижения конечной цели. Стратегии помогают формулировать долгосрочные цели и пути их достижения»[158].

Американский экономист русского происхождения Игорь Ансофф одним из первых в теории управления ввел понятие «стратегический менеджмент» и представил стратегическую перспективу бизнеса. В своей программной книге "От стратегического планирования к стратегическому менеджменту", опубликованной в 1976 г., он показал, что стратегическое управление организацией относится к ряду особых направлений управления бизнесом, сформированных путем объединения ежедневных бизнес-решений предприятия с решениями по долгосрочному планированию[159] .

В развитие концепции стратегического подхода к бизнес-решениям в любой сфере, в том числе в сфере технологического развития, А.Д. Стриклend, А.А. Томсон, М. Портер провели анализ организации сквозь «призму» наличия стратегических целей и задач развития[160], рассмотрев вопросы функционирования фирмы в ее взаимодействии с внешней рыночной конкурентной средой. По сути, они заложили само понятие «стратегический менеджмент» как динамичный управленческий процесс, в ходе которого собственники и топ-менеджеры организации определяет и выбирает

[157] Стратегия (от греч. στρατηγία stratēgia) – первоначально - руководство войсками высшими военачальниками (полководцами)

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эффективную стратегию для достижения долгосрочных целей развития бизнеса на основе всестороннего анализа как условий внешней среды , так и внутренних условий организации для ее долгосрочного выживания в тяжелой конкурентной борьбе. Но М. Портер поставил задачу шире – не только выживать, но и развивать бизнес путем претворения стратегии в жизнь, при этом контролируя этот процесс и оценивая результат[161].

М. Портер доказал, что в современной рыночной и высоко конкурентной среде разработка научной и обоснованной корпоративной стратегии является важным шагом и важной гарантией обеспечения устойчивого развития организации.

При разработке стратегии технологического развития организации обязателен учет внешней среды и выявлению основных сил, которые определяют внешние условия функционирования организации и «заставляют» менеджеров искать ответные меры и находить в организации силы, которые бы «гасили» негативное воздействие внешней среды. Заслуга М. Портера в том, что он выявил пять основных сил и показал влияние каждой «силы» на функционировании бизнес-организации во внешней среде (Рис.2):

- Риск появления новых участников - конкурентов в нише или сегменте рынка, что влечет потерю рыночной доли.

- Уровень конкурентной борьбы и ее накал: для удержания своей доли компания конкурирует с другими компаниями, предлагая свой продукт, показывая потребителю его конкурентные преимущества.

- Угроза выхода на рынок новых продуктов-заменителей, которые могут составлять альтернативу по цене или качеству

- Сила рыночной власти покупателей, которые могут диктовать цены и условия продажи/покупки продукта.

- Сила поставщиков, которые могут контролировать цены и/или влиять на качество поставляемых сырья, материалов или готовых товаров.

Взаимодействие между элементами модели "пяти сил" является основой для разработки корпоративной стратегии. Анализируя конкурентную среду отрасли, компании могут оценить конкурентный статус и потенциал будущего развития своей продукции, а также сформулировать соответствующие стратегии.

Ресурсы и возможности предприятия являются ключевыми факторами, влияющими на его конкурентоспособность . Теория ресурсной зависимости указывает на то, что для получения большего количества ресурсов и информации предприятиям часто необходимо взаимодействовать с другими компаниями, организациями или частными лицами; и эти обмены будут влиять на принятие стратегических решений предприятиями.

С точки зрения роли технологического развития организации очевидно, что от уровня ее инновационности напрямую зависят возможности компаний

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[161] Портер М. Конкурентное преимущество: как достичь высокого результата и обеспечить его устойчивость / Пер. с англ. — М.: Альпина Паблишер, 2016. — 715 с

отвечать на угрозы и риски внешней среды и достойно выдерживать конкурентную борьбу.

При выстраивании стратегии управленческая деятельность должна быть направлена на реализацию (внедрению) стратегии и своевременно корректироваться в соответствии с изменяющимися условиями внешней среды. Посредством анализа изменений во внешней среде предприятия анализируются внутренние условия и элементы управления предприятиями, а также определяются стратегические цели предприятия, чтобы можно было достичь динамического баланса между ними. Задачей стратегического управления является достижение стратегических целей предприятия при условии поддержания этого динамического баланса посредством разработки стратегии, ее реализации и повседневной управленческой деятельностью . Вместе с тем, для формулирования стратегических целей компании необходимо определить Видение (VISION) компании.

Исходя из понимания этой дефиниции в современной теории стратегического менеджмента, Видение – это будущие устремления компании, где определены ее цели и ценности на будущее. Это «картина желаемого будущего» компании, которая, как вектор, направляет бизнес компании и всех сотрудников, а также собственников и партнеров на достижение общего видения благодаря конкурентным преимуществам компании.

Стратегический подход к технологическому развитию ориентирован на долгосрочные перспективы – обычно на период от трех до пяти лет и более, и решения принимаются на самом высоком уровне управления (Совет директоров, Правления, Собрание акционеров). На уровне операционного менеджмента фокус смещен на краткосрочные и среднесрочные задачи внедрения технологий и инноваций, а решения могут приниматься линейными менеджерами как менеджерами среднего и низшего звена.

Стратегический менеджмент направлен на проактивное действия и инициирует изменения, в то время как оперативное управление ориентировано на реактивное управление, сосредоточено на текущих задачах для поддержания стабильности технологических операционных процессов. Фокус стратегического подхода к технологическим изменениям смещен на поддержание конкурентных преимуществ, разработку новых направлений бизнеса и долгосрочный инновационный рост[162].

Крупные высокотехнологичные международные компании в передовых отраслях производства (например, нефтехимии) осуществляют сознательный выбор стратегии технологического развития, анализирую известные стратегии, такие как:

[162] Друкер, Питер Ф.. Энциклопедия менеджмента. / Питер. Ф. Друкер. – М.: Изд. дом «Вильямс», 2015; Агарков С. А., Кузнецова Е. С., Грязнова М. О. Инновационный менеджмент и государственная инновационная политика.М.: Издательство: Академия Естествознания,2011.; Твисс, Б. Управление нововведениями. М.: Экономика, 2009. - 272 с

- *стратегия технологического прорыва (стратегия радикального опережения)* , основанная на разработке, внедрении передовых технологий и инноваций для формирования новых конкурентных преимуществ, основанных на технологических инновациях;

- *стратегия исследовательского лидерства,* основана на опережающем развитии подразделения НИОКР и вывода на рынок новых продуктов на основе внедрения технологических инноваций;

- *стратегия защиты технологических позиций,* предполагающая поддержание уровня инновационности продукции за счет постоянного обновления продуктового ряда в условиях, когда конкуренты уже осваивают технологии, основанные на ранее сделанных компанией инновациях;

- *стратегия технологического трансфера*, основанная на передачу уже освоенных инноваций в головной компании своим дочерним компаниям, работающих на зарубежных рынках;

- *стратегия технологической связанности продуктового ряда* характерна для компаний, которые выпускают технологически близкую продукцию и внедрение технологических инноваций в производства одного типа продукции влечет за собой их использование для производства всей линейки продукции.

Международные компании среднего и малого бизнеса, которые не относятся к сфере разработки инноваций (эксплеренты)[163] , делают выбор в пользу следующих стратегий[164]:

- стратегия поддержки продуктового ряда, когда улучшаются свойства выпускаемых традиционных товаров, не подверженных сильному моральному старению;

- стратегия ретро нововведений, применяемая к устаревшим, но пользующимся спросом и находящимся в эксплуатации продуктам;

- стратегия продуктовой и процессной имитации, которая основана на заимствовании технологий.

Для внедрения стратегий технологического развития важен уровень операционного менеджмента, поскольку менеджеры данного уровня претворяют в жизнь стратегические решения, которые направлены на оптимизацию текущих процессов и оперативное решение возникающих задач.

Заключение

Чтобы реализовать стратегию технологического развития, международные компании применяют несколько ключевых действий.

• Определение бизнес-целей

Это ключевой этап в развитии, который требует глубокого понимания текущего положения компании на рынке, её возможностей и потребностей.

[163] Эксплеренты - инновационные организации, специализирующиеся в создании радикальных, «прорывных» нововведений: новых продуктов и новых технологий во всех отраслях народного хозяйства
[164] Твисс, Б. Управление нововведениями. М.: Экономика, 2009. - 272 с

Для достижения целей бизнесу необходимо разработать чёткий план действий. В него также входит несколько шагов:

Это анализ состояния технологий, используемых в бизнесе - это требуется для того, чтобы определить, сколько всего нужно совершить изменений, определить размер стоимости, создать поверхностный план действий закупки и внедрения.

Это выбор новых технологий, которые требуется закупить для бизнеса. Их изучение, презентация для сотрудников.

Это подробное изучение и разработка поэтапного и пошагового плана внедрения для каждого из членов команд.

Это анализ дальнейших действий, оценка эффективности, постановка остаточных целей и задач.

Далее по ключевым действиям для реализации стратегии технологического развития:

• Разработка механизмов мониторинга и контроля за процессом внедрения

• Процесс внедрения

• Обучающие презентации, уроки и лекции для персонала

• Корректировка планов в зависимости от успеха внедрения технологий.

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СОДЕРЖАНИЕ ПРОИЗВОДСТВЕННОЙ СТРАТЕГИИ МЕЖДУНАРОДНОЙ КОМПАНИИ И ЕЕ РОЛЬ В СИСТЕМЕ СТРАТЕГИЧЕСКОГО ЦЕЛЕПОЛАГАНИЯ В УСЛОВИЯХ НЕСТАБИЛЬНОСТИ МИРОВОЙ ЭКОНОМИКИ

Аннотация. *Содержание производственной стратегии следует рассматривать в контексте общей корпоративной стратегии организации, формирующейся исходя из особой миссии предприятия. Производственная стратегия – это особая подсистема функциональных стратегий организаций.*

Ключевые слова: *услуги, продукт, стратегии, организации, бизнес.*

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THE CONTENT OF THE PRODUCTION STRATEGY OF AN INTERNATIONAL COMPANY AND ITS ROLE IN THE SYSTEM OF STRATEGIC GOAL SETTING IN THE CONTEXT OF INSTABILITY OF THE GLOBAL ECONOMY

Abstract. *The content of the production strategy should be considered in the context of the overall corporate strategy of the organization, formed on the basis of*

the special mission of the enterprise. The production strategy is a special subsystem of the functional strategies of organizations.

Keywords: *services, product, strategies, organizations, business.*

Миссия предприятия, как одно из ключевых понятий стратегического менеджмента, формулируется в виде заявление об основной цели и причине создания и последующего существования организации. Миссия провозглашает во внешней и внутренней среде организации , во имя чего создается организация, что делает организация, кому она служит и ее общие цели. По сути, она задает направление всех сторон деятельности организации и помогает менеджменту и собственникам сопоставлять ее действия с ее целями. Иными словами ,миссия служит компасом, направляющим решения и действия организации и доносит ценности, этику и цели организации до сотрудников, клиентов и других заинтересованных сторон.

Знание миссии помогает согласовать деятельность сотрудников и заинтересованных сторон с целью организации, способствуя общему пониманию и приверженности. Заявление о миссии обеспечивает основу для принятия стратегических решений, гарантируя, что они соответствуют основной цели организации.

Миссия как декларация о себе разрабатывается собственниками и топ-менеджерами предприятия. В управленческой литературе представлено мнение, что впервые это понятие было введено в механизмы управления японской компанией Matsushita Electric ее основателем Коносуке Мацусита в 1933 году[165].

Для японской культуры было характерно объявлять о том, что все, что делает бизнес – это служение во имя Общества и Императора. Закономерно, что Миссия этой компании декларировала:

«Служение обществу: производить высококачественные товары и услуги по разумным ценам, способствуя достижению благосостояния и счастья людей во всем мире.

Справедливость и честность: придерживаться честности и справедливости в бизнесе и в личной жизни.

Коллективный труд на общее благо: объединять усилия и стремиться к достижению общих целей на основе взаимного доверия и признания индивидуальной независимости.

Постоянное самосовершенствование: стремиться к улучшению корпоративных и личных обязательств, чтобы выполнить миссию фирмы по достижению прочного мира и процветания»[166].

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[165] Коттер Дж. Лидерство Мацуситы. Уроки выдающегося предпринимателя XX века. — М.: «Альпина Паблишер», 2011. — 256 с.; Seltzer, Judith B., Elizabeth Lewis, Fiona Nauseda, and Stephen Redding. Business Planning to Transform Your Organization/ The Manager (Boston)2003. vol. 12, no. 3, 2003, p.296.

[166] Коттер Дж. Лидерство Мацуситы. Уроки выдающегося предпринимателя XX века. — М.: «Альпина Паблишер», 2011. С.218.

С этого времени все компании, которые разделяли концепцию стратегического менеджмента обязательно при создании декларировали свою Миссию. В настоящее время все транснациональные компании провозглашают Миссию, но каждая компания уникальна, поэтому практически отсутствуют повторяющиеся формулировки Миссии. Приведем примеры:

- Компания Nike: «Приносить вдохновение и инновации каждому спортсмену в мире»),
- Компания Tesla: «Ускорить переход мира к устойчивой энергетике»
- Компания Google: «Организовать мировую информацию и сделать ее общедоступной и полезной»

Декларирование Миссии имеет свои преимущества и риски. Действительно, компании могут выиграть от наличия заявления о миссии. Оно описывает цели компании и ее положение в отрасли для ее клиентов, конкурентов и других заинтересованных сторон, а также помогает организации сосредоточиться и оставаться на верном пути, чтобы принимать правильные решения о своем будущем . Партнеры и инвесторы компании могут быть уверены, что компания полностью привержена достижению своих целей и поддержанию своих ценностей. Декларирование Миссии полезно для руководства и мотивации сотрудников, поддержания их в соответствии с ценностями компании.

Заявление о Миссии добавляет организации обоснованности и солидности, усиливает имиджевую составляющую маркетинговой деятельности компании. Оно демонстрирует, что компания хорошо знает свой бизнес и его основные цели, которых она хочет достичь. Компания демонстрирует вдумчивое лидерство, репутацию и вдохновение для потенциальных инвесторов, сотрудников или спонсоров[167].

К рискам следует отнести то, что декларирование Миссии очень возвышенным языком может сделать ее слишком нереалистичной, и это может отвлекать сотрудников от реальных целей компании. Менеджмент может настолько отвлечься на цели высокого уровня, что более краткосрочные, необходимые шаги для их достижения будут проигнорированы. Разработка заявления о Миссии может занять много времени и денег, даже если оно короткое. Ресурсы, потраченные на плохое заявление о миссии, можно было бы лучше потратить на что-то другое, что не приведет к потере возможностей. Сложность создания такого краткого заявления заключается в том, что у многих сторон часто есть идеи, и для многих из них нет места. Компании могут бороться с «словесной кузницей» или просто перестановкой слов вместо того, чтобы пытаться создать ценность.

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[167] Marta Mas-Machuca, Frederic Marimon. How the Mission Internalization Works? An Empirical Research. European Accounting and Management Review, 2020. № 7(1), PP. 1-27

В Миссии содержится указание на стратегические цели компании, которые реализуются посредством корпоративной стратегии, теоретическая проработка которой, согласно исследователям, относится к первой половине 1960-х гг. прошлого века.

В условиях осложнения внешней среды работы компаний, вызванной научно-технической революцией 50-60 годов и противостоянием двух систем послевоенного времени, резко возросла конкуренция в западном мире. В этих условиях начала формироваться концепция стратегического менеджмента, которая наиболее полное выражение получила в трудах И. Ансоффа, в частости в 1976 году вышла работа "От стратегического планирования к стратегическому менеджменту", в которой автор утверждал, что стратегический менеджмент надо рассматривать как особое направление управления крупным бизнесом, поскольку есть уровень ежедневных бизнес-решений и уровень долгосрочного планирования. По И. Ансоффу стратегия — это способ установления целей для корпоративного, делового и функционального уровней деятельности организации.

Однако ранее прообраз данной концепции применительно к крупному промышленному производству нашла свое отражение в работах Альфреда Чандлера, который определил «стратегию» как планирование и реализацию различных моделей роста для различных организационных форм и отделил понятия «стратегия» от понятия «структура». Согласно Альфреда Чандлера «стратегия» — это фиксирование долгосрочных целей и задач предприятия, а «структура» — организационная форма, направленная на ее реализацию посредством формирования порядка административного управления деятельностью организации и её ресурсами. В этой связи Альфред Чандлер утверждал, что именно стратегия определяет и формирует организационную структуру.

В работах А.Д. Стрикленда, А.А. Томсона [168] более четко прослеживается мысль о том, что необходимо относится к формированию стратегии не как к искусству управления, а как к формализованным шагам, которые приводят к достижению долгосрочных целей. Стратегия – это набор действий и подходов по достижению целей, которые определяются через заданные показатели деятельности.

Представитель Гарвардской Школы Бизнеса М. Портер определил стратегию способ реакции на внешние возможности и угрозы, внутренние сильные и слабые стороны [169]. В условиях нестабильности современной мировой экономики необходимо принимать соответствующие меры для стабилизации внутренней среды.

[168] Томпсон, А. А. Стратегический менеджмент : искусство разработки и реализации стратегии / А. А. Томпсон, А. Д. Стрикленд ; пер. с англ. под ред. Л. Г. Зайцева, М. И. Соколовой. – Москва : Юнити-Дана : Банки и биржи, 2017.

[169] Портер М. Конкурентное преимущество: как достичь высокого результата и обеспечить его устойчивость / Пер. с англ. — М.: Альпина Паблишер, 2016.

Особенности оперирования бизнес-структур в условиях нестабильности можно определять по-разному, с учетом конкретных классификационных признаков самих организаций – крупный, средний, малый бизнес, а учитывать совокупность факторов, формирующих специфику и уровень устойчивости внешней среды.

Экономическая устойчивость должна восприниматься с точки зрения е. макроэкономической перспективы и должна быть включена, по мнению М. Портера, в общую корпоративную стратегию предприятия.

Внутреннюю экономическую устойчивость следует рассматривать как состояние организационной системы, которая должна достигать или не достигать целей (оперативных и стратегических). Это состояние подвержено изменениям, определяемым внешней средой и внутренними механизмами в организации, в которых отдельные структурные подразделения ориентированы на развитие, а их деятельность должна приводить к состоянию равновесия в организации .

В современных условиях стратегическое управление в турбулентных, действия слабо непредсказуемых факторов становятся все более распространенным. Представители стратегического менеджмента предлагают различные направления его эволюции, зачастую радикально отличающиеся от предыдущих достижений. Экономическая практика дает все больше примеров неэффективности стратегического управления в ведущих организациях. Можно согласиться с тем, что, если у стратегического управления экономической устойчивостью есть будущее, то, похоже, его решает современный период .

На сегодняшний день не существует единственной общепризнанной школы стратегического менеджмента. Однако теория стратегического управления представляет концепции экономической устойчивости .Однако ни одна из данных концепций не получила всеобщего подтверждения экономической практикой, что было бы единственным объективным критерием, подтверждающим доминирование той или иной школы.

Вместе с тем, развитие практики стратегического управления привело к пониманию того, что экономическая устойчивость определяется активностью (высших) уровней стратегического управления и определяет условия поведения нижестоящих уровней. Эта двусторонняя связь, когда нижележащие уровни управления организацией оказывают влияние на деятельность вышестоящих уровней в части регулирования условий развития бизнеса. Отсюда следует, что оба уровня управления в организации определяют уровень экономической устойчивости самого бизнеса.

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ЗАКОНОМЕРНОСТИ НАУЧНО-ТЕХНОЛОГИЧЕСКОГО РАЗВИТИЯ СОВРЕМЕННОЙ НЕФТЕГАЗОВОЙ ПРОМЫШЛЕННОСТИ

Аннотация. *В статье рассмотрено технологическое развитие нефтегазовой отрасли в условиях санкционного режима. Отмечена значимость нефтегазового комплекса для технологического перевооружения, с целью сокращения зависимости от иностранных технологий.*

Ключевые слова: *нефтегазовый комплекс, энергетика, техника, технология, санкции, нефтегазовые компании.*

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PATTERNS OF SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT OF THE MODERN OIL AND GAS INDUSTRY

Abstract. *The article examines the technological development of the oil and gas industry under the sanctions regime. The importance of the oil and gas complex for technological re-equipment, in order to reduce dependence on foreign technologies, is noted.*

Keywords: *oil and gas complex, energy, equipment, technology, sanctions, oil and gas companies.*

Современная нефтегазовая промышленность является одним из крупнейших и наиболее влиятельных рынков, но сама отрасль остается относительно стабильной на протяжении последнего десятилетия. Быстрые технологические и экологические инновации вынуждают «старых» игроков рынка нефти и газа адаптироваться к новым вызовам и приводят к появлению новых стартапов.

В настоящее время развитые страны делают много рекламы в адрес зеленой энергетики. Она, по мнению отдельных исследователей, подготавливают почву для дальнейшего процветания данной индустрии и делают это через множество различных способов, например, через различные законодательные акты и прочее.

На настоящий момент количество поисковых запросов в интернете по слову «зеленая экономика» и похожим на него, увеличилось на 140% Поисковые запросы на тему «зеленая экономика» за последние 5 лет, происходил этот процесс в течение последних 5 лет, также мы ясно видим, что глобальные продажи экологического топлива на глобальных рынках растет достаточно быстрыми темпами.

Ажиотажный спрос на экологически «чистый» бензин привел к пониманию экономической выгодности «зеленой» энергетики[170].

В настоящее время нефтегазовый бизнес сталкивается с различными возможностями и трудностями, чтобы быть конкурентоспособным, эффективным и экологически ответственным бизнесом.

Технологические тенденции в нефтегазовой отрасли всегда были неотъемлемой частью расширения и развития этой важной отрасли, и теперь для предприятий нефтегазовой отрасли становится все более важным проявлять инициативу по внедрению передовых решений, чтобы оставаться впереди. Самые последние технологические разработки, которые влияют на будущее нефтегазового сектора и помогают заинтересованным сторонам в достижении операционного совершенства, оптимизации процессов и устойчивого роста, связаны в основном *с технологическими инновациями*. В настоящее время это цифровые технологии в нефтегазовой отрасли, которые выражаются в следующих новациях:

- Интернет вещей (IoT);
- Искусственный интеллект (ИИ);
- Большие данные и аналитика;
- Робототехника и автоматизация;
- Дополненная и виртуальная реальность;
- 3D-моделирование и визуализация;
- Блокчейн.

[170] Платонова Е.Д., Лю Цзэнбяо, Сильченков В.А. О концепции устойчивого экономического роста предприятий и ее роли в формировании ESG-стратегии коммерческих организаций в современной экономике// Финансовый бизнес. 2024.№ 8.С.42-46.

IoT используется в нефтегазовом секторе для повышения производительности, оптимизации работы оборудования, обеспечения безопасности работников и мониторинга удаленных объектов. С помощью технологий IoT нефтегазовые предприятия могут сократить расходы на обслуживание и получить полную информацию о своем оборудовании или процессах. Объединяя датчики, оборудование и гаджеты для сбора данных в режиме реального времени, IoT совершает революцию в нефтегазовой отрасли. Это делает возможным удаленный мониторинг, проактивное обслуживание и оптимизацию бизнес-процессов.

Решения IoT используются для оптимизации цепочки поставок, управления безопасностью, отслеживания активов и мониторинга трубопроводов.

Zyfra - финская компания, которая использует собственную облачную IoT-платформу для разработки промышленных цифровых решений для нефтегазового сектора. Одной из платформ для разработки IoT-решений для нефтегазовой отрасли является Geonaft. Платформа, помимо прочего, предлагает предиктивное обслуживание, искусственный подъем и точное бурение.

Для оптимизации процедур разведки и добычи такие технологические направления в нефтегазовой отрасли, как искусственный интеллект и машинное обучение, используются для анализа огромных объемов данных из различных источников, включая датчики, беспилотники и сейсмическую съемку.

Эти технологии могут повысить эффективность оптимизации буровых операций, прогнозного обслуживания и моделирования пластов. В нефтегазовом секторе для решения сложных задач, связанных с добычей, переработкой и сбытом, все чаще используются ИИ и наука о данных. Платформы с искусственным интеллектом помогают принимать решения, предоставляя информацию из прогнозной, предписывающей и когнитивной аналитики [171]. Чтобы повысить рентабельность инвестиций, ИИ помогает инженерам-нефтяникам и менеджерам нефтегазового сектора находить и внедрять на практике новые концепции в области разведки и добычи. Компания Neudax, базирующаяся в США, предлагает нефтегазовой отрасли решения в области ИИ. Компания помогает инженерам на месторождениях развивать свои способности более компетентно и эффективно.

Нефтегазовый сектор производит огромные объемы данных. Чтобы извлечь из этих данных полезную информацию, используются сложные методы анализа данных, такие как анализ больших данных. Эти данные помогают оптимизировать производство, сократить время простоя, повысить безопасность и сократить расходы. Кроме того, историческая информация о

[171] Платонова Е.Д., Соловых Н.Н. Преимущества и риски использования искусственного интеллекта: подходы зарубежных исследователей / Пространственная экономика: проблемы экономических структур . Материалы II Международной научной конференции. г. Москва, 13 декабря 2024 года / Под ред. проф. Платоновой Е.Д., доц. Игумнова О.А. – Москва: Издательство «Перо», 2025. – 234 с. С.138-149.

предыдущих операциях помогает в обучении и тестировании алгоритмов и моделей, основанных на искусственном интеллекте. Нефтегазовый бизнес получает большую выгоду от рутинного выбора в пользу экономии операционных расходов за счет использования больших данных и аналитики.

Британская компания Phoenix RDS использует большие данные и аналитику для бурения, добычи и ликвидации последствий наводнений. Phoenix RDS предлагает методы оптимизации повышения нефтеотдачи (ПНП) в дополнение к методологии моделирования пластов.

Такие важнейшие технологические тенденции в нефтегазовой отрасли, как современные автоматизированные системы и роботизированные комплексы, сводят к минимуму необходимость физического труда при выполнении рискованных или сложных работ, повышая эффективность и безопасность. Нефтегазовый сектор использует автоматизацию и робототехнику для повышения эффективности и безопасности. На опасных участках роботы используются для осмотра, обслуживания и очистки оборудования. В бурении, мониторинге трубопроводов и добыче используются автоматизированные системы. Голландский стартап EXRobotics создает различные виды роботов, которые работают на прочных промышленных объектах и в суровых условиях.

Расширенная реальность (XR), смешанная реальность (MR) и дополненная и виртуальная реальность (AR/VR) — все это примеры тенденций иммерсивных технологий в нефтегазовой отрасли. В нефтегазовом секторе эти технологии используются для обучения, моделирования и визуализации.

С помощью этих технологий сотрудники могут проводить удаленные проверки, получать информацию в реальном времени и учиться в безопасной виртуальной среде.

Компании в секторе разведки и добычи (E&P) используют технологии дополненной реальности (AR) для виртуального обучения, визуализации скважин и удаленного мониторинга. Кроме того, стартапы в нефтегазовой отрасли интегрируют физические и цифровые миры для обеспечения взаимодействия человека и машины с помощью носимых устройств и уведомлений смартфонов. Индийская компания Previse Studio предоставляет решения VR для производства и производителей оригинального оборудования (OEM) в секторах обработки. Чтобы имитировать реальную среду для пользователей в рамках проектов по новым месторождениям, старым месторождениям и реконструкции, фирма предлагает VR и AR для визуальной коммуникации.

Создание реалистичных изображений нефтегазового оборудования стало возможным благодаря 3D-моделированию и превосходной визуализации. 3D-моделирование имитирует этапы добычи и закачки в течение всего срока службы пласта в сочетании с историческими данными о добыче. Это облегчает прогнозирование проблем, влияющих на безопасность пласта. Инженеры нефтегазовой отрасли оптимизируют планирование добычи и эксплуатации на основе полученных данных. Кроме того, 3D-моделирование и визуализация повышают производительность нефтегазовых активов, снижая затраты и уменьшая риски.

Благодаря своей способности повышать безопасность, эффективность и прозрачность транзакций технология блокчейн завоевывает все большую популярность в нефтегазовой отрасли. Она может использоваться для ускорения таких процедур, как отслеживание и подтверждение прав собственности на активы, выплата роялти и обеспечение соответствия цепочке поставок. Смарт-контракты обеспечивают безопасность и прозрачность, которых так не хватает в нефтегазовых документах и операциях. Распределенные бухгалтерские книги обрабатывают смарт-контракты и проверяют подрядчиков и работников. Кроме того, блокчейн позволяет нефтегазовым компаниям автоматизировать учет совместных предприятий, расчеты после заключения сделок и выставление счетов.

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СУЩНОСТЬ, ПРИНЦИПЫ И ФУНКЦИИ ФАКТОРИНГА

Аннотация. *Факторинг - это организационное и финансовое обслуживание постоянного кредитования товаров поставщиком регулярного круга покупателей. Факторинг - эффективный инструмент увеличения финансов инновационных предприятий.*
Ключевые слова: *факторинг; инновационная деятельность; финансирование, компании.*

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THE ESSENCE, PRINCIPLES AND FUNCTIONS OF FACTORING

Abstract. *Factoring is an organizational and financial service for the permanent crediting of goods by a supplier to a regular circle of buyers. Factoring is an effective tool for increasing the finances of innovative enterprises.*
Keywords: *factoring; innovative activity; financing, companies.*

Исторически факторинг стал активно развиваться в Англии в 14 веке, что было непосредственно связано с развитием новых отраслей нарождающейся промышленности в результате промышленной революции. В то время рынки сбыта были удалены от мест производства продукции, факторы (финансовый агент) играли роль связующего звена между производственными предприятиями и конечными покупателями продукции 172 . Перед фактором, знавшим товарный рынок, платежеспособность покупателей, законы и торговые обычаи данной страны, ставились задачи поиска надежных покупателей, хранения и сбыта товара, а также последующего инкассирования торговой выручки.

Большое количество факторинговых компаний возникло в конце 19 века в США. Они являлись агентами «делькредере» немецких и английских поставщиков одежды и текстиля, а в силу больших расстояний между населенными пунктами в Америке и различий в законодательствах разных штатов предоставляли услуги местным производителям. Делькредере гарантировали оплату всех товаров. В качестве компенсации риска неплатежа они взимали дополнительное комиссионное вознаграждение. С ростом факторинговых компаний к вышеперечисленным услугам добавилась функция финансирования поставщика продукции.

В Европе факторинг получил широкое развитие начиная с 50-х годов 20 века. В этот период предприятия стали все активнее применять рассрочку платежа при поставках товаров своим контрагентам. Такая практика была обусловлена двумя основными причинами. С одной стороны, постепенно по ряду товарных групп начал формироваться устойчивый «рынок покупателя», где покупатели стали определять основные условия торговых сделок, настаивая на использовании рассрочки платежа. С другой стороны, многие покупатели в то время испытывали недостаток свободных денежных средств и предпочитали сначала продать товар конечному потребителю (или превратить закупленную продукцию в конечный продукт), а затем уже расплачиваться с собственными поставщиками. Таким образом, покупатели предпочитали пользоваться коммерческим кредитом, а не брать кредит в банке, что связано с множеством формальностей, носит ограниченный характер (т.е. каждый раз при возникновении потребности в дополнительных заемных средствах нужно обращаться за новым кредитом) и не всегда возможно.

В различных источниках можно встретить несколько различных определений факторинга. Факторинг – это особая форма краткосрочного финансирования, связанная с кредитованием оборотного капитала [173] . В настоящее время это универсальная система, обслуживающая как экспортную, так и внутреннюю деятельность поставщиков [174] . Основой факторинга является передача факторинговой компании неоплаченных платежных требований, возникающих в процессе реализации товаров и услуг

[172] Абрютина, А.М. Экономический анализ товарного рынка и финансово-хозяйственной деятельности. – М.: Дело и Сервис, 2018. – 464с.
[173] Бурлачков В.К. Денежные механизмы глобальной и национальных экономик / В.К. Бурлачков. М.: ЛЕНАНД, 2019. – 256 с.
[174] Герасименко А. Финансовый менеджмент – это просто: Базовый курс для руководителей и начинающих специалистов / А.Герасименко. – М.: Альпина Паблишер, 2017. – 479 с.

и предоставления факторинга[175]. Компании, выдавшей коммерческий кредит, невыгодно ждать, пока клиент рассчитается. Тогда поставщик может воспользоваться предложениями организации, оказывающей факторинговые услуги, выкупая обязательства перед поставщиками за определенную плату[176]. Также могут быть переданы следующие функции: учет долга, взыскание и риски, связанные с неплатежеспособностью должника. Таким образом, факторинг – это операция по продаже дебиторской задолженности компании.

Специализированная факторинговая компания в течение 2 – 3 дней выплачивает аванс, который составляет 70 – 90% необходимых средств, остальные средства поступают после получения оплаченного счета. Исходя из этого, факторинг – это передача долгов (денежных требований) предприятия (продавца) банку, лизинговой или факторинговой компании на основании счетов-фактур, выставленных продавцом за проданные товары или оказанные услуги. При этом за проданные товары или оказанные услуги деньги получают сейчас, а не в будущем.

Экономист Шелепов В.Г. считает, что факторинг – это форма торгового финансирования, аналогичная по своей природе переводному кредиту, то есть смена кредитора. В результате банк выкупает дебиторскую задолженность клиентов и взыскивает ее в свою пользу. Факторинговые компании (аналог лизинговых компаний) в большинстве случаев создаются при банках. Такие финансовые учреждения оценивают платежеспособность каждого клиента (должника) и предоставляют ему кредитный лимит. Факторинговые компании управляют дебиторской задолженностью, берут на себя весь риск неплатежеспособности покупателя (должника) и немедленно производят расчеты со своими клиентами.

Согласно Шеремету А.Д., Сайфулину Р.С. и Негашеву Е.В. по договору факторинга одна сторона (финансист) передает или обязуется передать деньги другой стороне (клиенту) в обмен на деньги клиента,денежное требование (кредитора), связанное с реализацией товара, выполнением работ или оказанием услуг, третьему лицу (заемщику), а клиент уступает или обязуется уступить финансисту денежное требование к заемщику (финансирование с условием уступки денежного требования) и выплатить указанное в договоре вознаграждение[177]. Согласно принятым положениям, финансистом по договору факторинга может быть только банк или иное коммерческое юридическое лицо, имеющее право осуществлять факторинговую деятельность в соответствии с законом[178]. Поэтому, заключая с финансистом

[175] Головнин М. Ю. Теоретические основы денежно–кредитной политики в условиях глобализации . – М.: Институт экономики РАН, 2008. – 48 с.
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[177] Шеремет, А.Д., Сайфулин, Р.С., Негашев, Е.В. Теория финансового анализа. – М.: ИНФРА-М, 2019. – 208 с.
[178] Донцова, Л.В., Никифорова Н.А. Анализ финансовой отчетности. – М.: ДиС, 2018. – 144с.

договор передачи (факторинга) долговых обязательств, компания должна убедиться в том, имеет ли финансист право осуществлять факторинговую деятельность. Если финансист не является банком, компания должна обратиться к нему с просьбой предоставить документы, подтверждающие право на осуществление факторинговой деятельности.

В соответствии с точкой зрения О. Говтвань факторинг – комплекс услуг, основанный на передаче денежного требования (долга) факторинговой компании, он включает в себя:

- торговое финансирование;
- управление счетами клиентов и дебиторской задолженностью;
- оценка и снижение риска платежеспособности покупателя.

Участниками факторинговых отношений являются финансист (в международной практике используется понятие фактора), клиент (кредитор) и заемщик. Следует подчеркнуть, что финансистом может быть только банк или иное коммерческое юридическое лицо, имеющее право осуществлять факторинговую деятельность в порядке, установленном законодательством. Проще говоря, факторинг – это передача права требования погашения долга от заемщика к финансисту, когда финансист, выплатив кедитору (клиенту) большую часть долга должника, приобретает право требования к должнику. Например, компания (кредитор/заказчик) продает товар другой компании (должнику) и устанавливает в договоре купли-продажи срок оплаты проданного товара в течение 30 дней. Через 10 дней кредитору необходимы денежные средства, но их пока нет, поскольку должник имеет право погасить долг еще через 20 дней. В этом случае кредитор может обратиться в банк, оказывающий факторинговые услуги, и после заключения факторингового договора получить до 90% в течение 24 часов неоплаченные суммы компании-должника.

Формирование дебиторской задолженности должно основываться на реальных контрактах на продажу товаров или оказание услуг между покупателями и продавцами. Когда факторинговые компании ведут факторинговый бизнес, им необходимо строго проверять подлинность основного договора о сделке, чтобы обеспечить эффективность факторинговых услуг.

1. Принцип кредитования

В факторинговом бизнесе факторинговая фирма проводит оценку кредитоспособности дебиторской задолженности, предоставленной продавцом, и предоставляет услуги по финансированию и гарантированию кредита на основе результатов оценки. Таким образом, факторинговый бизнес должен следовать принципу кредитования, обеспечивать качество дебиторской задолженности и снижать кредитный риск.

2. Принцип справедливости

Когда факторинговые дилеры, а также покупатели и продавцы ведут факторинговый бизнес, они должны следовать принципу справедливости и защищать законные права и интересы всех сторон.В договоре факторинга должны быть четко прописаны права и обязанности всех сторон и обеспечиваться справедливость и рациональность условий договора.

3. Принцип эффективности

Факторинговый бизнес должен обеспечивать эффективную работу и предоставлять быстрые и удобные финансовые услуги [179] .Факторинговые компании должны оптимизировать бизнес-процессы и повышать эффективность обработки данных, чтобы удовлетворить потребности покупателей и продавцов в финансировании и управлении дебиторской задолженностью.

Обратимся к функциями факторинга. К ним относятся:

– финансирование путем передачи права требования;

– учет, администрирование и контроль дебиторской задолженности клиентов;

– оценка кредитного риска;

– сбор;

– принятие риска факторинга;

– консалтинг;

– другие функции, связанные с торговлей.

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СТРАТЕГИЯ ВЫХОДА СОВРЕМЕННОЙ ОРГАНИЗАЦИИ НА МЕЖДУНАРОДНЫЕ РЫНКИ: РОЛЬ В СИСТЕМЕ СТРАТЕГИЧЕСКОГО ЦЕЛЕПОЛАГАНИЯ

Аннотация. *В статье анализируются инструменты стратегического анализа, которые применяют зарубежные исследователи для обоснования стратегической целесообразности выхода компании на международный рынок.*
Ключевые слова*: стратегии выхода, международные рынки, санкционная война, внешнеэкономическая деятельность.*

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MODERN ORGANISATION'S STRATEGY FOR ENTERING INTERNATIONAL MARKETS: ROLE IN THE SYSTEM OF STRATEGIC GOAL-SETTING

Abstract. *The article analyzes the tools of strategic analysis that are used by foreign researchers to substantiate the strategic feasibility of a company's entry into the international market.*
Keywords: *exit strategies, international markets, sanctions war, foreign economic activity.*

Введение

Многие компании, успешно работающие на национальном рынке, для расширения бизнеса стремятся к выходу на внешние рынки. Внешнеэкономическая деятельность компаний стран, принимающих участие в партнерстве БРИКС, получила дополнительный импульс для роста доходности, укрепления конкурентных позиций, привлечение покупателей, узнаваемость бренда компаний[180].

Достижение регионального или глобального лидерства, требует географического расширения деятельности компании, необходимости ее выхода на новый рынок. Целью работы является установление роли в системе стратегического целеполагания как элемента формирования стратегии выхода современной организации на международные рынки.

Методы и исследования. В статье использовались диалектический и системно-структурный подходы, теоретические методы (абстракция, анализ, синтез, генерализация, конкретизации, сопоставления и сравнения), эмпирические методы (измерения, наблюдение), методы статистики, метод исследования научных источников.

Результаты исследования

Вопросами освоения новых рынков компаниями занимались отечественные исследователи Логинова Т.В., Подковырков П.А., Михалева А.А., Тищенко А.А., Гончарова С.Н. и др.

Стратегии компаний, факторы, влияющие на результативность деятельности компаний на внешних рынках, рассматривались зарубежными учеными - Висвизи А., Диврико Б., Уотсоном Дж.Ф., Уивеном С., Перкинсом Х., Сардана Д., Палматье Р. и другие. Австрийский исследователь Й. Шумпетер считал, что для получения прибыли нужно выполнять, в том числе, «новые комбинации», а значит, развиваться. Выход на внешний рынок как раз и является для компании «новой комбинацией»[181].

Анализ научных публикаций показывают, что в свою очередь успех внешнеэкономической деятельности ведет к активизации инновационных процессов компании и страны ее происхождения.

Выход на внешние рынки является довольно сложным процессом. Без опыта успешной деятельности на внутреннем рынке, крайне сложно будет осуществить такой выход, поэтому чаще всего внешнеэкономическую деятельность начинают хорошо зарекомендовавшие себя на национальном рынке компании.

Выход на международный рынок – это даже для опытных национальных компаний очень серьезный шаг. Прежде всего, следует

[180] Платонова Е.Д. Лю Хуа Стратегия внешнеэкономической деятельности компаний: теория и практика в современных условиях/ Символ науки.2024. № 5 (2) ч.1 .С.150-154. https://cyberleninka.ru/article/n/strategiya-vneshneekonomicheskoy-deyatelnosti-kompaniy-teoriya-i-praktika-v-sovremennyh-usloviyah

[181] Литвинцева Г.П., Иващенко А.А., Арбатский Д.В., Колмагоров А.В. Стратегии выхода российских организаций на международные рынки в изменившихся внешнеэкономических условиях. Идеи и идеалы 2024 - Том 16 - № 2, часть 2 https://ideaidealy.nsuem.ru; https://ideaidealy.nsuem.ru/storage/uploads/2024/06/6.Litvintseva.332-351.pdf .

осознать причины выхода на внешние рынки. Такими основными причинами для компаний могут быть:

- расширение клиентской базы (продукт компании может заинтересовать зарубежных покупателей, т.к. всегда новые рынки – это новые клиенты);
- увеличение прибыли (из-за более высокой покупательской способность на международных рынках);
- достижение конкурентного преимущества за счет реализации ключевой компетенции (выход на внешний рынок повышает статус и имидж компании);
- снижение рисков (диверсификация бизнеса позволяет избежать зависимости от конъюнктуры одного рынка; за счет других рынков можно будет компенсировать потери на каком-то одном рынке).

В современных условиях многие компаний стремятся освоить внешние рынки не только для диверсификации своей деятельности, но и для снижения производственных и трансанкционных издержек, освоения новых сфер деятельности и отраслей, роста стоимости компании.

Кроме того, в условиях международной нестабильности у компаний имеются веские причины выхода на международные рынки. Это:

- наполнение внутреннего рынка аналогичными товарами и жесткая конкуренция;
- расширение географии продаж компании после укрепления позиций на отечественном рынке;
- кризисная ситуация внутри страны.

Компании, выходящие на международный рынок, ставят следующие задачи:

- рост стоимости бизнеса, если это невозможно сделать на отечественном рынке из-за перенасыщения схожими товарами или товарами-субститутами;
- минимизация рисков убытков в случае кризисной ситуации в стране происхождения;
- захват некоторой доли зарубежного рынка,
- создание собственной компании в качестве дочерней компании путем приобретения имеющегося бизнеса или путем создания нового.

Для выхода на зарубежные рынки компаниями выбирается определенный способ и соответствующая стратегия. Причем практика показала, что многие компании потерпели неудачу при выходе на внешние рынки из-за того, что недооценили такие факторы влияния, как экономическая ситуации в стране выхода; культурные различия; неверно оценили стратегические альтернативы и ошиблись в выборе стратегии.

В настоящее время выделяют несколько стратегий выхода на зарубежные рынки: экспорт; совместное предприятие; иностранное производство; партнерство; покупка иностранной компании; лицензирование; аренда или лизинг. Остановимся на характеристике некоторых из них:

1. Экспорт товаров и услуг [182]. Это один из самых простых и распространенных способов выхода, который представляет продажу произведенной в стране продукции на зарубежных рынках. Его преимуществами называют быстроту выхода на рынок и незначительный размер капиталовложений за рубежом. Вместе с тем у стратегии есть и свои недостатки. Это: наличие торговых барьеров и недостаточная ориентация на международном рынке.

Стратегия экспорта включает три варианта:

- прямой экспорт, при котором компания самостоятельно занимается вывозом и реализацией товара за границей. Для этого компания использует такие способы как контрактное производство, создание представительства, организация дочерней компании. Все без исключения бизнес-процессы, компания осуществляет сама, самостоятельно устанавливает личный контакт с потребителями и мониторит всю свою деятельность. В этом и кроется преимущество данной стратегии;
- косвенный экспорт осуществляется через посредников, и это вполне оправданно, т.к. они владеют всей ситуацией на внешних рынках, имеют устойчивые связи для сбыта продукции. Проблема заключается в том, что персонал компании лично не контактирует с потребителями, не сразу получает обратную связь об отношении клиентов к своей продукции;
- при совместном экспорте объединяются две и более компании, создавая новое предприятие, тем самым минимизируя риски выхода на новые рынки. Без объединения усилий они никогда не смогли бы этого сделать.

2. Совместная предпринимательская деятельность. В этом случае создается партнерство, т.е. объединяются усилия нескольких компаний разных стран для достижения требуемых производственных возможностей. В качестве преимуществ этой стратегии выступают возможность выхода на зарубежные рынки без наличия достаточного количества собственных ресурсов, возможность получения высокой прибыли за счет низкой стоимости местных ресурсов. Недостатком могут стать разногласия партнеров в отношении политики управления, инвестиционной деятельности, маркетинговых программ, распределения прибыли и др.

3. Лицензирование и франчайзинг. Франчайзинг является одним из подвидов лицензирования. Это особый вид бизнеса, когда крупная известная компания предоставляет другой лицензию на использование своей торговой марки, методов ведения бизнеса, продажу продукции на определенной территории. К преимуществам стратегии можно отнести минимальные финансовые вложения и отсутствие таможенных барьеров. К недостаткам – сложности со сменой поставщика, продажей бизнеса при необходимости, установленный срок действия договора и территориальная ограниченность.

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[182] Лузянин М.А. Ключевые аспекты процесса выхода компании на международные рынки. https://esj.today/PDF/12ECVN522.pdf Вестник Евразийской науки The Eurasian Scientific Journal 2022, №5, Том 14 2022, No 5, Vol 14.

4. Контрактное производство. Это договор о сотрудничестве с независимым предприятием, которое производить продукцию для заказчика. Эта стратегия выгодна тем компаниям, у которых не хватает средств или времени для осуществления процесса производства. Здесь важно выбрать надежного партнера. В противном случае могут возникнуть проблемы с качеством продукции, соблюдением сроков производства и поставок, логистикой, координацией действий контрагентов. Зависимость от производителя может создать дополнительные риски, связанные с потерей контроля над ним в случае изменения его стратегии.

5. Совместные предприятия. Это компании, которые создаются на основе совместной собственности, совместного использования ресурсов. Они более эффективны, т.к. лучше адаптируют национальное производство под мировые стандарты. Недостатком их деятельности можно назвать возможность появления конфликтов при согласовании решений и обязательств, отсутствие необходимой для этого гибкости.

6. Создание собственного предприятия на внешнем рынке. Компания инвестирует в создание предприятия, организует процесс производства, получая опыт работы на международных рынках, полностью распоряжается полученной прибылью. Соответственно, эта стратегия требует значительных вложений, а выход на внешний рынок не будет быстрым. Существуют и другие варианты выхода компаний на внешние рынки, например, поглощение или покупка иностранной компании.

Компании, выходящие на внешние рынки, отличаются друг от друга по целям, ресурсам, возможностям и т.д. Исходя из этого, ученые предлагают разные классификации стратегий выхода на внешние рынки. Многие сходятся во мнении, что наименее рискованным является косвенный экспорт, затем по мере возрастания риска следуют прямой экспорт, лицензирование, совместные предприятия и прямое инвестирование.

Большинство ученых склоняется к мнению, что одним из наиболее рискованных стратегий внешнеэкономической деятельности является осуществление международных инвестиций, но в то же время инвестиционная деятельность за границами национальных рынков повышает конкурентоспособность компаний и способствует расширению их ресурсной базы[183].

Заключение

В целом активное участие компаний в международной деятельности способствует развитию потенциала национальной экономики и приводит к ускорению ее развития. Компаниям, желающим выйти на внешние рынки, однако для выбора стратегии необходимо серьезно анализировать все возможные риски, аргументировано подходить к определению доли рынка

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[183] Платонова Е.Д., Аюэр Айни. О механизме управления инновационной деятельностью в современных корпорациях/Экономика и социум. 2022. № 8 (99) С. 471-477.https://cyberleninka.ru/article/n/o-mehanizme-upravleniya-innovatsionnoy-deyatelnostyu-v-sovremennyh-korporatsiyah

для внедрения и прогнозирования потенциальной прибыли, а для реализации выбранной стратегии – пройти последовательно соответствующие этапы, включая первоначальный этап – обоснование целесообразности

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КОНЦЕПТУАЛЬНЫЕ ОСНОВЫ РИСК-МЕНЕДЖМЕНТА ВО ВНЕШНЕЭКОНОМИЧЕСКОЙ ДЕЯТЕЛЬНОСТИ МЕЖДУНАРОДНОЙ ОРГАНИЗАЦИИ

Аннотация. *В данной статье рассматриваются особенности оценки и управления рисками организации в условиях внешнеэкономической деятельности. Рассматриваются различные методы и способы оценки риска. Анализируются основные характеристики, задачи риск-контроллинга, определяются критерии его эффективности.*

***Ключевые слова*:** внешнеэкономическая деятельность, управление, инвестиционный риск, бизнес.

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CONCEPTUAL BASIS OF RISK MANAGEMENT IN FOREIGN ECONOMIC ACTIVITIES OF AN INTERNATIONAL ORGANIZATION

Abstract. *This article examines the features of risk assessment and management of an organization in the context of foreign economic activity. Various methods and ways of risk assessment are considered. The main characteristics and* *tasks of risk controlling are analyzed, and the criteria for its effectiveness are determined.*

Keywords: *foreign economic activity, management, investment risk, business.*

Введение

Теория управления рисками в бизнесе подразумевает выявление, оценку и смягчение потенциальных угроз достижению корпоративной цели и задачам международной организации. Риск-менеджмент – это систематический процесс управления неопределенностью с целью минимизации негативных последствий и максимизации возможностей для бизнеса. Цель статьи - определить концептуальные основы риск-менеджмента во внешнеэкономической деятельности международной организации.

Методы и исследования**.** В статье использовались системный подходы общетеоретические методы: анализ и синтез, абстракции и конкретизации, сопоставления и генерализации, а также статистические методы обработки данных.

Результаты исследования

Исторически были выработаны следующие основные концепции риск-менеджмента:

Полезность: фокусируется на размере эффектов различных результатов в принятии решений.

Регрессия: использует статистические методы для прогнозирования колебаний бизнес-цикла и других событий, связанных с риском.

Диверсификация: Нацелена на снижение риска путем распределения инвестиций по различным активам или видам деятельности.

Целостный подход - управление рисками предприятия (ERM): рассматривает все риски вместе в рамках скоординированной структуры, а не управляет ими по отдельности.

Подход - управление, риск и соответствие (GRC): Управление рисками является неотъемлемой частью стратегии GRC организации, обеспечивая внедрение передовых практик в условиях постоянно меняющегося нормативного ландшафта.

Рассмотрим более подробно содержание каждой концепции. Концепция полезности была впервые предложена в 1738 году Даниилом Бернулли, в результате чего в процессе принятия решений людям приходится больше внимания уделять размеру эффектов от различных рисков. Данная концепция описана в работах М. Балмера .

Использование регрессии началось в конце XIX века. Позднее было доказано, что правило регрессии действует в самых разных ситуациях, начиная от расчета вероятности рисков и заканчивая прогнозированием колебаний делового цикла.

Математическое обоснование стратегии диверсификации инвестиционного портфеля было предложено Г. Марковицем в 1952 году[184]. Он показал разумное распределение инвестиций для минимизации отклонения от ожидаемой нормы доходности. В настоящее время организацией системы управления рисками в сфере профессиональной деятельности продолжают заниматься специалисты в различных областях, а сам процесс описан Хаббардом Дугласом, Марком Дорфманом, Александром Будзиером и Фливбьергом Б.[185] и др.

Целостный подход ERM к управлению рисками впервые появился в 1990-х годах и был официально оформлен в 2004 году Комитетом спонсорских организаций Комиссии Тредуэя (COSO).

COSO выпустила руководство по построению эффективного управления рисками предприятия, стремясь поддержать менеджеров на всех уровнях принятия решений и планирования. Основные аспекты COSO:

Управление рисками (COSO ERM): Эта модель, разработанная COSO, помогает компаниям выявлять, оценивать и управлять всеми видами рисков, связанных с их деятельностью. Модель включает:

Внутренний контроль (COSO Framework): COSO Framework предлагает структуру для разработки и оценки системы внутреннего контроля, обеспечивающей разумную гарантию достижения целей организации.

Мошенничество: COSO также занимается разработкой рекомендаций по противодействию мошенничеству в организациях.

Структура COSO: Модель COSO включает пять взаимосвязанных компонентов: контрольная среда, оценка рисков, контрольные процедуры, информация и коммуникации, мониторинг.

Практическое применение: COSO Framework используется публичными компаниями, зарегистрированными в SEC, для построения и оценки эффективности системы внутреннего контроля при подготовке финансовой отчетности.

Интегрированный подход по управлению рисками – это такой процесс, который состоит из нескольких этапов. Разные авторы придерживаются разного мнения в отношении процесса управления рисками. Ван Ставерен (2009)[186] указывает, что процесс управления рисками содержит несколько стадий:

- Определение целей
- Определение рисков
- Их оценка
- Определение альтернатив
- Этап реализации проекта.

[184] Markowitz H.M. Selected Works. World Scientific-Nobel Laureate Series /Hackensack, World Scientific, New Jersey, 2009.

[185] Flyvbjerg B., Budzie A. Harvard Business Review. 2011. № 89(9), p. 601-603.

[186]Van Staveren, Martin. Risk Innovation and Change// The Netherlands: Ipskamp Drukkers, B.V., Enschede, 1999 – P.187-192

Во многих источниках указывается, что наибольшее значение имеет первый шаг, когда организации нужно поставить цель в рамках программы по управления рисками[187]. Выбор компанией первого решения происходит на основании анализа того, как эффективно работает программа по управлению рисками. При этом нужно определить цели, которые имеют значение для компании, а программа управления рисками должна быть уникальной.

Постановка цели может быть связана с применением средств для развития организации и снижением затрат. Так, важно учитывать чистые риски, поскольку сотрудники должны быть защищены от несчастных случаев, ведь они могут стать причиной травм. Важно, чтобы цели в рамках программы управления рисками соответствовали «корпоративной политике управления организационными рисками» .

Второй шаг – это идентификация: Выявление потенциальных рисков, включая угрозы международным рынкам, политическую нестабильность, провалы проектов, правовые обязательства и стихийные бедствия. нужно выявить риски, с которыми может столкнуться компания в ходе управления сотрудниками.

Этап определения рисков связан с использованием ряда инструментов, включая анкеты для анализа рисков, внутренние документы компании, документы по страхованию рисков, блок-схемы различных процессов и анализ финансовых расходов компании.

На этапе оценки вероятности и влияния этих рисков производится определение размера возможного убытка и вероятности наступления события, риски нужно разделить в зависимости от степени их важности. Этап оценки дает важную информацию о рисках, эта информация показывает, каким рискам нужно уделить больше всего внимания. Оценка вероятности и влияния этих рисков[188].

Следующий этап процесса управления рисками – определение стратегии для борьбы с тем или иным видом риска. На данном этапе процесса управления рисками определяются проблемы процесса принятия решений, при этом компании нужно правильно подобрать стратегию по управлению рисками. Важна приоритезация: Определение того, какие риски требуют наибольшего внимания и ресурсов[189].

На стадии реализации происходит воплощение ранее принятых решений. Завершающая стадия – оценка процесса управления рисками, когда запускается процедура проверки, определяется выполнение поставленных целей. Мониторинг и контроль: постоянное отслеживание рисков и корректировка стратегий по мере необходимости.

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[187] Рязанов И.Е. Теоретический обзор категории «риск-менеджмент» в контексте современного управления коммерческими организациями // Проблемы современной экономики : материалы II Междунар. науч. конф. (г. Челябинск, октябрь 2012 г.). — Челябинск : Два комсомольца, 2012. С. 181-184.

[188] Гранатуров В.М. Экономический риск: сущность, методы измерения, пути снижения. Москва : Дело и сервис, 2010. 208 с.

[189] Клейнер Р. Риски промышленных предприятий (как их уменьшить и компенсировать) // Российский экономический журнал. 1994. № 5/6. С. 85-92.

Важность управления рисками обусловлена многими обстоятельствами. К их числу следует отнести:

Защита организации: Минимизация потенциальных потерь и ущерба для бизнеса.

Привлечение инвестиций: демонстрирует потенциальным инвесторам разумное управление финансами и оценку рисков.

Укрепление доверия с заинтересованными сторонами: прозрачность и ответственное управление рисками укрепляют доверие клиентов, сотрудников и других заинтересованных сторон.

Выполнение нормативных требований: обеспечивает соблюдение соответствующих законов и нормативных актов.

Оптимизация процесса принятия решений: обеспечивает основу для принятия обоснованных решений в условиях неопределенности.

Процесс управления не означает устранение рисков. Нельзя себе представить бизнес, тем более международного типа, в котором рисков вообще не будет, особенно при работе с клиентами и партнерами в других странах. Процесс управления рисками определяется как действия, которые показывают знание компанией разных видов рисков и возможности по смягчению последствий таких рисков.

Оптимизация процесса управления экспортными рисками позволит компании выбрать конкретные риски, но возможен и подбор портфеля экспортных рисков, с которыми сталкивается компания.

При рассмотрении возможных рисков важно производить их разделение в зависимости от возникновения и значимости. Например, такими могут быть макроэкономические риски: риск инфляции или резкого колебания курса валюты, экономические санкции в отношении страны политические риски: смена правительства, революции и войны или специфические риски – снижение кредитоспособности клиентов или снижение рыночного спроса.

Процесс оценки разных стратегий управления дает возможность оценивать разные виды рисков, определять деловую ориентацию партнеров и индивидуальные условия оплаты за товар, обсуждать страхование торговых поставок для снижения рисков там, где это возможно. Риски следует отслеживать все время в зависимости от изменений конкретных обстоятельств и условий, корректировать подход по управлению рисками и способствовать их снижению на основании полученных данных.

Заключение

Правильный подход по управлению экспортными рисками дает возможность компании сотрудничать с большим количеством партнеров. Если у компании отлажен грамотный процесс управления, то она может давать партнерам и клиентам выгодные условия оплаты и кредитования, всячески развивать деловые отношения. Инвестировать средства для налаживания контактов с новыми клиентами.

Неотъемлемой чертой каждой компании, работающей в рыночной экономике, является конкуренция. Иногда оно ограничивается внутренним,

внутренним рынком, а иногда охватывает и международную сферу. Идея вытекает из очевидного вывода о том, что практически каждое предприятие, работающее в рыночной экономике, работает в какой-то отрасли, или, другими словами, является участником какого-то отраслевого рынка. Отраслевой контекст не является единственным определяющим фактором стратегии, принятой предприятием, но зачастую он является самым важным определяющим фактором.

Другими определяющими факторами, важность которых мы не хотим преуменьшать, являются контекст внешнего окружения компании, а также внутренний контекст (например, ресурсы, компетенции).

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КОНЦЕПТУАЛЬНЫЕ ОСНОВЫ ФОРМИРОВАНИЯ СТРАТЕГИИ УПРАВЛЕНИЯ ЧЕЛОВЕЧЕСКИМИ РЕСУРСАМИ В МЕЖДУНАРОДНЫХ ОРГАНИЗАЦИЯХ

Аннотация. *В статье рассматриваются теоретические основы разработки стратегии управления человеческими ресурсами (УЧР) в международных организациях. Авторы акцентируют внимание на ключевых принципах и подходах к построению эффективной HR-стратегии в глобальном масштабе. Подробно анализируются аспекты, которые имеют решающее значение при формировании HR-стратегии, особенно в контексте современной экономической нестабильности и высокой турбулентности.*

Ключевые слова: *стратегия управления человеческими ресурсами, международные организации, глобализация, персонал, стратегическое планирование.*

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CONCEPTUAL FOUNDATIONS FOR THE FORMATION OF HUMAN RESOURCE MANAGEMENT STRATEGY IN INTERNATIONAL ORGANISATIONS

Abstract. *The article examines the theoretical foundations of developing a human resource management (HRM) strategy in international organizations. The authors focus on the key principles and approaches to building an effective HR* *strategy on a global scale. Aspects that are crucial in forming an HR strategy are analyzed in detail, especially in the context of modern economic instability and high turbulence.*

Key words: *human resource management strategy, international organizations, globalization, personnel, strategic planning.*

Введение

Анализ теоретических основ стратегии управления человеческими ресурсами в международных организациях целесообразно начать с определения понятия «ресурс» и ресурсной концепции деятельности компаний. Цель статьи - раскрыть концептуальные основы формирования стратегии управления человеческими ресурсами в международных организациях.

Методы и исследования. В статье использовались общенаучные подходы: сущностный, функциональный, системный; общетеоретические и эмпирические методы, статистические методы анализа данных, метод исследования научных источников.

Результаты исследования

Понятие ресурс (от франц. ressource) терминологически означает «средство», при помощи которого решаются определенные задачи и достигаются цели. Такое понимание ресурсов в общем виде заложено в ресурсной концепции, предложенной западными и российскими экономистами[190]. Поскольку сама ресурсная концепция рассматривается во многих аспектах, обратимся к политэкономическому подходу, изложенному в работах российских экономистов в целях понимания места человеческих ресурсов в составе ресурсов организации[191]. Несмотря на то, что авторы исследовали инвестиционную деятельность компаний, данный методический подход, на наш взгляд, применим не только к инвестиционной деятельности, но он может быть в обобщенной форме распространён на объектный состав ресурсного обеспечения деятельности компании.

Как следует из данного подхода к пониманию ресурсной концепции компания «черпает» данный ресурс из внешней среды – на ресурсном рынке – рынке рабочей силы (рынке труда), а далее от компании зависит его преобразование в действенное средство решения задач компании и достижения корпоративных целей. На ресурсных рынках компании

[190] Питер Ф. , Друкер. Энциклопедия менеджмента. / Питер. Ф. Друкер. – М.: Изд. дом «Вильямс», 2015; Амстронг М. Практика управления человеческими ресурсами.8-е издание/перев. с анг. под ред. С.К. Мордвинова. – СПб.: Питер,2004; Катькало В.С. Эволюция теории стратегического управления. СПб: Издательство Высшей школы менеджмента,2008; Платонова, Е.Д. Экономика ресурсов: воспроизводственный подход. /Под ред. д.э.н., проф. Платоновой Е.Д. Монография/ Е.Д.Платонова, С.Ю.Красовский, Ю.И.Богомолова - М.: АПКиППРО,2013 – 179 с.

[191] Платонова Е.Д., Красовский С.Ю. Ресурсное обеспечение инвестиционной деятельности в реальном секторе экономики (очерки теории). Монография. М.: АПК и ППРО, 2011.

получают потенциальных сотрудников, несмотря на то что их включению в трудовой коллектив компании проходит достаточно жесткий отбор.

Действительно, в условиях современной экономики человеческие ресурсы как носители интеллектуального капитала компании играют решающую роль в жизнедеятельности современного бизнеса. Отсюда большое внимание вопросам управления данным ресурсом компании, которое уделяется теоретика и практиками менеджмента[192].

Изучение работ в области управления человеческими ресурсами позволяет следать выводы[193]:

- на микроуровне основой управления человеческими ресурсами должен выступать человеческий потенциал компании, который в организации определяется как кадровый потенциал и который должен быть реализован благодаря эффективному менеджменту в HR-сфере;

- на микроуровне управление человеческими ресурсами является системой управленческих воздействий на кадровый потенциал для его актуализации в процессе управленческой работы с кадровым составом компании, основу которой составляют миссия, цели, принципы и средства, что характеризует управление человеческими ресурсами как сложное организационно-экономическое явление;

- на макроуровне в систему управления человеческими ресурсами вовлечены широкий круг субъектов, включая государство, которое своими средствами и инструментами регулирует деятельность компаний по управлению человеческими ресурсами в целях повышения эффективности деятельности экономической национальной системы.

Эффективное управление человеческими ресурсами в компаниях основано на формировании и реализации стратегии компании в сфере HR-менеджмента, которая является элементом стратегии компании как целостной системы. В этой связи необходимо определить понятие и элементы стратегии управления человеческими ресурсами в компаниях.

Стратегическое управление человеческими ресурсами основано на стратегической системе идей, целей, принципов и механизмов по формированию, реализации и развитию человеческого потенциала компании, носителями которого является персонал организации.

Основной целью формируемой стратегии является обеспечение системы управления компании компетентным персоналом, способными выполнять трудовые функции и решать задачи, поставленные топ-менеджерами компании и ее собственниками.

Цели управления персоналом задаются миссией и корпоративной стратегией компании, поскольку стратегия управления человеческими

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[192] Тейлор Фредерик Уинслоу. Принципы научного менеджмента / Тейлор Фредерик Уинслоу; Пер. с англ. А. И. Зак. М.: Изд-во стандартов, 1991

[193] Платонова Е.Д. , Глазкова А.А. Накопление и воспроизводство человеческого потенциала: современный взгляд на теорию и практику. Монография/Е.Д. Платонова, А.А. Глазкова. - 2-ое изд., перераб. и доп. М.: АПКиППРО,2015 – 187 с.

ресурсами является ключевым ее элементом, который формирует кадровую политику организации в отношении всех сторон функционирования сферы HR в компаниях.

В управленческой литературе представлены различные точки зрения на принципы управления персонала как элемента стратегии управления человеческими ресурсами [194]. Обобщая позиции исследователей, выделим следующие принципы:

- *системность*, как ведущий принцип формирования и реализации стратегии управления человеческими ресурсами, обеспечивающий системный подход к управлению персоналом организации, где центральным элементом выступает человек, а не просто сотрудник организации;
- *научности,* основанный на объективном анализе всех элементов системы управления и принятия научно-обоснованных управленческих решений, исходя из данного анализа;
- *ответственность*, который обеспечивает достижение результативности стратегии за счет безукоризненного выполнения постеленных задач;
- *гибкости и адаптивности*, обеспечивающий учет особенностей в социокультурной сфере;
- *разделения труда и полномочий* членов трудового коллектива;
- соблюдения трудовой дисциплины в соответствии с корпоративными требованиями и законодательством;
- *стимулирования*, обеспечивающей заинтересованность трудового коллектива в конечном результате труда;
- *саморазвитие и совершенствования* всех элементов управления человеческих ресурсов;
- *инновационность*, обеспечивающий новации во всех сферах HR-менеджмента и качественного развития в целях усиления конкурентных преимуществ организации;
- *равенства* всех членов трудового коллектива, включая инклюзивность;
- *компетентность,* основанная на универсальных и профессиональных компетенциях всех членов трудового коллектива на всех уровнях управления;
- *экономичность и оптимальность*, реализация которых обеспечивает достижение ожидаемого результата по критерию уменьшения затрат на проведение кадровой политики.

[194] Актуальные проблемы управления человеческими ресурсами / Под ред. С. А. Баркова, В. И. Зубкова. — М.: Юрайт. 2024; Масягин В. П. Управление человеческими ресурсами [: монография / В. П. Масягин, О. В. Сельская. - Москва : Спутник+, 2012.

Отдельные исследователи справедливо указывает на такой принцип, как признание человеческого капитала как главного актива организации [195]. Можно согласиться с авторами, что «компании, активно инвестирующие в развитие своих сотрудников и создающие благоприятную рабочую среду, достигают более высоких показателей эффективности, роста и прибыли»[196].Однако отсюда следует другой принцип – принцип постоянного инвестирования, без которого нельзя реализовать принцип «саморазвития и совершенствования всех элементов управления человеческих ресурсов». Вместе с тем, принцип гибкости и адаптивности должен быть дополнен принципом альтернативности, которые обеспечивает учет внутренней и внешней среды функционирования компании.

На реализацию всех принципов в своей совокупности и системности направлены функции, которые выполняет стратегическое управление человеческими ресурсами. Среди данных функций выделим группы функций, поскольку каждую комплексную функцию можно представить как внутренне взаимосвязанные подфункции. Назовем основные из них:

- *функция планирования*, которая охватывает подфункции, исходя из объекта планирования: потребность в кадрах, которая исходит от производственного отдела организации; работа по отбору и подбору кадров, уровень вознаграждения, которая исходит от отдела труда и заработной платы организации;
- *мотивационная и стимулирующая,* охватывающая разработку системы мотивации и стимулирования, исходя из материальных возможностей и культурного кода;
- *адаптационная*, обеспечивающая адаптацию сотрудников после трудоустройства;
- *коммуникационная,* направленная на обеспечения позитивных отношений с сотрудниками на всех уровнях управления организацией,
- *информатизации и автоматизации* кадровых процессов;
- *развивающая,* обеспечивающая программы подготовки, обучения, переподготовки и формирование лидерских качеств;
- *диагностическая и оценки эффективности* работы персонала;
- *нивелирование рисков и обеспечение безопасности* в виду острой конкуренции и возможности утечки информации и прямого промышленного шпионажа.

Последняя функция особенно важна. Под кадровой безопасностью понимается предотвращение рисков и угроз на всех уровнях управления организацией – экономической, социальной, политической, а также

[195] Платонова Е.Д., Ань Ивень. Эволюция мирового и отечественного опыта реализации стратегии управления человеческими ресурсами// Мировая наука.2024 №5(86) - URL: https://www.science-j.com/_files/ugd/b06fdc_d9676d3d26f44b33b5bc00c0791166f8.pdf?index=true

[196] Платонова Е.Д. О выработке методологии современных исследований воспроизводства человеческого потенциала// Актуальные проблемы науки и образования в условиях современных вызовов сборник материалов XII Международной научно-практической конференции. Москва, 2022 С.243-250.

информационной и правовой. Поскольку существуют группы угроз кадровой безопасности, то выделим:

- неполномерная работа по вовлечению молодых специалистов;
- отсутствие мотивации к использованию новых подходов к работе с сотрудниками;
- несоответствие уровня профессионального образования сотрудников и и требований, предъявляемых техническими характеристиками рабочих мест;
- внесистемный подход к использованию современных кадровых технологий.

Возникновение угроз и рисков корпоративной безопасности в международной организации берет свое начало еще в 20-х годах 20 века, так как в этот период претерпевал наиболее тяжелое экономическое, политическое, социальное и демографическое состояние. В России в 90-е годы прошлого века – так называемые годы трансформационного шока - произошел значительный экономический кризис и потеря лояльности в виду невыплаты заработных плат, снижения внимания к персоналу.

В экономической литературе представлена точка зрения, согласно которой кадровая безопасность – это система защиты общества от непрофессионализма. Вместне с тем, исследователь Малахова О.В. отмечает, чтов ряде компаний «кадровая безопасность в организациях зачастую налажена лучше, чем кадровая безопасность на государственном уровне, так как лучше поддается контролю»[197] .

К фактам, которые надо предотвратить можно выделить такие явления как:

- передача на возмездной основе сотрудниками служебных сведений и конфиденциальных данных в корыстных целях конкурентам;
- переманивание высококвалифицированных специалистов – носителей уникальных сведений и знаний, без которых резко снижаются конкурентные преимущества компании.

Методы, как и принципы и функции стратегического управления, диктуются необходимостью соответствия миссии организации и ее стратегическим целям. Однако с учетом специфики объекта стратегического управления – человеческих ресурсов, можно выделить:

○ *административные методы*, позволяющие регулировать деятельность персонала на основе законодательной базы и корпоративных политик, а также распорядительных документов организации (приказов, распоряжений, конкретных указаний в устной и письменной формах). При невыполнении этих заданий или не следованию корпоративным политикам предусмотрены определенные формы принуждения (санкции), а при выполнении - поощрения за успешную работу;

[197] Малахова О.В. Основные подходы к оценке эффективности профессиональной служебной деятельности государственных гражданских служащих / О. В. Малахова, Н. О. Гарбузова // Вестник государственного муниципального управления. – 2014. – № 3. – С.68.

○ *организационные методы* предполагают установление и поддержание взаимосвязей и отношений между уровнями управления, обеспечивая функционирование и упорядочивание прямых и обратных связей между сотрудниками, занимающими определенное место в системе управления в целях реализации целей и решения задач, стоящих перед организацией;

○ *экономические методы* относят к косвенному воздействию, когда персоналу устанавливаются цели, задания и сроки выполнения, а поощрения носит не административный, а экономический характер при том, что материальное вознаграждение зависит как от личных, так и коллективных результатов труда;

○ *социально-психологические методы* основаны на внеэкономической мотивации к эффективной деятельности через психологические и социальные инструменты воздействию в условиях формирования благоприятного морально-психологического климата в коллективе, развитие отношений сотрудничества, взаимопомощи между членами коллектива.

Заключение

Таким образом, в основе концепций стратегии управления человеческими ресурсами в международных компаниях лежат принципы управления особым ресурсом – человеческим капиталом, который реализуется, прежде всего, в функциях. На современном этапе основной функцией выступает творчески-созидательная функция, определяющая инновационный путь развития международного бизнеса. В связи с этим, менеджеры международных компаний должны овладеть имением управлять внеэкономической мотивации к эффективной деятельности через психологические и социальные инструменты с учетом ценностно-аксиологических установок персонала.

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ПОВЫШЕНИЕ ЭФФЕКТИВНОСТИ СИСТЕМЫ УПРАВЛЕНИЯ ПЕРСОНАЛОМ НА ПРЕДПРИЯТИИ

Аннотация: *В статье рассматриваются ключевые аспекты повышения эффективности системы управления персоналом на предприятии. Анализируются современные методы и современные подходы к понятию изученной темы, а также рассмотрены инструменты оценки результативности управления. Особое внимание уделено интеграции цифровых технологий и компетентностного подхода в HR-практику. На основе исследования предложены рекомендации по оптимизации системы управления персоналом для повышения производительности труда современного предприятия.*

Ключевые слова: *Управление персоналом, кадровая политика, цифровизация HR, производительность труда, эффективность системы управления персоналом, стратегии и технологии управления персоналом*

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IMPROVING THE EFFICIENCY OF THE HR MANAGEMENT SYSTEM AT THE ENTERPRISE

Abstract: *The article considers the key aspects of improving the efficiency of the HR management system at the enterprise. Modern methods and modern* *approaches to the concept of the studied topic are analyzed, and tools for assessing the effectiveness of management are considered. Particular attention is paid to the integration of digital technologies and a competency-based approach into HR practice. Based on the study, recommendations are proposed for optimizing the HR management system to increase labor productivity at a modern enterprise.*

Keywords: *Human Resources Management, Human Resources Policy, HR Digitalization, Labor Productivity, Efficiency of the Human Resources Management System, Human Resources Management Strategies and Technologies*

Актуальность темы. В условиях глобализации и усиления конкуренции на международном уровне, российские предприятия сталкиваются с необходимостью улучшения методов управления своими сотрудниками. Это становится особенно важным на фоне входа на российский рынок иностранных компаний, которые отличаются продвинутыми практиками в области HR, а также имеют развитую корпоративную культуру и эффективную структуру работы. Поэтому можно с уверенностью заявить, что эффективность системы управления персоналом (далее – СУП) является критическим фактором успеха любого предприятия. В условиях глобализации и цифровой трансформации традиционные методы HR-менеджмента требуют пересмотра. Современные исследования показывают, что предприятия, внедряющие инновационные подходы к управлению кадрами, демонстрируют на 20-30% более высокие показатели производительности. **Методы исследования** традиционные: анализ и синтез, метод логический, метод обобщения.

Цель статьи – выявить ключевые проблемы СУП и предложить научно-обоснованные методы их решения.

Результат исследования. Исследования в этой области можно найти в работах отечественных ученых: В.М. Маслова, В.Р. Веснина, А.Я. Кибанова, П.Э. Шлендера. Ю.Г. Одегова, К.Х. Абдурахманова, Л.Р. Котовой и других. Вопросы повышения эффективности системы управления персоналом также рассматриваются также в работах следующих зарубежных специалистов: Джека Филлипса, Дейва Ульриха, Джона Коттера, Майкла Армстронга и других. Они анализировали и делились своими взглядами на различные теоретические и прикладные аспекты, связанные с оценкой работы системы управления персоналом в современной компании.

Вопросы, связанные с эффективностью управления персоналом и его потенциалом, являются предметом активных исследований как в России, так и за рубежом, и до сих пор не раскрыты полностью.

Е.А. Федюшина подчеркивает важность управления ресурсами, использования и контроля трудового потенциала для достижения целей компании коллективными усилиями. Она рекомендует оценивать эффективность персонала на основе трех ключевых аспектов: доступность ресурсов, их применение и организацию рабочего процесса [8, с. 147].

Н.Г. Бобкова утверждает, что успешное управление персоналом основывается на эффективном распределении трудовых ресурсов организации. Это помогает минимизировать расходы времени и материалов, что, в свою очередь, ведет к улучшению общих результатов работы предприятия [2].

Анализ эффективности управления персоналом включает в себя разнообразные действия, направленные на оценку соотношения между инвестициями в персонал и получаемой от этого выгодой для компании. Важно подчеркнуть взаимосвязь между управлением сотрудниками и общей результативностью работы организации. Регулярно компании рассматривают и анализируют такие аспекты, как системы вознаграждения, мотивация и стимулирование сотрудников, эффективность командной работы, а также принимают решения о необходимости изменения численности персонала и другие управленческие инициативы [4, с. 89].

Исследователи Горленко О.А., Ерохина Д.В. и Можаева Т.П. подчеркивают значимость оценки системы управления персоналом в контексте её влияния на эффективность работы сотрудников. Они утверждают, что ключ к успешной деятельности любой компании заключается в том, как организована работа с персоналом. Эта оценка охватывает не только экономические аспекты, но и социальные, а также организационные составляющие, что в целом определяет общую производительность предприятия [5, с. 107].

Терелецкова Е.В. и Яхина Э.Т. подчеркивают, что для объективной оценки эффективности HR-менеджмента необходимо всесторонне анализировать его влияние на социальные, экономические и организационные аспекты [7, с. 191].

А.А. Братчикова и В.И. Шарин подчеркивают значимость оценки персонала как ключевого аспекта в управлении кадрами. Этот процесс позволяет оценить умения, квалификацию и возможности работников, а также их соответствие целям организации, что способствует более эффективному их использованию. При этом, существует множество методов оценки персонала, выбор оптимального метода должен базироваться на целях и специфике деятельности компании [3, с. 6].

Таким образом, эффективность системы управления персоналом критически влияет на экономические показатели организации и ее положение на рынке. Исходя из этого, актуальность адекватной оценки такой системы неоспорима, поскольку она напрямую определяет продуктивность работы сотрудников и, как следствие, экономический успех предприятия.

Для российских компаний становится критически важным внедрение и разработка эффективных методов оценки в области управления персоналом. Традиционно методы оценки можно разделить на количественные и качественные, каждый из которых имеет свои преимущества и недостатки. Это требует их интегрированного использования для достижения максимально точной оценки. Для более глубокого понимания различий между количественными и качественными методами оценки эффективности систем управления персоналом обратимся к сравнительному анализу, отраженному в таблице 1.

Таблица 1 – Сравнение количественных и качественных методов оценки эффективности систем управления персоналом

Критерий	Количественные методы	Качественные методы
Основной фокус	Измеримые показатели	Субъективные оценки
Тип данных	Числовые	Описательные
Примеры	Коэффициент текучести кадров, производительность труда	Удовлетворенность сотрудников, корпоративная культура
Инструменты	Статистический анализ, финансовые отчеты	Интервью, опросы, наблюдения
Преимущества	Объективность, сопоставимость	Глубина анализа, гибкость
Недостатки	Ограниченность в отражении нематериальных аспектов	Субъективность, сложность в сравнении
Применение в РФ	Широко используются в крупных компаниях	Набирают популярность, особенно в инновационных отраслях

Ключевые показатели эффективности, или KPI, представляют собой один из наиболее популярных количественных методов, используемых для оценки работы как отдельных сотрудников, так и всего HR-отдела. Эти методы опираются на анализ определённых показателей, связанных с деятельностью компании и ее персонала.

Один из важных методов анализа – это определение окупаемости вложений в человеческий капитал, или ROI. Эта метрика позволяет понять, насколько обоснованными являются расходы на развитие сотрудников и инвестиции в улучшение их квалификации.

Еще одним методом является оценка производительности труда, который получил широкое распространение в российском кадровом менеджменте. Данный подход позволяет измерить отдачу от использования трудовых ресурсов и выявить потенциал для ее повышения [6, с. 65].

Несмотря на значимость количественных методов, их использование без сочетания с другими подходами не всегда обеспечивает полное понимание эффективности систем управления персоналом. В этом контексте, в российской практике повышается значение качественных методов оценки.

Метод экспертных оценок выделяется среди других подходов благодаря своей простоте в использовании. Эта техника включает в себя опрос экспертов в области управления персоналом для тщательного анализа эффективности HR-системы. Во время этого опроса производится оценка множества аспектов работы отдела, включая скорость заполнения вакансий, уровень квалификации подобранного персонала, частоту и качество проводимых обучений, среди прочего [1, с. 56].

Анкетирование сотрудников является одним из ключевых методов качественного анализа. Использование выводов, полученных из этого подхода, способствует улучшению уровня удовлетворенности команды, выявлению проблемных зон в организационной структуре и определению направлений для усовершенствования HR-практик. Это может привести к инновационным изменениям в управлении персоналом на основе данных, собранных через анкеты.

В практике современных организаций все чаще применяют метод оценки эффективности HR-систем, известный как «360 градусов». Он предполагает получение мнений о деятельности сотрудника от различных групп людей: руководителей, коллег, подчиненных, а также клиентов. Это позволяет создать детальное и комплексное представление о работе данного работника.

В развитии методик оценки работы с персоналом значительные перспективы открывает применение сбалансированной системы показателей (далее – BSC) для анализа деятельности в области управления человеческими ресурсами. Этот подход не только учитывает финансовые результаты, но и включает в себя анализ нефинансовых показателей, что способствует всестороннему оцениванию эффективности HR-системы.

В настоящем исследовании предлагается интегрированный метод к анализу результативности управления персоналом, адаптированный к условиям российского рынка и отражающий последние изменения в области HR. Этот подход сочетает в себе использование как количественных, так и качественных методов оценки, что позволяет достигать более точных и комплексных выводов.

Данная методика позволяет комплексно оценить HR-систему, сочетая объективные метрики и субъективную обратную связь от сотрудников. Она включает 4 этапа, каждый из которых дает данные для принятия управленческих решений (таблица 2).

Таблица 2 – Методика комбинированной оценки эффективности системы управления персоналом

№ п/п	Этапы	Цель	Инструменты
1	Анализ ключевых HR-показателей (Количественная оценка)	Оценить эффективность основных HR-процессов через объективные данные	1. KPI по направлениям HR: - рекрутинг (время закрытия вакансии (дни), стоимость найма (руб./кандидата), % сотрудников, прошедших испытательный срок; - адаптация (скорость вхождения в должность (по оценке руководителя), % увольнений в первые 3 месяца); - обучение (ROI тренингов (рост производительности до/после), % сотрудников, прошедших обучение; - текучесть (коэффициент текучести (общий и ключевых сотрудников); 2. Финансовые показатели: - затраты на персонал / доход компании; - прибыль на одного сотрудника.
2	Оценка удовлетворенности и вовлеченности (Качественная оценка)	Определить уровень лояльности, мотивации и проблемные зоны	1. Опрос eNPS (Employee Net Promoter Score): - «порекомендовали бы вы нашу компанию как работодателя?» (шкала 0-10); - группы: промоутеры (9-10), нейтралы (7-8), критики (0-6); 2. глубинное интервью / фокус-группы: - вопросы о: удовлетворенности условиями труда; отношении к корпоративной культуре; барьерах в работе; 3. оценка 360° для руководителей: - обратная связь от подчиненных, коллег, вышестоящего руководства.
3	Интеграция данных и расчет интегрального индекса эффективности HR	Свести количественные и качественные данные в единую систему оценки	Формула индекса: Индекс HR-эффективности = (0.4 × KPI_HR) + (0.3 × eNPS) + (0.2 × Результаты 360°) + (0.1 × Финансовые показатели), где: - KPI_HR – средний % выполнения по всем HR-метрикам; - eNPS – нормализованный показатель (например, eNPS = 50 → 0.5); - результаты 360° – средняя оценка руководителей (по 5-балльной шкале); - финансовые показатели – % выполнения плана по прибыли/производительности.
4	Разработка рекомендаций	На основе полученных данных	На основе полученных данных формируются действия:

		формируются рекомендации	- если низкие KPI рекрутинга: внедрить AI-скрининг резюме; усилить employer branding; - если низкий eNPS: запустить программы мотивации (гибкий график, бонусы); провести аудит корпоративной культуры; - если слабые оценки 360° у менеджеров: вести тренинги по управлению командой; пересмотреть систему лидерских компетенций.

Предложенная методика позволяет не только оценить текущее состояние HR-системы, но и создать data-driven стратегию ее развития. Ключевое условие успеха – регулярный мониторинг показателей (раз в квартал) и готовность к изменениям.

Вывод. В заключение стоит отметить, что критически важно осознавать значимость правильной оценки систем управления человеческими ресурсами. Они становятся фундаментальным элементом для прогрессивного развития российских компаний в эпоху глобальной конкуренции и всеобъемлющей цифровизации бизнес-процессов. Инновационный комплексный метод, совмещающий количественные и качественные аспекты анализа, предоставляет возможность не только точно оценить текущее состояние HR-системы, но и выявить ключевые возможности для ее оптимизации и улучшения. Таким образом, применение инновационных практик в сфере HR-аналитики и оценки результативности кадрового менеджмента становится ключевым этапом на пути формирования экономики инновационного типа и укрепления конкурентного потенциала отечественного бизнеса на международной арене.

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ИСПОЛЬЗОВАНИЕ ТЕРМИНОВ ПО СПЕЦИАЛЬНОСТИ НА ЗАНЯТИЯХ ПО РУССКОМУ ЯЗЫКУ

Аннотация: *Статья посвящена анализу использования профессиональной терминологии в процессе обучения русскому языку как иностранному (РКИ). Рассматриваются современные подходы к интеграции специализированной лексики в преподавание русского языка, выявляются трудности усвоения терминов и предлагаются методические решения, направленные на формирование профессионально-языковой компетенции. Обоснована необходимость включения терминов в коммуникативные задачи, отражающие реальные профессиональные ситуации. В работе использованы современные отечественные и зарубежные исследования в области лингводидактики и профессионально ориентированного обучения.*

Ключевые слова: *русский язык как иностранный, профессиональная лексика, термины, преподавание, студенты*

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THE USE OF SPECIALIZED TERMS IN RUSSIAN LANGUAGE CLASSES

Abstract: *This article analyzes the use of professional terminology in teaching Russian as a foreign language. It examines contemporary approaches to incorporating specialized vocabulary into Russian language instruction, identifies challenges in term acquisition, and proposes methodological solutions aimed at developing professional language competence. The study emphasizes the importance of integrating terminology into communicative tasks that reflect authentic professional scenarios. The research draws upon current domestic and international studies in the fields of language pedagogy and profession-oriented language teaching.*

Key words: *Russian as a foreign language, professional vocabulary, terminology, teaching, students*

Введение

В условиях глобализации и расширения международного образования увеличивается количество иностранных студентов, осваивающих профессиональные специальности на русском языке. При этом они должны не только владеть общим русским языком, но и использовать специальную терминологию в академических и профессиональных ситуациях. Особенно это актуально для студентов технических, медицинских и экономических направлений. Как подчёркивает Кузнецова (2021), профессионально ориентированное обучение становится важной частью преподавания РКИ.

Однако в практике преподавания часто наблюдается разрыв между общим курсом языка и потребностями в овладении профессиональной речью. Студенты вынуждены осваивать термины самостоятельно или использовать их формально, без понимания. Это требует поиска эффективны

Методы

Для проведения исследования был осуществлён обзор научных публикаций по методике РКИ, опубликованных в рецензируемых журналах за 2015–2024 годы. Основное внимание уделено источникам, рассматривающим профессионально-ориентированное обучение, лексическую компетенцию, специфику терминов и методику преподавания специализированной лексики иностранным обучающимся. Также проведён анализ примеров из учебных пособий и программ курсов с целью выявления тенденций в использовании профессиональной лексики.

Результаты и обсуждение

Результаты анализа подтвердили, что использование профессиональных терминов в процессе обучения РКИ необходимо вводить уже на среднем уровне (B1), особенно для студентов, обучающихся по профильным направлениям в русскоязычных университетах. Как показывает практика, простое заучивание терминов без контекста не даёт желаемых результатов. Исаева (2018) подчёркивает, что лишь при включении терминологической лексики в коммуникативные задачи достигается реальное усвоение. Это согласуется и с наблюдениями узбекских преподавателей, таких как Матмурадова (2020), которая подчёркивает значение лексико-грамматического минимума, адаптированного под специальность.

Одной из основных трудностей является то, что терминологическая лексика отличается высокой абстрактностью и узконаправленным значением. Многие слова имеют греческие или латинские корни, что затрудняет их усвоение и вызывает ошибки при произношении и словообразовании. К тому же, грамматические конструкции, в которых функционируют термины, часто сложны для студентов, особенно с неродственным языковым фоном. Мамараимова (2021) отмечает, что в узбекской аудитории особые трудности вызывает употребление русских терминов в официально-деловом стиле, где активны пассивные конструкции и существительные в творительном падеже.

Преподаватели часто сталкиваются с проблемой выбора методики, позволяющей не только познакомить студентов с терминами, но и обучить их использованию в письменной и устной речи. Наиболее эффективной в этом контексте признаётся модель контекстуализации, при которой термины вводятся в конкретных учебных задачах. Это могут быть мини-проекты, презентации, анализ кейсов или моделирование профессиональных ситуаций

(Ахметова, 2020). Подобный подход особенно оправдан в медицинских и технических вузах, где задания должны быть максимально приближены к реальной профессиональной деятельности.

Дополнительно может быть использован CLIL-подход, при котором преподавание языка и профильной дисциплины осуществляется параллельно. Хотя этот метод требует координации усилий языковых и профильных преподавателей, его эффективность доказана как в российской, так и в международной практике (Didenko & Pichugova, 2016). Однако в большинстве вузов Узбекистана и России CLIL пока реализуется в ограниченных объёмах, в основном на факультативной основе (Худайбердиева, 2022).

Также полезным является сопоставительный анализ терминологии: студенты легче усваивают термины, когда видят аналогии с родным языком. Это особенно актуально в многонациональных группах. Например, в Узбекистане для узбекоязычных студентов эффективно применять двуязычные глоссарии, а также задания на перевод и объяснение терминов, соотнесённых с узбекскими понятиями (Матмурадова, 2020).

Отдельно стоит упомянуть роль учебных пособий. Большинство из них до сих пор содержат термины вне контекста или в виде списков без речевой задачи. Это снижает их дидактическую ценность. Для улучшения ситуации необходимо внедрение комплексных пособий с терминологическими модулями, содержащими упражнения на словообразование, синтаксис, перевод и профессиональную речь.

Заключение

Таким образом, результаты анализа указывают на необходимость системного подхода к обучению профессиональной лексике. Это должно включать разработку адаптированных материалов, обучение преподавателей, использование реальных ситуаций и междисциплинарное взаимодействие. Только так терминология перестанет быть барьером и станет средством интеграции студента в академическую и профессиональную среду.

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ВЛИЯНИЕ ИНФЛЯЦИИ И ДЕФЛЯЦИИ НА ЭКОНОМИЧЕСКИЙ РОСТ

Аннотация: *Данная статья исследует влияние инфляции и дефляции на экономический рост в современных условиях. Используются методы статистического анализа и моделирования для оценки взаимосвязи между ценовыми колебаниями и динамикой ВВП. В результате выявлены особенности воздействия инфляционных и дефляционных процессов на развитие национальных экономик, а также предложены рекомендации по управлению ценовыми рисками для стимулирования устойчивого роста.*

Ключевые слова: *инфляция, дефляция, экономический рост, макроэкономика, ценовые процессы, стабилизация экономики, макроэкономические модели.*

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THE IMPACT OF INFLATION AND DEFLATION ON ECONOMIC GROWTH

Abstract: *This article examines the impact of inflation and deflation on economic growth in modern conditions. Methods of statistical analysis and modeling are used to assess the relationship between price fluctuations and GDP dynamics. As a result, the features of the impact of inflationary and deflationary processes on the development of national economies were identified, and recommendations for managing price risks to stimulate sustainable growth were proposed.*

Keywords: *inflation, deflation, economic growth, macroeconomics, price processes, economic stabilization, macroeconomic models.*

Экономический рост является одной из ключевых целей любой национальной экономики. Он обеспечивает повышение уровня жизни населения, развитие производственного сектора и укрепление международных позиций страны. Однако на пути к устойчивому развитию возникают различные внутренние и внешние факторы, среди которых особое место занимают ценовые процессы — инфляция и дефляция. Эти явления оказывают существенное влияние на макроэкономическую стабильность и динамику роста экономики.

Инфляция — это процесс общего повышения цен на товары и услуги в экономике за определённый период времени. Дефляция — обратное явление, характеризующееся снижением уровня цен. Оба процесса могут оказывать как положительное, так и отрицательное воздействие на экономический рост в зависимости от его характера и степени проявления.

Актуальность исследования обусловлена тем, что в условиях глобализации и высокой волатильности рынков управление инфляционными и дефляционными процессами становится важнейшим инструментом обеспечения устойчивого развития. В данной статье рассматривается влияние этих явлений на экономический рост с учетом современных теоретических подходов и эмпирических данных.

Для анализа влияния инфляции и дефляции на экономический рост использовались методы статистического анализа, включая корреляционный анализ и регрессионное моделирование. В качестве источников данных применялись международные статистические базы (МВФ, Всемирный банк), а также национальные статистические службы.

Основной методологической основой является применение моделей макроэкономического анализа, таких как модель Кейнса — Фридмана для оценки воздействия ценовых изменений на ВВП. Также использовались сравнительный анализ стран с различными режимами ценовой политики для выявления закономерностей.

Для оценки влияния применялись показатели уровня инфляции (по индексу потребительских цен) и дефляции (отрицательные значения этого индекса), а также темпы роста ВВП за последние 20 лет.

Анализ показал, что умеренная инфляция (до 5%) зачастую способствует стимулированию инвестиций и потребительского спроса. Это связано с тем, что умеренные темпы роста цен создают благоприятные условия для бизнеса: повышается прибыльность инвестиций, снижается реальная стоимость долговых обязательств.

Однако при превышении порога в 10% наблюдается негативное влияние: высокие уровни инфляции вызывают неопределенность в бизнес-среде, снижают реальную покупательную способность населения и ведут к перераспределению ресурсов в сторону спекулятивных операций. В таких условиях долгосрочные инвестиции сокращаются, а экономика сталкивается с рисками стагнации или рецессии.

Дефляция оказывает более негативное воздействие по сравнению с умеренной инфляцией. Снижение цен ведет к ожиданиям дальнейшего падения стоимости товаров и услуг, что вызывает задержки в потреблении и инвестициях. Бизнесы сокращают производство из-за снижения доходов, увеличивается реальная стоимость долговых обязательств — все это тормозит развитие экономики.

Особенно опасна длительная дефляция (более 6 месяцев), которая может привести к спирали снижения спроса и производства. В результате наблюдается снижение ВВП, увеличение безработицы и ухудшение социально-экономической ситуации.

На основе данных различных стран выявлены закономерности: страны со стабильной ценовой политикой демонстрируют более высокие показатели устойчивого роста по сравнению с регионами с высокой волатильностью ценовых процессов. Например, Япония сталкивается с длительной дефляцией в течение последних десятилетий, что негативно сказалось на её экономическом развитии.

Страны с умеренной инфляцией (например, Германия) показывают более стабильные показатели роста благодаря эффективному управлению денежно-кредитной политикой.

Результаты исследования подтверждают гипотезу о том, что умеренная инфляция способствует развитию экономики за счет стимулирования спроса и инвестиций. Однако превышение критических уровней приводит к дестабилизации макроэкономической ситуации.

Дефляция же оказывает более разрушительное воздействие — она тормозит потребление и инвестиционную активность, что негативно отражается на долгосрочном росте. Поэтому важным аспектом государственной политики является поддержание уровня цен в пределах оптимальных границ.

Кроме того, необходимо учитывать особенности развития отдельных стран: уровень развития финансовых рынков, степень открытости экономики и степень доверия к институтам влияют на реакцию экономики на изменения ценовых процессов.

Заключение.

Исследование показало важность балансировки ценовых процессов для обеспечения устойчивого экономического роста. Умеренная инфляция может выступать как инструмент стимулирования развития при условии грамотного регулирования со стороны центральных банков. Дефляцию необходимо избегать или минимизировать ее продолжительность через активную монетарную политику.

Практическое значение работы заключается в разработке рекомендаций по управлению инфляционными рисками для правительств и центральных банков с целью повышения эффективности мер по стабилизации экономики.

Перспективы дальнейших исследований связаны с изучением влияния структурных факторов (например, технологического прогресса) на взаимодействие ценовых процессов и роста экономики в условиях глобальных вызовов XXI века.

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16 САММИТ БРИКС В КАЗАНИ: РЕАКЦИЯ ЗАРУБЕЖНОЙ АУДИТОРИИ

Аннотация. *В статье рассматривается реакция иностранных масс-медиа на прошедший под председательством России в 2024 году Саммит Брикс. Основной интерес у международных СМИ вызывает большое количество участников на Саммите, особенно в условиях санкций для России. Тезисы зарубежных СМИ включают в себя опасения западных стран касательно проведенного мероприятия, политические решения на Саммите. Также авторами рассматривается информационно-познавательный проект TV-BRICS, который является основным источником продвижения точки зрения стран-участниц объединения.*

Ключевые слова: *Саммит БРИКС, Россия, СМИ, ТВ-Брикс, зарубежная аудитория, дружественные и недружественные страны*

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THE 16TH BRICS SUMMIT IN KAZAN: THE REACTION OF THE FOREIGH AUDIENCE

Abstract. *The article examines the reaction of the foreign media to the Brics Summit held under the Russian presidency in 2024. The main interest of the international media is the large number of participants at the Summit, especially in the context of sanctions against Russia. The theses of the foreign media include the concerns of Western countries about the event, political decisions at the Summit. The authors also consider the information and educational project TV-BRICS, which is the main source of promoting the point of view of the member countries of the association.*

Keywords: *BRICS Summit, Russia, mass media, TV-BRICS, foreign audience, friendly and unfriendly countries*

В эпоху становления многополярного мира и глобализации информационная политика государств играет важную роль. Зачастую СМИ в своих работах придерживаются политического курса страны, в которой работают, однако есть обозреватели, которые рассказывают о событиях в независимом ключе. Говоря о медиа-образе страны, конструируемом СМИ, важно отметить роль современных технологий [198] , которые позволяют передавать информацию моментально, находясь «на месте событий», и транслировать своей аудитории актуальную и самую «свежую» информацию.

Прошедший 22-24 октября XVI Саммит БРИКС в Казани стал самым наблюдаемым и центральным событием российского председательства в объединении для всего мира. В Республику Татарстан прибыли представители и главы 36 стран, среди которых Бразилия, Индия, Китай, Южная Африка, Египет, ОАЭ, Саудовской Аравии, Эфиопии и др. Учитывая возрастающую роль международного сотрудничества и создание противоборствующего западным странам союза, за ходом саммита наблюдали крупнейшие представители СМИ, как дружественных, так и недружественных для России стран. От того, каким образом город и страна подготовиться к событию и какие политические решения будут приняты, зависит восприятие и реакция международных СМИ на глобальном информационном уровне.

Построение положительного медиобраза объединения возможно при наличии координирующей медиасистемы. Так, говоря о медиа формате прошедшего под председательством России Саммита, важно отметить ТВ - БРИКС - официального информационно-познавательного проекта. ТВ - БРИКС выступает объединяющим и транслирующим каналом альянса на мировой арене.

[198] Вагапова Ф.Г. Убеждающая коммуникация как средство PR-воздействия на аудиторию // Медиаграмотность – 2024: материалы международной научно-практической конференции / науч.ред. А.Н.Гильманова; отв. ред. Р.Л.Зайни. – Казань: ООО ДДЦ «Ислам Нуры», 2025. – 790 с. – С. 296–304.

Задача TV BRICS в информационном вещании — отражать позицию стран БРИКС по главным вопросам международной политики, информировать зрителя о событиях и явлениях жизни в странах участниках. С мая 2018 года свое функционирование начало телевещание, в последствии чего появились иноязычные версии, контент стал адаптироваться на португальский, английский, китайский языки. В 2024 году TV BRICS стал официальным членом Организационного комитета по подготовке и обеспечению председательства Российской Федерации в объединении БРИКС[199].

На новостных ресурсах сайта встречаются статьи с описанием заседаний, прошедших в Казани. Так, заседание в формате «Брикс+/Аутрич» отмечено представительством 40 стран, особо ярко выделены лидеры России, КНР, Белоруссии, Лаоса, Венесуэлы и др. Первое заседание в формате «БРИКС+/аутрич» завершилось выступлением генсекретаря ООН Антониу Гутерриша, что еще раз подчеркивает значимость и масштабность проводимого мероприятия[200].

Позиции по прошедшему Саммиту условно можно разделить на несколько направлений. Опасения по поводу укрепления объединения выразили представители стран Запада во главе с Соединенными Штатами Америки.

Рассматривая один из крупнейших телеканалов США CNN News, выделяется работа Симоны Маккарти, которая пишет: «Запад хочет изолировать Путина. Крупный Саммит, который он проводит, показывает, что он далеко не одинок»[201]. Сравнивая прошлогодний Саммит стран БРИКС в Йоханнесбурге, Президент России находился по ту сторону экрана из-за объявленного ордера на арест от Международного уголовного суда. В 2024 году же, несмотря на критику Специальной военной операции в Украине, Путин является хозяином Саммита, на который прибыли лидеры мирового сообщества. Становится понятно, что происходит сближение стран под эгидой построения многополярного мира и сдвига в глобальном балансе сил. По мнению Маккарти, событие является значимым для мирового сообщества еще и потому, что проходит за несколько дней до начала выборов в США.

The Washington Post, американская ежедневная газета, отмечает «удачное место проведение Саммита», ведь Казань демонстрирует устойчивость российской экономики, промышленный рост, развитую инфраструктуру и провал западных санкций[202]. Более того, Казань, находясь

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[199] Сибиряков И.В. Международная сеть TV BRICS: первый опыт медиакоммуникации // Политическая лингвистика. - 2024. - №4. - С. 83-88.

[200] Страны БРИКС+ обсудили региональные и глобальные вопросы на саммите в Казани // TV BRICS URL: https://tvbrics.com/news/strany-briks-obsudili-regionalnye-i-globalnye-voprosy-na-sammite-v-kazani/?ysclid=m7dcs0dko3520624449) (проверено: 01.03.2025).

[201] The West wants Putin isolated. A major summit he's hosting shows he's far from alone // CNN World URL: https://edition.cnn.com/2024/10/21/europe/putin-russia-iran-china-brics-hnk-intl/index.html (проверено: 27.02.2025).

[202] Putin relishes role on stage, but Ukraine war looms over BRICS summit // The Washington Post URL: https://www.washingtonpost.com/world/2024/10/23/brics-russia-putin-kazan-summit/ (проверено: 27.02.2025).

на перекресте между Европой и Азией, является мостом между Россией и исламским миром.

The Guardian говорят о ярком возвращении Путина на мировую арену, принимающем 36 лидеров стран в своей стране [203]. Особое недовольство Запада вызвало участие в Саммите Генерального секретаря ООН Антониу Гуттериша.

Щвейцарская газета Tages-Anzeiger отмечает «переломный момент» в международном сообществе, создание антизападной альтернативы «под молчаливым руководством Китая» [204]. Наряду с этим, выделяется большое количество претендентов на вступление в международное неформальное объединение, среди которых Нигерия, Алжир, Таиланд, Куба и другие.

Handelsblatt, ежедневная деловая газета в Германии, осуждает противоречивые внешнеполитические действия Турции. С одной стороны, Турция является членом НАТО, а с другой подала заявку на вступление в БРИКС [205]. Такие действия, по мнению авторов, можно рассмотреть как попытку Турции находиться в нейтральной позиции двух разных по направленности блоков. Более того, в последние годы, а конкретно под председательством России в БРИКС, объединение становится все более привлекательным для вступления иных государств.

Важно отметить представителей СМИ стран основных членом объединения. Новостные ресурсы председательствующей страны - России располагают информацией о Саммите. Так, Первый канал, отмечает «отсутствие равнодушия» у стран Запада, ведь для российской дипломатии Саммит стал настоящим дипломатическим успехом [206].

Несмотря на отсутствие на Саммите Лулы да Силвы, который не смог приехать из-за состояния здоровья, Бразилию представлял министр иностранных дел Бразилии Мауро Вийера. Carta Capital отмечает проблемы с единой валютой между странами-участниками [207]. Президент Нового банка развития, известного как Банк БРИКС, Дилма Руссефф также выступила за увеличение финансирования в национальных валютах, заменив доллар.

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[203] Putin returns to world stage hosting 36 leaders at Brics summit in Russia // The Guardian URL: https://www.theguardian.com/business/2024/oct/22/putin-brics-summit-russia-china-india-iran-kazan (проверено: 27.02.2025).

[204] Putins Club der Autokraten wächst, und der Westen wirkt kraftlos // Tages-Anzeiger International URL: https://www.tagesanzeiger.ch/brics-gipfel-putins-autokraten-klub-waechst-westen-schwaechelt-414467457969 (проверено: 26.02.2025).

[205] Wendet sich die Türkei von Europa ab – und Russland zu? // Handelsblatt URL: https://www.handelsblatt.com/politik/international/brics-gipfel-wendet-sich-die-tuerkei-von-europa-ab-und-russland-zu/100080204.html (проверено: 26.02.2025).

[206] Саммит БРИКС в Казани стал главной темой в ведущих СМИ по обе стороны океана // Первый канал Новости URL: https://www.1tv.ru/news/2024-10-25/490551-sammit_briks_v_kazani_stal_glavnoy_temoy_v_veduschih_smi_po_obe_storony_okeana (проверено: 24.02.2025).

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Однако для достижения поставленной цели, которая будет являться «пиком» создания многополярного мира, маловероятна.

О важности создания единой валюты для многостороннего расширения сотрудничества пишет и Китайская ежедневная газета «Жэньминь Жибао онлайн». Согласно Казанской декларации, Новый банк развития декларирует расширение финансирования в местной валюте[208].

Еще один партнер, являющийся ключевым для России, Индия, выделяет дипломатические успехи Саммита. В своем прощальном заявлении Моди подчеркнул важность БРИКС как платформы для диалога по ключевым глобальным вызовам. По прибытии в Казань, премьер-министра Индии Нарендра Моди встречают студенты с традиционными песнями. Национальный танец сопровождал премьер-министра во время остановки в отеле [209]. Такие действия являются ярким примером мягкой силы дружественных стран.

Масибонгве Сихлахл, независимый писатель от IOL, выделяет опасения США касательно возрастающей роли БРИКС в последние годы. БРИКС никогда не выражал антиамериканскую риторику, вместо этого предпочитая сосредоточиться на продвижении прозрачности, демократии и сотрудничества. Соединенные Штаты ищут различные пути достижения своих целей, устраивая «ловушки», шантаж и манипуляции для контроля ключевых лидеров. Несмотря на эти попытки, страны БРИКС по-прежнему решительно стремятся к более демократическому мировому порядку[210].

Бывшие страны Содружества Независимых Государств выразили заинтересованность во вступлении в БРИКС, среди них Азербайджан, Белорусь, Казахстан. Несмотря на то, что страны в течение десятилетий стремились к активному маневрированию между разными центрами силы, современная политическая обстановка побуждает к развитию в одном направлении. Так, Азербайджанское Государственное Информационное Агентство отмечает важность построения многополярного мира для страны. Желание вступить в объединение обусловлено еще союзническими отношениями с Россией и ее субъектами, в частности с Республикой Татарстан[211].

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[208] Государства-члены БРИКС договорились поддержать НБР в расширении финансирования в местной валюте -- декларация // Жэнимин Жибао онлайн URL: http://russian.people.com.cn/n3/2024/1025/c31519-20233844.html (проверено: 24.02.2025).

[209] Modi receives rousing welcome in Russia for BRICS Summit // The Stetesman URL: https://www.thestatesman.com/india/modi-receives-rousing-welcome-in-russia-for-brics-summit-1503356343.html (проверено: 24.02.2025).

[210]Celebrating BRICS: A Beacon of Hope for a Multipolar World // IOL URL: https://www.iol.co.za/news/politics/opinion/celebrating-brics-a-beacon-of-hope-for-a-multipolar-world-91de3a7f-13a8-4f12-a2f5-9c345e17af57 (проверено: 24.02.2025).

[211] Посол: Укрепление сотрудничества с БРИКС отвечает коренным национальным интересам Азербайджана // Азербайджанское Государственное Информационное Агентство URL: https://azertag.az/ru/xeber/posol_ukreplenie_sotrudnichestva_s_briks_otvechaet_korennym_nacionalnym_interesam_azerbaidzhana-3240296 (проверено: 24.02.2025).

Проанализировав работы медиа-каналов различных по политическому курсу стран, можно сделать вывод о том, что Саммит «не оставил равнодушным» ни одно государство мира. Для недружественных для России стран встреча глав государств, с одной стороны, вызвала восхищение своим масштабом, а с другой опасения касательно укрепления блока. Исходя из работ дружественных и нейтральных стран, развитие России, в частности Казани, а также тесные отношения со странами-участниками БРИКС показали, что Россия не сломлена западными санкциями и продолжает следовать своему политическому курсу. Все больше государств проявляют интерес к развитию отношений со странами БРИКС, о чем говорят заявления от политических лидеров на новостных каналах.

Однако важно помнить, что медийное представление часто субъективно и зависит от точки зрения каждого конкретного издания или журналиста. Поэтому всегда важно анализировать информацию из разных источников, чтобы получить более объективное представление о мировых событиях.

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ВЫБОР МАТЕРИАЛОВ ОБОРУДОВАНИЯ ОЧИСТКЕ ПРИРОДНОГО ГАЗА

Аннотация: *В статье рассматриваются критические аспекты выбора материалов для оборудования, используемого в установках очистки природного газа, подвергающегося воздействию кислых компонентов, таких как сероводород (H_2S), углекислый газ (CO_2) и органические сернистые соединения (меркаптаны).*

Ключевые слова: *сероводород, углекислый газ, хлориды и меркаптаны, углеродистые и аустенитные стали, никелевые суперсплавы.*

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SELECTION OF MATERIALS FOR NATURAL GAS CLEANING EQUIPMENT

Annotation: *This paper discusses critical aspects of material selection for equipment used in natural gas treatment plants exposed to acidic components such as hydrogen sulfide (H_2S), carbon dioxide (CO_2) and organic sulfur compounds (mercaptans).*

Key words*: hydrogen sulfide, carbon dioxide, chlorides and mercaptans, carbon and austenitic steels, nickel superalloys*

Очистка природного газа от кислых компонентов является неотъемлемой частью технологической схемы на предприятиях нефтегазовой отрасли. Используемое оборудование постоянно подвергается воздействию агрессивных сред, вызывающих коррозионное разрушение, снижение механической прочности и преждевременные отказы. Наиболее опасными компонентами являются сероводород, углекислый газ, хлориды и меркаптаны. В таких условиях к материалам предъявляются особые требования по коррозионной стойкости, прочности и термоустойчивости.

Сероводород (H_2S) способствует проникновению атомарного водорода в структуру материала, что приводит к сульфидному растрескиванию под напряжением (SSC) и водородному охрупчиванию (HE). Углекислый газ

(CO_2), в сочетании с влагой, образует угольную кислоту, ускоряющую общее истончение стенок оборудования. Меркаптаны и органические кислоты усугубляют коррозионные процессы, особенно в зоне сварных соединений и внутренних напряжений.

Оборудование для очистки природного газа часто подвергается воздействию агрессивных компонентов, таких как H_2S, CO_2, хлориды и органические кислоты. Стандартные материалы, включая углеродистые и аустенитные стали, в таких условиях быстро теряют прочность и коррозионную стойкость. В связи с этим никелевые суперсплавы, в частности Inconel 625, стали широко использоваться в критических участках технологических установок.

Ниже приведены химический состав и свойства материала Inconel 625; Основные легирующие элементы: Ni (58% мин), Cr (20–23%), Mo (8–10%), Nb + Ta (3.15–4.15%). Сплав отличается высокой стойкостью к межкристаллитной и точечной коррозии, предел прочности достигает 827 МПа, предел текучести — около 414 МПа, при температурной устойчивости до 980 °C.

Области применения материала Inconel 625 в газовой промышленности:

- Внутренние облицовки колонн аминовой очистки и десорберов
- Теплообменники в зонах высокого давления и температуры
- Трубопроводы для H_2S-содержащего газа
- Компоненты компрессоров и насосов в контакте с кислой средой

Механизм коррозионного разрушения, включая сульфидное растрескивание под напряжением (SSC), водородное растрескивание (HIC) и коррозию под напряжением (SCC). Представлен сравнительный анализ различных материалов — от углеродистых сталей до никелевых суперсплавов.

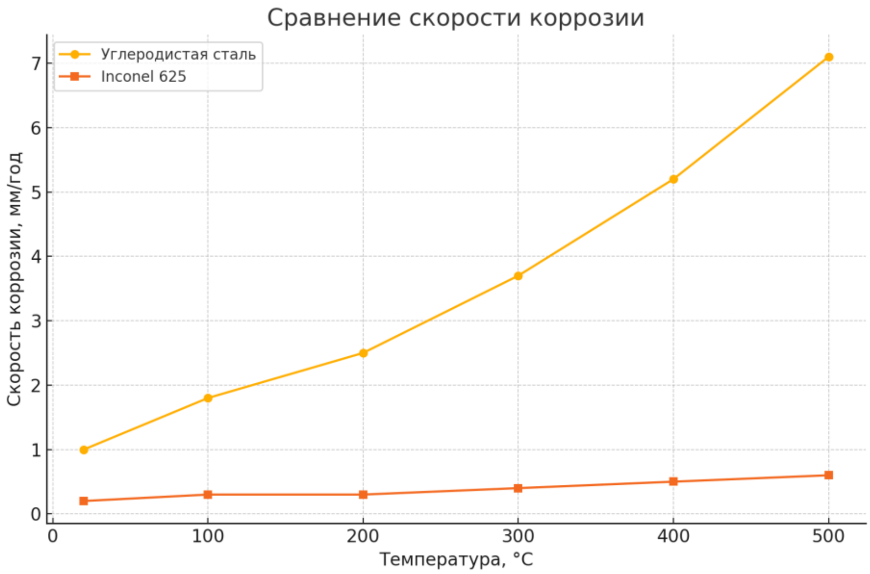
Таблица №1. Сравнительные показателей свойств материалов

Показатель	**Inconel 625**	**316L**	**Дуплекс 2205**
Предел прочности (МПа)	827	530	620
Устойчивость к H_2S	Отличная	Средняя	Высокая
Темп. предел (°C)	980	550	600
PREN (стойкость к точечной коррозии)	≥ 50	24–28	35–40

На газоперерабатывающем заводе в Западной Сибири оборудование колонны регенерации амина из стали 316L показало признаки точечной коррозии уже через 2 года эксплуатации. После замены облицовки на Inconel 625 проблемы коррозии были полностью устранены, и колонна работает более 7 лет без признаков деградации.

Таблица №2. Сравнительный анализ применяемых материалов

Материал	SSC-стойкость	CO_2-коррозия	HIC-стойкость	Экономичность
Углеродистая сталь (X65)	Низкая	Низкая	Низкая	Высокая
316L	Средняя	Средняя	Низкая	Средняя
Дуплекс 2205	Высокая	Высокая	Средняя	Средняя
Inconel 625	Отличная	Отличная	Отличная	Низкая



В 2020 году на одной из газоочистных установок были зафиксированы множественные сквозные коррозионные повреждения в зоне нижнего коллектора абсорбера. Материал – нержавеющая сталь 304L. Исследование показало наличие напряжений в сварных швах и следов хлоридной SCC. После реконструкции колонны с применением внутреннего покрытия на основе сплава Hastelloy удалось значительно увеличить межремонтный интервал.

Ниже предложены рекомендации по выбору материалов для повышения надежности и увеличения срока службы оборудования;

- Использовать дуплексные стали и CRAs в зонах высокой концентрации H_2S.
- Применять внутренние покрытия и футеровки в крупных сосудах.
- Обязательно соблюдать стандарты NACE MR0175/ISO 15156.
- Проводить регулярный контроль состояния (UT, ЭМП, визуальный осмотр).
- Избегать чрезмерного упрочнения сварных швов - постобработка обязательна.

Inconel 625 представляет собой надёжный материал для применения в условиях агрессивной газовой среды. Благодаря превосходной стойкости к коррозии, растрескиванию и термической стабильности, сплав успешно используется в критических компонентах оборудования очистки природного газа, обеспечивая безопасность и долговечность систем.

Хотя стоимость сплава Inconel 625 значительно выше традиционных сталей, его применение оправдано в зонах, где возможны коррозионные разрушения и аварии. Снижение частоты ремонтов и увеличение срока службы компенсируют первоначальные затраты, особенно в труднодоступных и ответственных элементах оборудования.

Выбор материалов для газоочистных установок должен основываться на глубоком анализе условий эксплуатации и потенциала коррозионных рисков. Современные материалы, такие как дуплексные стали и никелевые сплавы, при правильном применении обеспечивают высокий уровень надежности и долговечности даже в наиболее агрессивных средах.

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ПРОБЛЕМЫ В МЕХАНИЗМАХ ИСПОЛЬЗОВАНИЯ ГОСУДАРСТВЕННОГО ВНЕШНЕГО ДОЛГА И ИХ ИНСТИТУЦИОНАЛЬНЫЕ РЕШЕНИЯ: ФОКУС НА УЗБЕКИСТАНЕ

Аннотация: *В данной статье рассматриваются проблемы механизма использования государственного внешнего долга Узбекистана и предлагаются институциональные решения для повышения эффективности его использования. Проанализированы динамика и структура государственного внешнего долга Республики Узбекистан, включая распределение задолженности по типам кредиторов, валютам и целевому назначению. Проблемными аспектами являются высокая доля внешнего долга в иностранной валюте, значительная зависимость от внешних кредиторов (международных финансовых институтов и отдельных стран-кредиторов) и риски, связанные с госгарантиями по долгам госкомпаний. В статье предлагаются институциональные меры для решения этих проблем: укрепление системы управления государственным долгом, внедрение фискальных правил и ограничений на заимствования, развитие внутреннего финансового рынка для замещения внешних заимствований, а также повышение прозрачности и эффективности использования привлеченных средств. Предложенные решения нацелены на обеспечение долговой устойчивости и снижение рисков, связанных с государственным внешним долгом, при одновременном поддержании экономического роста и инвестиционной активности.*

Ключевые слова: *государственный долг, кредиты, финансовые институты, долговая устойчивость, экономический рост, анализ стран.*

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PROBLEMS IN THE MECHANISMS OF USING GOVERNMENT EXTERNAL DEBT AND THEIR INSTITUTIONAL SOLUTIONS: FOCUS ON UZBEKISTAN

Annotation:*This article considers the problems of the mechanism of utilisation of the public external debt of Uzbekistan and proposes institutional solutions to improve the efficiency of its use. The dynamics and structure of public external debt of the Republic of Uzbekistan, including debt distribution by types of creditors, currencies and purpose are analysed. Problematic aspects are the high share of external debt in foreign currency, significant dependence on external creditors (international financial institutions and individual creditor countries) and risks associated with state guarantees on debts of state-owned companies. The article proposes institutional measures to address these problems: strengthening of the public debt management system, introduction of fiscal rules and restrictions on borrowing, development of the domestic financial market to replace external borrowing, and increasing transparency and efficiency of the use of borrowed funds. The proposed solutions are aimed at ensuring debt sustainability and reducing risks associated with public external debt, while maintaining economic growth and investment activity.*

Keywords: *public debt, loans, financial institutions, debt sustainability, economic growth, country analysis.*

Введение

Государственный внешний долг является важным инструментом финансирования развития, однако его неэффективное использование способно породить серьезные макроэкономические риски. С одной стороны, внешние заимствования позволяют финансировать структурные реформы, инвестиционные проекты и покрывать бюджетный дефицит, ускоряя экономический рост. С другой стороны, чрезмерное и бесконтрольное накопление долга при ограниченных возможностях обслуживания ведет к системным проблемам – росту долгового бремени, ухудшению платежного баланса и даже угрозе суверенного дефолта. Особенно актуально это для развивающихся и переходных экономик, где институты управления долгом находятся в стадии формирования. Узбекистан, активно привлекающий внешний долг в последние годы в ходе экономических реформ, сталкивается с типичными проблемами эффективности использования заемных средств и обеспечения долгосрочной устойчивости долга. Настоящая статья представляет критический обзор литературы по данной теме, анализирует практику Узбекистана – существующие механизмы распределения и использования внешнего долга, характерные проблемы и их институциональные причины – а также проводит сравнительный анализ с рядом сопоставимых стран (Казахстан, Грузия, Турция, Россия, Азербайджан, Китай). На основе выявленных закономерностей и успешного зарубежного опыта предлагаются научно обоснованные выводы и рекомендации.

Обзор литературы

Проблематика государственного долга и эффективности его использования широко исследуется экономистами. Ряд работ подчеркивает, что не существует универсального предельного уровня долга, приемлемого для всех стран – оптимальные параметры зависят от уровня развития экономики и иных условий. Так, A. Pienkowski показывает, что долговая нагрузка должна оцениваться с учетом структуры долга: для развитых стран могут применяться более высокие пороги, особенно при использовании инновационных инструментов (например, облигаций, привязанных к росту ВВП), тогда как для развивающихся стран важно смещать заимствования в национальную валюту[212]. Другие исследователи фокусируются на смягчении негативных последствий высокого долга. P. Leao отмечает необходимость фискальных механизмов, снижающих влияние высокой задолженности на рост налогового бремени, риск дефолта и инфляцию[213]. E. Beqiraj и соавт. изучили реакцию правительств 21 страны ОЭСР на рост показателя долг/ВВП и выявили корреляцию между ускоренным накоплением долга и бюджетным дефицитом; они подчеркивают важность своевременных корректирующих мер при превышении долговых ориентиров[214]. В целом литература сходится во мнении, что высокая государственная задолженность может негативно сказаться на финансовой и экономической стабильности, если не подкреплена надлежащим управлением и «политической волей» для проведения необходимых мер оздоровления[215].

Особое внимание в исследованиях уделяется институциональным аспектам управления внешним долгом. Исторический опыт развивающихся стран свидетельствует, что слабость институтов и несовершенство механизмов мониторинга долга часто приводят к нецелевому использованию заемных средств и росту рисков кризиса задолженности. Так, в странах Центральной Азии в постсоветский период остро стояла задача формирования системы управления внешним долгом; эксперты отмечали необходимость создания специализированных институтов мониторинга и стратегического планирования долга для обеспечения sound-биржевой политики заимствований[216]. Международные организации (МВФ, Всемирный банк) также разработали руководящие принципы по управлению государственным долгом, акцентируя прозрачность, подотчетность, координацию долговой политики с фискальной и монетарной политикой, а также разработку

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среднесрочных стратегий долга. Например, МВФ и ВБ рекомендуют странам разрабатывать Среднесрочную стратегию управления долгом (MTDS) и ежегодные планы заимствований, чтобы сбалансировать потребности в привлечении ресурсов с контролем рисков портфеля[217].

Наконец, в литературе подчёркивается, что ключевым фактором успешного использования внешних займов является направление их в продуктивные проекты развития, а не на текущее потребление. Внешний долг оправдан, если привлеченные средства создают отдачу в виде экономического роста, увеличения экспортного потенциала или бюджетных поступлений, достаточных для обслуживания этого долга. В противном случае заемные ресурсы лишь временно затыкают бюджетные дыры, а обслуживание долга ложится растущим бременем на экономику. Таким образом, обзоры международного опыта нацеливают исследователей на анализ не только количественных параметров долга, но и качества институтов, механизма распределения средств и их эффективности.

Методология исследования

В статье были изучены теоретические и методологические основы государственного долга, а также использованы официальные данные Республики Узбекистан, Министерства экономики и финансов, данные Всемирного банка, Международного валютного фонда, а также различных других официальных сайтов для сравнительного, структурного и сопоставительного анализа. В исследовании использовался метод анализа, сравнения и сопоставления статистических данных. Были проанализированы долговая политика и данные по долгу зарубежных стран и данные по долгу нашей страны. В то же время в научном наблюдении использовались методы сравнительного анализа.

Анализ и результаты

В последние годы Узбекистан значительно нарастил объем государственного долга, особенно внешнего, для финансирования масштабных реформ и инвестпроектов. Государственный внешний долг страны вырос с относительного низкого уровня в середине 2010-х до $25,9 млрд (36,4% ВВП) на начало 2023 г. и продолжил расти до $31,5 млрд (~37% ВВП) к середине 2023 г. Узбекистан вышел на рынки капитала – были выпущены суверенные еврооблигации, что позволило диверсифицировать источники заимствований и установить бенчмарк на внешних рынках[218]. Традиционно же основными кредиторами являлись международные финансовые организации (Азиатский банк развития, Всемирный банк, Исламский банк развития и др.) и правительства других стран на основе двусторонних соглашений. Привлеченные извне средства поступают как

[217] Marie S Kim, Lilia Razlog, Juan Carlos Vilanova, and Juan Lorenzo Maldonado. "Uzbekistan: Medium-Term Debt Management Strategy and Annual Borrowing Plan", *High-Level Summary Technical Assistance Reports* 2025, 009 (2025), accessed May 23, 2025.

[218] Jasur Karshibaev. Improving debt management in uzbekistan. DMFAS Advisory Group Presentation. 12th DMFAS Advisory Group Meeting 21-22 November 2019. Geneva.

напрямую в государственный бюджет (в виде бюджетной поддержки), так и целевыми кредитами на инвестиционные проекты, реализуемые государственными предприятиями. В последнем случае Министерство экономики и финансов выступает заемщиком от имени правительства и перераспределяет средства конкретным госпредприятиям или отраслевым ведомствам под гарантии государства. До 2018 г. внутренний государственный долг Узбекистана отсутствовал вовсе, поэтому финансирование дефицита и проектов практически полностью опиралось на внешние займы. Лишь в 2019 г. начато формирование рынка государственных ценных бумаг в сумах, и доля внутреннего долга достигла ~29% от общего объема госдолга. В 2022–2023 гг. правительство также выпускало еврооблигации, номинированные в национальной валюте (сум), включая первый «зеленый» выпуск, что служит цели снижения валютных рисков. Таким образом, механизм распределения внешних заимствований в Узбекистане сочетает прямое бюджетное финансирование дефицита и развитие секторов через кредитование проектов (часто в инфраструктуре и энергетике) под государственные гарантии. Несмотря на активное использование внешних ресурсов, Узбекистан сталкивается с рядом проблем, снижающих эффективность внешних заимствований:

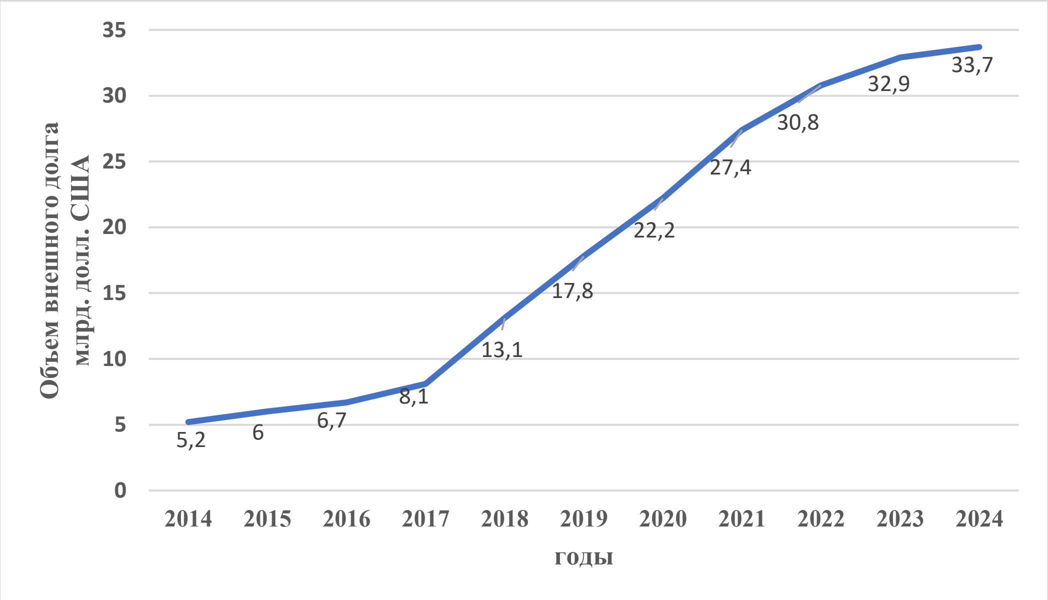
- В прошлые годы наблюдался дефицит институциональных механизмов отслеживания того, как привлеченные извне средства осваиваются внутри страны. Исследователи указывают, что отсутствие эффективной системы мониторинга внешних займов и контроля их целевого размещения серьезно угрожало экономической безопасности Узбекистана. На практике это означало, что государство брало кредиты, например, для проектов в регионах или для госпредприятий, но не имело достаточной прозрачности и учета по фактическому использованию денег на местах. Такой пробел создавал риски нецелевого использования и коррупции, снижая отдачу от заемных средств.
- Эксперты сходятся во мнении, что корень долговых проблем – общая низкая эффективность экономики, не позволяющая сформировать доходную базу бюджета без постоянно растущих заимствований. Внешние кредиты нередко идут на проекты с длительной окупаемостью или низкой рентабельностью, либо же на покрытие текущих расходов, не генерирующих будущие доходы. В результате страна вынуждена постоянно привлекать новые займы для рефинансирования или поддержки бюджета. По оценке З. Чориевой, основная проблема использования публичного долга Узбекистана имеет системный характер – экономика не генерирует достаточных внутренних ресурсов, чтобы обойтись без внешнего финансирования, что ведет к наращиванию долга. При сохранении низкой эффективности вложений внешние заимствования могут перейти из разряда стимулятора развития в разряд долгового бремени.
- Хотя совокупный объем долга пока умеренный, его структура пока далека от оптимальной. Большая часть внешнего долга номинирована в

иностранной валюте (прежде всего в долларах США, а также в иенах, SDR, евро), что создает валютный риск: обесценение сума автоматически увеличивает бремя выплат. Кроме того, значительная доля кредитов поступает от международных институтов под относительно льготные проценты, но с сокращением донорского финансирования Узбекистан начал выходить на рыночные заимствования по менее выгодным ставкам. Уже сегодня обслуживание государственного долга требует крупных средств: по некоторым данным, расходы на обслуживание внешнего долга сопоставимы или даже превышают бюджетные расходы по ключевым секторам. Это сокращает инвестиционный потенциал бюджета, вытесняя возможности финансирования развития за счет собственных средств. Таким образом, обслуживание долга становится тяжелым бременем, ограничивая фискальное пространство.

• Отдельной проблемой является скрытая задолженность госсектора вне центрального правительства. В Узбекистане ряд крупных заемщиков внешних средств – это госпредприятия и банки с госучастием, которые привлекают кредиты либо под государственные гарантии, либо даже без прямых гарантий, но в случае их неплатежеспособности ответственность де-факто ляжет на бюджет. По оценке S&P, объем негарантированного долга организаций госсектора (GRE) и обязательств по ГЧП в 2023 г. составил около 8% ВВП; эти условные обязательства создают риск для бюджета, если проекты окажутся нежизнеспособными. Хотя официальная статистика госдолга учитывает только прямой и гарантированный долг правительства, реальное долговое бремя шире, включая квазисуверенные обязательства. Этот фактор связан с институциональными перегибами прошлого – невыделением единого учета всех рисков госсектора. Сейчас в Узбекистане признают эту проблему: аналитики рейтинговых агентств специально объединяют гарантированный долг госпредприятий с долгом правительства, учитывая тесные связи государства с этими компаниями.

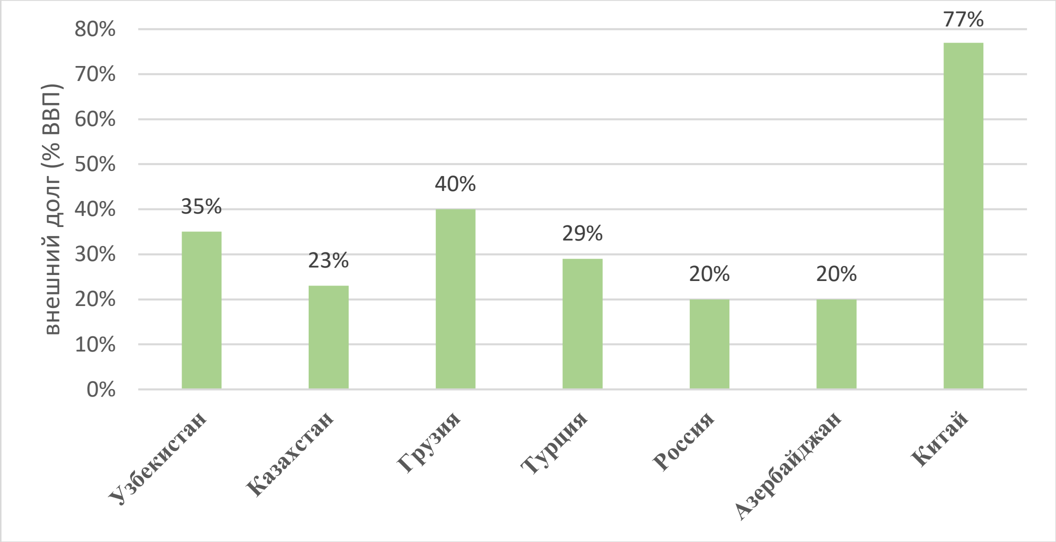
• Отсутствие до недавнего времени единой стратегии и институциональной инфраструктуры управления долгом. Исторически управление государственным долгом Узбекистана носило разрозненный характер. В 1990-е – 2000-е годы за внешние займы отвечали различные ведомства, не было отдельного органа, фокусированного на долговой портфель. Лишь в 2018 г. в структуре Министерства финансов создано специализированное Агентство по управлению государственным долгом (Debt Management Office, DMO). При поддержке международных организаций внедрена современная система учета и анализа долга DMFAS (Debt Management and Financial Analysis System), начата разработка Среднесрочной стратегии управления госдолгом (MTDS). Тем не менее, эти институты еще молодые. К моменту их создания значительная часть внешних заимствований уже была осуществлена без четкой стратегии. Отсутствие в прошлом продуманной долговой политики привело к тому, что заимствования совершались оппортунистически – когда предоставлялись кредитные линии, их старались освоить, не всегда увязывая с приоритетами развития и долговой устойчивостью. Кроме того, законодательная база управления долгом ранее была фрагментарной: лимиты заимствований утверждались ежегодно законом о бюджете (например, на 2023 г. был установлен предел внешних заимствований в $4,5 млрд), но не было закреплено постоянных «правил игры». Лишь в 2021–2022 гг. принят Закон о государственном долге, устанавливающий долговые фискальные правила: предельный уровень государственного долга определен в 60% ВВП, а превышение 50% ВВП требует принятия мер по консолидации. Эта новация – важное институциональное решение, однако ее практическая эффективность еще предстоит проверить.

Динамика внешнего государственного долга Узбекистана за последние 10 лет (2014–2024 гг.), млрд долл. США.



На графике видно, что объем внешнего долга правительства увеличился с уровня около $4–5 млрд в середине 2010-х годов до $33,7 млрд к концу 2024 года. Отношение внешнего долга к ВВП за тот же период поднялось примерно с 8–10% (в 2014–2016 гг.) до ~30% и более после 2020 г. Столь резкий рост обусловлен несколькими факторами. Во-первых, в 2017 году после либерализации валютного курса узбекский сум значительно девальвировал, что привело к техническому повышению показателя долга к ВВП ~на 6 п.п. без эквивалентного увеличения заемных средств. Во-вторых, с началом экономических реформ и открытости Узбекистан стал активно привлекать внешние займы для финансирования крупных проектов развития. В 2017–2021 гг. правительство заняло миллиарды долларов на проекты в энергетике, транспортной и социальной инфраструктуре, а также для покрытия бюджетных дефицитов во время пандемии. Например, только за 2020–2023 гг. чистый рост госдолга в среднем составлял около 6,3% ВВП ежегодно за счет финансирования инвестиционных проектов. В результате совокупный государственный долг увеличился с $17,8 млрд (2019 г.) до $40,2 млрд (2024 г.), из которых внешняя составляющая – $33,7 млрд (84%). Темпы роста внешнего долга несколько замедлились к 2022–2024 гг. по мере ужесточения контроля за заимствованиями, однако прогнозируется дальнейший рост: согласно оценкам, к 2027 г. госдолг может достигнуть ~43% ВВП (против ~35% в 2023 г.) при сохранении текущих тенденцийasiaterra.info. Эти данные указывают на необходимость усиления мониторинга и управления долгом, чтобы предотвратить накопление избыточной задолженности.

Сравнительные уровни государственного долга (% к ВВП) в Узбекистане и сопоставимых странах



Как видно из сравнительных данных, соотношение госдолга к ВВП Узбекистана (~35%) выше, чем в Казахстане (~23% ВВП), и примерно на уровне Грузии (~40% ВВП) и Турции (~29% ВВП). Россия и Азербайджан имеют более низкую долговую нагрузку (около 20% ВВП или менее) благодаря поступлениям от экспорта нефти и консервативной фискальной политике. В то же время Китай демонстрирует существенно более высокий уровень долга (~77% ВВП), однако большая часть его долга номинирована во внутренней валюте и удерживается внутри страны, что отличает его ситуацию. Следует отметить, что в структуре долга Казахстана, России и Азербайджана доля внешнего долга сравнительно невелика – эти страны финансируют бюджет в основном за счет внутренних ресурсов и доходов от экспорта сырья. Например, Казахстан имеет внешний госдолг около $20 млрд (менее 10% к ВВП), при этом обладает большими резервами и активами Национального фонда, что делает его чистым кредитором миру. Россия до недавнего времени придерживалась политики минимального внешнего заимствования, поддерживая очень низкое отношение долга к ВВП (~20%) и накапливая суверенные резервы. Азербайджан аналогично сдерживает уровень долга, используя доходы Государственного нефтяного фонда вместо займов. Грузия, напротив, существенно зависит от внешних заимствований: значительная часть ее госдолга приходится на кредиты МВФ, Всемирного банка и Евробонды, что делает ее уязвимой к внешним шокам, хотя текущий уровень (~40% ВВП) считается управляемым. Турция имеет относительно невысокий государственный долг (~30% ВВП), но сталкивается с высокими внешними обязательствами частного сектора и валютными рисками, поэтому правительство стремится по возможности занимать в национальной валюте. Политика управления долгом в рассматриваемых странах различается: Казахстан и Азербайджан придерживаются консервативной стратегии, ограничивая заимствования и накапливая фонды благосостояния; Россия до санкционных ограничений тоже имела правило о низком долге и Фонд национального благосостояния. Грузия и Узбекистан более активно привлекают внешние кредиты для развития, но Грузия внедрила меры хеджирования (фиксированные ставки ~50% долга) для снижения рисков, а Узбекистан разрабатывает среднесрочную стратегию управления долгом с лимитами на ежегодные заимствования. Турция фокусируется на управлении валютным риском и инфляцией, постепенно снижая долю внешнего госдолга. Китай, обладая значительным внутренним рынком, ориентируется на внутренние заимствования и стимулирование экономики, хотя рост долга создает долгосрочные вызовы. В целом, сравнительный анализ показывает, что при умеренном текущем уровне долга Узбекистану необходимо совершенствовать институциональные механизмы – перенимая лучшие практики (как фискальные правила и прозрачность) у аналогичных стран – чтобы обеспечить устойчивое управление госдолгом на фоне растущих потребностей в финансировании развития.

В совокупности, проблемы Узбекистана в сфере внешнего долга проистекают как из объективных экономических факторов (недостаточная внутренняя ресурсная база, большая потребность в инвестициях), так и из институциональных недоработок (слабый контроль, отсутствие долгосрочной стратегии в прошлом, неполный охват учета долга госсектора). Признанием этих проблем служат меры, которые власти уже предпринимают: укрепление институциональной структуры (создание DMO), повышение прозрачности и учета (внедрение DMFAS, публикация данных), ограничение новых займов и смещение акцента на внутренние заимствования в национальной валюте для снижения валютных рисков. Тем не менее, перед страной стоит задача повысить эффективность использования уже накопленного долга – обеспечить реализацию проектов, финансируемых заемными средствами, с максимальной отдачей. Международные рейтинговые агентства подчеркивают: потенциальный риск для Узбекистана возникнет, если быстрый рост долга продолжится без соответствующего экономического эффекта от инвестиций. Поэтому институциональные реформы в управлении долгом должны сопровождаться улучшением качества госинвестиций и общим усилением экономической эффективности.

Для выявления возможных решений рассмотрим опыт управления государственным внешним долгом в странах, схожих по экономическим условиям или переживших аналогичные вызовы. В качестве примеров выбраны Казахстан, Грузия, Турция, Россия, Азербайджан и Китай –

государства, которые, как и Узбекистан, в недавней истории проходили через этап активного заимствования и реформировали институты управления долгом.

Казахстан обладает особенностью, выгодно отличающей его долговую позицию: наличие крупных сырьевых доходов, аккумулируемых в суверенном фонде. Благодаря нефтегазовым поступлениям страна создала Национальный фонд Республики Казахстан, который накапливает сверхдоходы от экспорта. Это позволило Казахстану избегать чрезмерного наращивания госдолга. Объем государственного долга Казахстана остается низким – около 23% ВВП (на конец 2023 г.), при этом внешняя его часть составляет порядка $20 млрд. Одновременно активы Национального фонда и золотовалютные резервы страны превышают $100 млрд, что эквивалентно 30–35% ВВП. По словам представителей Минфина, Казахстан сегодня больше нетто-кредитор, чем должник миру: накопленные резервы значительно покрывают весь объем долга, благодаря чему “государственный долг не является проблемой для Казахстана”.

Институционально Казахстан также предпринимает меры для поддержания устойчивости долга. В 2022 г. правительство утвердило ограничение: совокупный госдолг не должен превышать ~53,5% ВВП, хотя фактические показатели гораздо ниже этого лимита. Более того, с 2024 г. планируется держать задолженность не выше ~32% ВВП, согласно заявленной стратегии. Публикуются среднесрочные обзоры долга; эксперты Всемирного банка рекомендовали Казахстану начать практику публичного выпуска Среднесрочной стратегии управления публичным долгом для повышения прозрачности и предсказуемости долговой политики. Важную роль играет и развитый рынок внутренних заимствований: Казахстан эмитирует государственные облигации в национальной валюте, что снижает зависимость от внешних кредиторов. Таким образом, казахстанский подход – сохранять умеренный уровень долга, опираясь на накопленные фондом ресурсы для финансирования расходов и поддержания ликвидности. Во время шоков (падения цен на нефть, кризисов) Казахстан использует средства фонда, избегая резкого наращивания внешних займов. Этот институциональный механизм – своего рода «стабилизатор» – уберег страну от долговых стрессов и обеспечил одну из самых комфортных ситуаций с долгом в регионе.

Грузия, не обладая большими сырьевыми резервами, тем не менее сумела выстроить систему ограничения государственного долга через жесткие законодательные рамки. Еще в 2011 г. был принят «Органический закон об экономической свободе», который ввел фискальные правила, в том числе ограничение госдолга на уровне не более 60% ВВП. Этот так называемый «долговой тормоз» был призван удерживать страну от перерастания долговой нагрузки. До пандемии COVID-19 правительству удавалось соблюдать ограничение – в 2012–2019 гг. госдолг Грузии находился ниже 60% ВВП. В 2020 г., в разгар ковидного кризиса, соотношение долга к

ВВП временно поднялось примерно до 60% (внешний долг достиг ~50% ВВП, что на 23 процентных пункта выше уровня 2012 г. согласно оценкам), из-за необходимости финансирования антикризисных мер. Однако уже к 2022 г. показатель снизился благодаря экономическому восстановлению. Правительство декларирует приверженность возвращению в рамки фискального правила по мере нормализации обстановки.

Следует отметить, что структура грузинского госдолга характеризуется высокой долей внешних займов на льготных условиях. Грузия активно сотрудничает с международными финансовыми организациями, получая кредиты МВФ, Всемирного банка, ЕБРР и др. под относительно низкие проценты. В результате средневзвешенная ставка по портфелю госдолга составляет лишь ~4,92% годовых, а обслуживание долга поглощает небольшую долю бюджетных доходов. Это облегчает долговое бремя: ежегодные платежи невелики и не «вытесняют» социальные и инвестиционные расходы бюджета. Еще одно достоинство – управление процентным риском: по данным Минфина Грузии, половина всей внешней задолженности правительства имеет фиксированную процентную ставку, что защищает бюджет от роста расходов при изменении мировой конъюнктуры ставок. В совокупности эти меры – фискальное правило (долговой лимит), преобладание concessional loans и хеджирование процентных рисков – можно считать успешным опытом. Грузия демонстрирует, что даже страна без значительных резервов может поддерживать долговую устойчивость, если строго ограничивать заимствования законодательством и грамотно выстраивать портфель долгов (по валюте, ставкам и пр.).

Турция предоставляет поучительный пример институциональных реформ в ответ на долговой кризис. В начале 2000-х Турция пережила острую финансово-долговую кризисную ситуацию: после кризиса 2001 г. отношение госдолга к ВВП превышало 70%, национальная валюта обесценивалась, доверие инвесторов было подорвано. В ответ власти провели радикальное укрепление системы управления публичными финансами. Ключевым шагом стало принятие в 2002 г. Закона № 4749 «О регламентации государственной финансовой и долговой политики», который заложил современную правовую базу управления долгом. Данный закон: (1) централизовал функции по заимствованиям в руках казначейства – только казначейство получило право брать займы от имени государства, что устранило практику некоординированных заимствований различными органами; установил лимиты на новые заимствования и выдачу госгарантий – тем самым ограничив неконтролируемый рост условных обязательств; определил процедурные правила для внутреннего и внешнего заимствования, переоформления долга, выдачи гарантий и т.д. на единой основе; реорганизовал структуру управления долгом – было создано специализированное подразделение по управлению рисками, внедрены современные методы оценки и контроля рисков долгового портфеля; обеспечил прозрачность и подотчетность: с этого момента правительство Турции обязалось регулярно раскрывать информацию о долге, его структуре, стратегии управления и связанных рисках. Результатом стало повышение доверия к турецкой долговой политике и существенное снижение долговой нагрузки в последующее десятилетие. Проведя приватизацию, фискальные реформы и строго придерживаясь рамок нового закона, Турция сократила отношение госдолга к ВВП с более 70% (в 2001) до около 30–40% в 2015 году.

Следует отметить, что Турция также диверсифицировала структуру долга: увеличила долю заемных средств в национальной валюте (лирах) и удлинила сроки заимствований. Хотя в последние годы внешние факторы (падение курса лиры, рост процентных ставок) вновь осложнили долговую ситуацию, основная уязвимость приходится на частный сектор и банковские внешние заимствования, тогда как государственный долг Турции остается умеренным по международным меркам (около 40% ВВП). Турецкий опыт показал, что институциональная перестройка (принятие всеобъемлющего закона о долге) способна быстро улучшить показатели: четкие ограничения и современные методы управления рисками защищают страну от многих потрясений. Для Узбекистана этот пример важен тем, что подчеркивает значение законодательного закрепления принципов долговой политики и создания профессиональной команды по управлению долгом.

Российская Федерация в 2000-е годы продемонстрировала решимость в снижении внешнего долга, используя благоприятную внешнеэкономическую конъюнктуру. После дефолта 1998 г. госдолг РФ превышал 100% ВВП, значительная его часть была внешней и досталась в наследство от СССР. Однако уже к середине 2000-х ситуация кардинально изменилась. Во многом это стало возможным благодаря учреждению в 2004 г. Стабилизационного фонда – механизма аккумулирования нефтегазовых сверхдоходов бюджета. Правительство направляло в этот фонд все нефтяные доходы от цен выше определенного порога ($20 за баррель), создав тем самым резерв для «черного дня». Накопленные средства фонд практически не тратил на внутренние нужды (во избежание перегрева экономики и инфляции), а основным направлением их использования стало досрочное погашение внешнего долга. Так, из Стабфонда были выплачены практически все долги Парижскому клубу кредиторов и погашена значительная часть иных обязательств – всего порядка $80 млрд, преимущественно по советской задолженности. Это объявлялось одним из главных достижений правительства того периода. В результате уже к 2005–2006 гг. государственный внешний долг России сократился до минимальных величин, а общий госдолг опустился ниже 20% ВВП.

Помимо погашения долга, в 2008 г. Стабилизационный фонд был преобразован в два фонда – Резервный фонд и Фонд национального благосостояния – что институционально закрепило деление накоплений на резерв для бюджетных выпадений и инвестиционный фонд. Россия ввела бюджетное правило, ограничивавшее траты нефтедолларов и связавшее их с наполнением фондов, поддерживая тем самым низкий уровень долга. В итоге до недавнего времени у России был один из самых низких показателей госдолга в мире (около 12–17% ВВП в 2011–2019 гг.), а объем международных резервов многократно превышал объем внешнего долга правительства. Такой консервативный подход – использовать сверхдоходы для выплаты долгов и создания «подушки безопасности» – помог России войти в периоды кризисов (2008–2009, 2014–2015) без угрозы долгового кризиса. Даже в условиях санкций и ограничения доступа на рынки в 2014–2018 гг. страна опиралась на внутренние источники и резервы, а внешний долг оставался контролируемым. Российский опыт наглядно демонстрирует эффективность досрочного снижения долгового бремени в благоприятные годы: это уменьшает расходы на обслуживание, повышает устойчивость к шокам и улучшает суверенные рейтинги. Для Узбекистана, имеющего пока умеренный долг, урок состоит в целесообразности ограничения аппетитов в периоды роста – при возможности лучше погашать наиболее дорогие и короткие займы, чем накапливать избыточные резервы в виде долга на счетах.

Азербайджан, как и Казахстан, обладает значительными нефтегазовыми ресурсами и создал собственный суверенный фонд – Государственный нефтяной фонд (SOFAZ) в 1999 г. – для аккумулирования экспортных доходов. Это позволило стране длительное время финансировать развитие без крупномасштабных заимствований. В середине 2010-х государственный долг Азербайджана был одним из самых низких: около 12% ВВП в 2015 г.. Одновременно нефтяные доходы дали возможность накопить большие валютные резервы – к 2014 г. совокупные резервы (ЦБ + SOFAZ) превышали 70% ВВП, что обеспечивало прочную гарантию от внешних потрясений. Однако падение цен на нефть в 2014–2015 гг. и последовавшая девальвация маната изменили картину: к 2016–2017 гг. госдолг Азербайджана вырос (в относительном выражении) и доходил до ~50% доходов бюджета, а отношение долга к ВВП, по некоторым оценкам, достигало порядка 20–25%. Тем не менее, благодаря жесткой фискальной политике и восстановлению экономики ситуация была быстро взята под контроль. Уже к концу 2021 г. совокупный государственный и гарантированный долг сократился до 42% ВВП, а к концу 2022 г. – резкое снижение до ~27% ВВП вследствие высоких темпов номинального роста (частично благодаря подъему цен на энергоносители). Рейтинговые прогнозы предполагают стабилизацию долга Азербайджана на низком уровне около 20% ВВП в среднесрочной перспективе.

Из институциональных мер Азербайджана следует отметить осторожный подход к заимствованиям: правительство устанавливает лимиты внешнего долга при утверждении среднесрочных бюджетных планов, а значительная часть дефицита покрывается трансфертами из нефтяного фонда, а не долгом. В периоды высоких нефтяных цен SOFAZ напрямую финансирует бюджетные инвестиционные проекты, сокращая потребность в кредитах. Кроме того, Азербайджан стремится привлекать внешние кредиты на льготных условиях для ключевых проектов (например, инфраструктура, транзит), нередко сочетая их с софинансированием из нефтяного фонда.

Таким образом, азербайджанская модель управления долгом во многом сходна с казахстанской: накопление резервов в хорошие времена, минимизация заимствований и использование суверенного фонда как источника развития. Это обеспечивает стране высокий кредитный рейтинг и устойчивость к внешним шокам, хотя и делает зависимой от волатильности нефтяных рынков. Для Узбекистана, не имеющего таких обильных ресурсных поступлений, прямое копирование модели затруднительно, однако принцип предельной осторожности в долговой политике и создание резервов на будущее остаются релевантными.

Китайская Народная Республика представляет особый случай: экономика Китая крупнее остальных рассматриваемых стран на порядки, и страна является скорее глобальным кредитором, чем заемщиком. Тем не менее, у Китая тоже имеется государственный внешний долг, и управление им строится на интересных институциональных началах. Подход Китая к внешним заимствованиям можно охарактеризовать как крайне консервативный и централизованный. С момента начала политики реформ и открытости (конец 1970-х) Китай активно привлекал внешние ресурсы для внутреннего развития, используя их преимущественно для финансирования инфраструктуры и промышленности. При этом власти строго контролировали масштабы и структуру такого долга. В результате, несмотря на колоссальный объем экономики, соотношение внешнего долга к ВВП у Китая остается умеренным (порядка 14–15% ВВП в последние годы), а основные показатели риска находятся в безопасных пределах по международным критериям. Китай традиционно поддерживает огромные золотовалютные резервы (около $3 трлн, ~20% ВВП), которые многократно покрывают его внешний долг, благодаря чему официально внешний долговой риск считается контролируемым.

Институциональная сторона китайской модели управления долгом включает строгие государственные регуляции. За различные аспекты внешнего заимствования отвечают несколько ведомств – Министерство финансов, Народный банк Китая, Государственное управление валютного контроля (SAFE) и комитет по развитию и реформам. Однако такая раздробленность породила проблему: отсутствие единого, консолидированного механизма управления внешним долгом и единого закона, регулирующего внешние заимствования. Китайские эксперты отмечают, что действующие правила фрагментированы по ведомствам, порой противоречивы и не обеспечивают целостного контроля рисков. В связи с этим выдвигается предложение о реформе: создать унифицированную систему регулирования внешнего долга, которая охватывала бы всех заемщиков (центральное правительство, местные власти, госпредприятия), все виды валют и сроки кредитов, и регулировала бы полный цикл – от привлечения до погашения. Цель – повысить эффективность использования внешних средств и предотвратить избыточные риски. Пока такая реформа не реализована, но сам факт постановки вопроса свидетельствует: даже при относительно благополучных показателях (Китай не сталкивался с кризисом задолженности), совершенствование институтов управления долгом рассматривается как приоритет. Из практических мер Китай традиционно ограничивает внешний долг местных органов власти, поощряя их занимать на внутреннем рынке, а также стимулирует привлечения инвестиций (FDI) вместо займов. Китайский опыт показывает, что крупная экономика может использовать внешние кредиты в своих интересах (особенно когда есть потребность в технологиях и капитале), но при условии жесткого государственного контроля и наличия “подушки безопасности” в виде резервов. Для Узбекистана Китай интересен тем, что иллюстрирует важность координации политики долга с общей финансовой системой и необходимости законодательного упорядочения всех долговых процессов, чтобы повысить прозрачность и управляемость.

Выводы и предложения

Проведенный анализ показал, что государственный внешний долг Узбекистана хотя и остается на умеренном уровне по международным меркам, однако быстро растет и несет в себе ряд рисков, связанных с валютной структурой и зависимостью от внешних кредиторов. Существующие проблемы в механизмах использования внешнего долга – такие как фрагментированное управление, недостаточная эффективность инвестирования привлеченных средств и потенциальные квазифискальные риски от долгов госкомпаний – требуют институциональных решений. К таким решениям относятся: создание единого долгого офиса (агентства) для профессионального управления госдолгом, внедрение фискальных правил (например, ограничение уровня долга к ВВП или дефицита бюджета), повышение прозрачности отчетности по заимствованиям и использование стратегического подхода к отбору проектов, финансируемых за счет внешних займов. Важно усилить координацию между Министерством финансов, Центральным банком и другими институтами для выработки оптимальной долговой стратегии, включая развитие внутреннего рынка государственных ценных бумаг, чтобы постепенно снижать долю внешних заимствований. Международный опыт сопоставимых стран свидетельствует о пользе поддержания умеренного долга и создании страховых буферов (резервов, фондов благосостояния) на случай внешних шоков. Реализация указанных институциональных мер позволит Узбекистану более эффективно использовать заемные средства для экономического роста и развития, сохраняя при этом долг на устойчивом и контролируемом уровне.

Сопоставление практики Узбекистана с опытом других стран позволяет сформулировать ряд выводов и рекомендаций в части совершенствования механизмов использования государственного внешнего долга и укрепления институциональной базы.

1. Институционализация управления долгом. Ключевой предпосылкой успешной долговой политики является наличие специализированных институтов и четких правил. Узбекистан сделал важные шаги в этом

направлении – создал Агентство по управлению госдолгом, внедрил системы учета (DMFAS), законодательно ввел лимиты долговой нагрузки (порог 60% ВВП). Однако дальнейшая институционализация должна включать разработку и публикацию Среднесрочной стратегии управления долгом (MTDS) на регулярной основе, где будут описаны цели и целевые показатели структуры долга (доля фиксированных ставок, валютная композиция, срок погашения и пр.). Такой документ, как показывают рекомендации МВФ и опыт Казахстана, повышает прозрачность и дисциплину. Кроме того, важно обеспечить координацию между Минэкономфином, Центральным банком и секторальными ведомствами при планировании заимствований, чтобы решения принимались в русле общей макроэкономической стратегии. Международный опыт (Китай) предупреждает о рисках фрагментации управления долгом – поэтому единый регуляторный режим для всех внешних заимствований (правительства, регионов, госкомпаний) необходим. Следует рассмотреть интеграцию учета долговых обязательств госпредприятий и ГЧП-проектов в общенациональную систему мониторинга с тем, чтобы правительство имело полную картину потенциальных рисков.

2. Прозрачность и контроль эффективности использования займов. Решение проблемы нецелевого или неэффективного использования внешних кредитов – в повышении прозрачности проектов и последующем мониторинге. Рекомендуется ввести практику публичной отчетности по крупным проектам, финансируемым за счет внешних заимствований. Например, ежегодно публиковать перечень таких проектов с указанием освоенных сумм, стадий реализации и ожидаемых результатов. Это позволит обществу и экспертному сообществу отслеживать, приносят ли внешние займы заявленный эффект. Механизмы аудита должны быть усилены: привлеченные средства должны проходить контроль Счетной палаты или независимых аудиторов на предмет соответствия целям. Международные кредиторы (ВБ, АБР) часто требуют подобной отчетности по своим линиям, и национальные органы могли бы перенять эти практики. Кроме того, необходимо усилить контроль за заемными средствами на местном уровне – отсутствие мониторинга «на местах» было обозначено как слабое звено. Возможно, стоит создать при Минфине подразделение по ex-post оценке эффективности проектов, которое будет анализировать выполненные за счет внешних кредитов программы и извлекать уроки (lessons learned) для будущего отбора проектов.

3. Фискальные правила и долговые лимиты. Узбекистану важно не отступать от недавно внедренных ограничений госдолга и при необходимости даже ужесточить их временно, пока экономика не окрепнет. Опыт Грузии с ее «долговым правилом» 60% ВВП показывает, что наличие формального лимита дисциплинирует политику. Однако одного ограничения недостаточно – нужен механизм корректировки бюджета при приближении к лимиту. В грузинском законодательстве, например, предусмотрено, что если правило нарушено, правительство обязано представить парламенту программу

возвращения показателя в допустимые рамки. В узбекском контексте уже установлено, что превышение 50% ВВП долга требует действий. Эти корректирующие механизмы следует задействовать на практике: при росте долга правительство должно либо сокращать дефицит, либо замещать внешний долг внутренними источниками, либо ускорять рост ВВП (через структурные реформы), чтобы стабилизировать коэффициент долг/ВВП. Возможно, стоит рассмотреть введение и дефицитного правила (например, предельный размер бюджетного дефицита не более 3% ВВП, аналогично правилам ЕС и грузинскому закону), что ограничит потребность в новом долге.

4. Снижение валютных и процентных рисков. Структура долга Узбекистана пока уязвима к курсовым колебаниям, так как большая часть обязательств – в иностранной валюте. Необходимо продолжать политику развития внутреннего рынка заимствований в сумах. Увеличение доли суверенного долга, номинированного в нацвалюте, снизит зависимость от курса и внешней ликвидности. В этой связи позитивным шагом стали выпуски узбекистанских облигаций в сумах на внешнем и внутреннем рынке. Кроме того, стоит активно использовать возможности фиксирования процентных ставок: по возможности привлекать кредиты с фиксированной ставкой или конвертировать часть плавающих ставок через деривативы (interest rate swaps) при благоприятных условиях. Грузия, как отмечалось, смогла зафиксировать половину своего долга под стабильные ставки, что уберегает ее бюджет от мировых циклов ужесточения монетарной политики. Узбекистану имеет смысл перенимать этот опыт, тем более что сейчас фаза глобального роста ставок – разумно зафиксировать расходы по уже набранным долгам, если это возможно путём переговоров с кредиторами или через хеджирование.

5. Повышение эффективности экономики и отдачи от инвестиций. Самое фундаментальное решение проблем внешнего долга лежит за пределами узко понятого управления долгом – это ускорение экономического роста и повышение эффективности инвестиций. Как верно отмечалось, низкая эффективность экономики вынуждает постоянно занимать. Поэтому институциональные реформы (борьба с коррупцией, улучшение инвестклимата, реформа госпредприятий) непосредственно влияют на долговую устойчивость. Если заимствования будут сопровождаться ростом ВВП более высокими темпами, коэффициент долг/ВВП стабилизируется или даже снизится. Здесь полезно вспомнить оценку рейтинговых агентств: они готовы позитивно пересмотреть прогнозы по долгу Узбекистана в случае, если реформы приведут к более высоким темпам роста и проекты, профинансированные за счет долга, дадут отдачу, улучшающую фискальные и внешние показатели страны. Значит, каждый привлеченный внешний доллар должен работать на экономику – создавать экспортную выручку, налоговую базу или импортозамещение. Власти Узбекистана уже делают шаги в этом направлении, привлекая инвесторов и МФИ в сектора энергетики, инфраструктуры, направляя займы на ключевые узкие места

(энергоснабжение, газовая отрасль, транспорт). Следует продолжать фокусировку внешних заимствований на приоритетных проектах с высокой экономической отдачей и тщательно оценивать их окупаемость перед привлечением кредита.

6. Использование лучших практик сопоставимых стран. Обзор показал ряд успешных подходов, которые могут быть адаптированы: (a) Создание резервных фондов на случай ухудшения условий – понятно, что Узбекистан не экспортёр нефти, но можно, например, направлять часть сверхплановых бюджетных доходов или средств от приватизации в фонд погашения долга, тем самым формируя резерв для будущих выплат по внешнему долгу (по аналогии с ФНБ в России или нефтяными фондами). Такой фонд послужит страховкой и повысит доверие инвесторов. (b) Приватизация и привлечение прямых инвестиций вместо долгов – Турция после 2001 г. значительно снизила долг за счет масштабной приватизации и привлечения инвесторов в банковский сектор, энергетику и др. Узбекистан также проводит программу приватизации, и вырученные средства можно направлять на снижение потребности в кредтах. (c) Развитие внутренних финансовых рынков – опыт Казахстана и других показывает, что заимствования на внутреннем рынке в национальной валюте уменьшают внешние риски. Узбекистану нужно укреплять доверие к суверенным облигациям в сумах, расширять круг инвесторов (например, поощрять участие пенсионных фондов, страховых компаний, банков в покупке госбондов). Это позволит часть будущих заимствований перевести во внутренний долг и уменьшить давление на валютный баланс. (d) Совершенствование управления долгом на уровне госпредприятий – по примеру Китая, следует установить строгие правила для внешних заимствований компаний с госучастием: все они должны проходить согласование с Минфином или правительственной комиссией, вписываться в общенациональные лимиты, а их платежеспособность должна тщательно оцениваться. Необходимо также повышать прозрачность отчетности самих госкомпаний по их долговым обязательствам, чтобы инвесторы учитывали эти риски, а правительство своевременно принимало меры (например, реструктуризацию неэффективных предприятий) до того, как их долги станут проблемой бюджета.

В заключение, следует подчеркнуть, что устойчивость государственного внешнего долга – это во многом отражение качества институтов и экономической политики страны. Узбекистан, находящийся на этапе больших преобразований, имеет шанс избежать ловушек долговой неустойчивости, если будет последовательно укреплять институты управления долгом (как это сделали Турция и Грузия), использовать внешние займы только на продуктивные цели (как стремятся делать Казахстан и Азербайджан, опираясь на фонды благосостояния), сохранять прозрачность и подотчетность (как практикуют Грузия и Казахстан), а также неуклонно улучшать макроэкономическую ситуацию. Международный опыт предоставляет богатый арсенал инструментов – от фискальных правил до специальных фондов – и показывают, что при грамотном применении внешний долг способен стать поддержкой для развития, а не угрозой для стабильности. Для этого необходимы политическая воля и дальновидность: инвестиции за счет внешних займов должны планироваться с учетом долгосрочных последствий, а механизмы их использования – исключать бесхозяйственность. Научно обоснованный подход к управлению внешним долгом, опирающийся на выявленные закономерности и лучшие мировые практики, позволит Узбекистану успешно решить имеющиеся проблемы и обеспечить долговую устойчивость на пути экономического роста.

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МУЗЫКАЛЬНЫЕ ЗАНЯТИЯ КАК СРЕДСТВО ПСИХОЛОГО-ПЕДАГОГИЧЕСКОЙ ПОМОЩИ ДЕТЯМ С ОГРАНИЧЕННЫМИ ВОЗМОЖНОСТЯМИ ЗДОРОВЬЯ

Аннотация *В статье рассматривается роль музыкальных занятий как средства психолого-педагогической помощи детям с ограниченными возможностями здоровья. Анализируются терапевтический и развивающий потенциал музыкального воздействия в контексте инклюзивного образования. Автор подчеркивает значимость музыкальной деятельности для формирования эмоциональной устойчивости, когнитивных процессов и коммуникативных навыков у детей с особыми образовательными потребностями. Представлены примеры эффективного применения музыки в педагогической практике с целью адаптации и социализации данной категории учащихся.*

Ключевые слова: *музыкотерапия, инклюзивное образование, дети с ОВЗ, музыкальные занятия, психолого-педагогическая помощь, адаптация, развитие эмоций, социализация*

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MUSICAL ACTIVITIES AS A MEANS OF PSYCHOLOGICAL AND PEDAGOGICAL SUPPORT FOR CHILDREN WITH SPECIAL NEEDS

Abstract: *This article explores the role of musical activities as a means of psychological and pedagogical support for children with special needs. The therapeutic and developmental potential of musical influence is analyzed within the context of inclusive education. The author emphasizes the importance of musical engagement in fostering emotional resilience, cognitive processes, and communication skills in children with special educational needs. Examples of effective use of music in educational practice are provided, aimed at supporting the adaptation and social integration of this group of students.*

Keywords*: music therapy, inclusive education, children with disabilities, musical activities, psychological and pedagogical support, adaptation, emotional development, socialization*

Музыкальные занятия, как форма художественно-эстетического воспитания, играют особую роль в системе инклюзивного образования, направленной на поддержку и развитие детей с ограниченными возможностями здоровья (ОВЗ). В условиях модернизации образовательной политики Узбекистана особое внимание уделяется формированию равных возможностей для всех категорий учащихся, что требует внедрения инновационных психолого-педагогических подходов. Одним из таких подходов является использование музыки как универсального средства воздействия на эмоциональную сферу, когнитивные способности и поведенческую регуляцию детей с особыми образовательными потребностями.

Музыкальная деятельность предоставляет детям с ОВЗ возможность самовыражения, способствует снятию психоэмоционального напряжения, активизирует память, внимание и воображение. Через пение, игру на музыкальных инструментах, слушание произведений и участие в ритмических упражнениях у ребенка формируется положительное отношение к окружающему миру и повышается самооценка. Это особенно важно в случае детей с нарушениями речи, слуха, опорно-двигательного аппарата или задержками психического развития, которым часто трудно адаптироваться к условиям традиционного обучения.

Кроме того, музыкальные занятия обладают высоким мотивационным потенциалом, способствуют вовлечению учащихся в активную деятельность, развивают чувство ритма, координацию движений и коммуникативные навыки. Музыка позволяет преодолеть барьеры социальной изоляции и содействует интеграции детей в коллектив. Таким образом, музыкальная педагогика, выступающая в роли поддержки, становится эффективным инструментом в реализации индивидуального образовательного маршрута детей с ОВЗ.

Музыкальные занятия как средство психолого-педагогической помощи детям с ограниченными возможностями здоровья обладают комплексным воздействием на личность ребенка. Музыка оказывает влияние не только на эмоциональную сферу, но и на когнитивное, речевое и физическое развитие, что особенно актуально в работе с детьми, испытывающими трудности в обучении и социальной адаптации.

Одним из центральных направлений использования музыки в коррекционной педагогике является музыкотерапия — метод, основанный на целенаправленном применении музыкального воздействия в оздоровительных, воспитательных и развивающих целях. В практике работы с детьми с ОВЗ выделяют активную и рецептивную формы музыкотерапии. Первая включает участие ребенка в музыкальной деятельности (пение, игра на инструментах, музыкально-двигательная активность), в то время как вторая предполагает слушание специально подобранных музыкальных произведений с последующим обсуждением эмоциональных состояний.

В контексте работы с детьми, имеющими нарушения опорно-двигательного аппарата, музыкально-ритмические упражнения способствуют улучшению моторной координации, развитию чувства ритма и пространственного восприятия. Дети с нарушениями слуха получают возможность развивать остаточный слух и речевые навыки через вибрации и тактильное восприятие звуков. Музыка становится для них доступным способом общения, помогает расширить эмоциональный диапазон и углубить понимание окружающего мира.

У детей с задержкой психического развития музыка стимулирует мыслительную активность, внимание и память. Сочетание слова, звука и движения способствует формированию ассоциативных связей и повышает познавательную мотивацию. Через участие в музыкальных занятиях дети учатся работать в группе, следовать инструкциям, выражать свои чувства и сотрудничать со сверстниками, что положительно сказывается на их социальной адаптации.

Практика работы в учреждениях дополнительного и общего образования Узбекистана показывает, что педагогам удается достичь значимых результатов при условии правильной организации музыкальных занятий. Это включает адаптацию программ под особенности детей, использование индивидуального подхода, внедрение визуальных и сенсорных средств, сотрудничество с психологами, логопедами и родителями.

Таким образом, музыкальные занятия становятся действенным элементом коррекционно-развивающей среды, позволяя детям с ОВЗ не только освоить базовые музыкальные навыки, но и пройти важный путь личностного становления. Музыкальная активность усиливает эмоциональный интеллект, способствует снятию тревожности и формированию устойчивой положительной самооценки. Это делает музыку незаменимым ресурсом психолого-педагогической поддержки в инклюзивной образовательной практике.

Заключение

Музыкальные занятия в системе психолого-педагогической помощи детям с ограниченными возможностями здоровья представляют собой важный инструмент, способствующий их всестороннему развитию, социальной адаптации и эмоциональному благополучию. Благодаря своим уникальным свойствам музыка помогает наладить контакт между педагогом и ребенком, стимулирует активное участие в учебной деятельности и создает положительный эмоциональный фон, необходимый для успешного обучения.

В условиях инклюзивного образования в Узбекистане музыкальная деятельность приобретает особое значение как средство компенсации нарушенных функций, формирования коммуникативных и поведенческих навыков, а также укрепления психического здоровья детей с ОВЗ. Эффективность музыкальных занятий возрастает при условии интеграции междисциплинарного подхода, включающего сотрудничество педагогов, дефектологов, психологов и родителей.

Таким образом, музыкальное образование может стать не только формой культурного обогащения, но и действенным средством коррекционной и развивающей помощи, раскрывающим творческий потенциал каждого ребенка вне зависимости от его физических и психических особенностей. Развитие этой сферы требует дальнейших научных исследований, методических разработок и практического внедрения в образовательную политику, направленную на построение инклюзивного и гуманного общества.

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ВИРУС КАРЛИКОВОЙ МОЗАИКИ КУКУРУЗЫ: КОМПЛЕКСНЫЕ МЕТОДЫ БОРЬБЫ

Аннотация: *Кукуруза является основой рациона во многих странах. Вирусные болезни кукурузы являются одно из основных проблем сельского хозяйство.*

Из-за вирусной болезни снижается количество и качество урожая. В данной статье изложены исследования по методам борьбы с фито вирусом поражающий кукурузы вирус карликовой мозаики кукурузы -ВКМК (Maize dwarf mosaic virus). Данный вирус широко распространён по всему миру. Он создаёт серьёзную угрозу урожая поэтому требует разработки различных методов борьбы. Методы борьбы с вирусами отличаются от методов борьбы с другими инфекциями тем, что требуют комплексного подхода. В результате наших исследования установлены пути распространения ВКМК, кроме того примнение нами разработанные методы борьбы снизили распространения вируса и повышения урожайность на 22%.

Ключевые слова: *вирус, мозаика, ВКМК, Sorghum halepense Pers, Zea mays saccharata Strurt, Maize dwarf mosaic virus.*

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MAIZE DWARF MOSAIC VIRUS: INTEGRATED CONTROL METHODS

Abstract: *Maize is a staple crop in the diet of many countries. Viral diseases of maize represent one of the major challenges in agriculture. These diseases reduce both the quantity and quality of the harvest. This article presents research on control methods for the phytovirus known as Maize Dwarf Mosaic Virus (MDMV), which affects maize crops. MDMV is widespread globally and poses a significant threat to crop yields, thus necessitating the development of diverse and effective control strategies. Unlike other types of infections, combating viral diseases requires a comprehensive and integrated approach. Our research identified the primary pathways for the spread of MDMV. Moreover, the application of the*

control methods we developed resulted in a 22% reduction in virus spread and a corresponding increase in crop yield.

Keywords: *virus, mosaic, MDMV, Sorghum halepense Pers., Zea mays saccharata Sturt., Maize Dwarf Mosaic Virus.*

Введение

Кукуруза – одно из важнейших культурных растений универсального назначения, имеющих межконтинентальное значение благодаря высокому потенциалу продуктивности и кормовой ценности, отзывчивости на факторы интенсификации, большому разнообразию способов её использования. Это ключевой компонент в кормлении сельскохозяйственных животных. Из кукурузы производят широкий спектр продуктов, включая кукурузный крахмал, глютен, масло и сиропы, которые применяются в пищевой промышленности.

К сожалению, как и многие другие растения, кукуруза подвержена различным заболеваниям, которые встречаются часто на территории Узбекистана. Среди вредителей, большой вред кукурузе причиняют кукурузный мотылёк, шведские мухи, тли и совки. Они наносят существенный вред посевам, общий урожай может снизиться на 30-35% [7; С. 44-49].

В настоящее время во многих странах мира выявлен ряд вирусных болезней кукуруз. Было доказано, что более 50 вирусов инфицируют кукурузу. К ним относятся вирус мозаики сорго (ВМС), вирус мозаики джонсон грасса (ВМЖ), вирус хлоротической крапчатости кукурузы (ВХКрК) и вирус хлоротической карликовости кукурузы (ВХКК) [10; pp. 391-429].

Среди всех вирусов, поражающих кукурузу, вирус карликовая мозаика кукурузы (ВКМК) является наиболее распространенным возбудителем, болезни этой однодольной культуры во всем мире [11; 993-999 б]. ВКМК выявлен и зарегистрирован в Африке, США, Азии и Европе. Кроме ВКМК, имеется ещё несколько немало важных и вредоносных вирусов.

Методы исследования

В связи с тем, что вирусы облигатные паразиты, методы борьбы с ними имеют косвенние действие. Методы борьбы с вирусами отличаются от методов борьбы с другими инфекциями тем, что требуют комплексного подхода. Существует ряд видов борьбы с вирусами, такие как: химические, биологические и агротехнические [4; С.46-59].

Агротехнические меры борьбы включают правильный выбор площадей для посадки кукурузы, то есть посадка площадей должна быть вдали от водных каналов и больших канав. Поскольку растение - *Sorghum halepense* Pers, которое считается резервуаром вируса, требовательно к влаге и быстро размножается с помощью корневища, а корневище является источником вируса, по этому это сорное растение играет важную роль в распространении вируса. Для определения с научной точки зрения, *Sorghum halepense* Pers, с симптомами линейной мозаики по жилкам на листе измельчали, готовили сок и наблюдали появление симптомов заболевания при заражении кукурузы, выращенной в лабораторных условиях. Исходя из этого, при вспашке посевного поля максимальная очистка полей от корневища *Sorghum halepense* Pers, способствует уменьшению очага инфекции.

В результате мониторинга установлено, что хозяйства с высокой распространенностью вируса, такие как «Истиклол Мирзахмедов Миргиес», «Мирусмон Мирхолик Барака», «Мухриддин Голд», расположены очень близко к источнику воды, и в результате чрезмерного орошения наблюдается высокая распространенность гумая, которое считается основным резерватором вируса в посевах. Такая ситуация создала благоприятные условия для высокого распространения вируса на посевных площадях. Если полив кукурузы составляет 600-700 м3/га перед вспашкой земли при повторной посадке, количество и норма последующих поливов зависит от просачивающихся вод, состава почвы и т. д., средний полив составляет 500-600 м3/га [2; С. 17-29]. Учитывая данную ситуацию рекомендуется выбрать подходящие поля для посева кукурузы, своевременно и в необходимом объеме поливать поля, а также не допускать роста растения гумая, являющегося резервуаром вируса. Существуют химические методы борьбы с сорняками, для которых в последние годы эффективно применяют гербициды Пенитрон 1-2 л/га, Стомп 3-6 кг/га против однолетних злаков и двусемянных сорняков [11; 993-999 б].

Кроме того, большое влияние на распространение вируса оказывает способ и плотность посадки кукурузы. Кукурузу сажают повторной культурой через 70, 90 см или рядами в соответствии с агротехникой посева. Лучший способ посева — рядовой (точечный) посев [2; С. 17-29].

С целью выращивания кукурузы такая схема посадки и соответственно, густота посадки различны. Например, на основе схемы посева кукурузы сладкой (*Zea mays saccharata* Strurt.) 47,6 тыс/га (70х30), 57,1 тыс/га (70х25), 71,4 тыс/га (схемы 70х20) [11; 993-999 б].

Результаты

В результате наблюдений, проведенных в этом направлении, было установлено, что из-за несоблюдения вышеуказанных норм произошло распространение вирусного заболевания в густо посаженных кустах кукурузы. Принимая это во внимание мы установили, что на засеянных полях плотность кустов имеет большое значение при распространении вирусных инфекций: насколько они густо посаженны, настолько и высока динамика распространение вирусных заболеваний. Учитывая эту проблему мы рекомендовали обратить внимание на плотность кустов при посадке кукурузы. Кроме того, в результате экспериментов, проведенных на фермерских хозяйствах, мы выяснили, что агротехнические мероприятия позволяют повысить устойчивость к вирусу за счет правильного внесения удобрений на кукурузные поля. В целом растение кукурузы очень требовательно к минеральным удобрениям. Для удобрения кукурузного поля требуется 150 кг/га азота, 40-50 кг/га фосфора и 50-70 кг/га калия. При повторной посадке необходимо вносить 40-50 кг/га фосфора, 50-70 кг/га калия, 75 кг/га азотных удобрений в 3-4 листовой фазе развития, 75 кг/га в листовой фазе развития [2; С. 17-29].

В результате исследований, проведенных в этом направлении, в фермерских хозяйствах “Истиклол Мирзахмедов Миргиес” и “Мирусмон Мирхолик Барака”, помимо минеральных удобрений, которые должны вноситься по потребности, был внесен сульфат магния, так как в литературе магний и сульфатные растворы повышают устойчивость растений кукурузы к вирусам [8; pp. 218-222]. В результате было установлено, что распространение вирусного заболевания на полях снизилось, а проведенные исследования дали положительные результаты. Поэтому, чтобы предотвратить распространение вирусных заболеваний и уменьшить их ущерб, рекомендуется вносить минеральные удобрения в установленном порядке и количестве.

Несколько факторов и источников могут вызвать распространение ВКМК. Ряд ученых установили, что распространение вирусных заболеваний у растений кукурузы обусловлено сохранением вируса в семенах. К. Давронов в своих исследованиях установил, что ВКМК может сохраняться в зерне кукурузы и вызывать распространение вируса от 0,5 % до 20т % [3. С. 25-28]. Учитывая это, в результате исследований был проведен эксперимент по определению содержания вируса в семенах, собранных от зараженных растений путем механической инокуляции. Для этого данные семена высаживали на опытное поле и определяли всхожесть семян и уровень заболеваемости растений (табл. 1).

Как видно из таблицы, средняя всхожесть здоровых сортов кукурузы составила 89,4%, а всхожесть семян, полученных от больных сортов, - 57,28%.

Таблица 1.

Влияние ВКМК на всхожести семян

Номер католога	**Название сортов**	**Всхожесть семян (%)**		**Заболеваемость (%) образцов, выращенных из больных и здоровых семян**	
		к	**з***	**к**	**з***
NS13866	Основа209	83,3±0,12	48,4±0,07*	0	24,2±0,09
NS16695	Extra Early Dightau209	87,4±0,27	57,5±0,09	0	19,5±0,05*
NS17641	San Pedro LATA	93,5±0,09	59,1±0,19*	0	17,1±0,096*
NS17646	Шерзод	97,1±0,14	67,4±0,06	0	14,3±0,045
NS24935	Hickax	92±0,08	64,7±0,17*	0	22±0,089*
NS25033	205-2	86,3±0,16	43,2±0,08*	0	16,6±0,067*
NS25897	San Pedro2 IMTA	88,2±0,11	63,1±0,18	0	23,4±0,053

Примечание: $p \leq 0,05$ – достоверно по отношению к контролю, **- в качестве контроля брали пробы из здоровых растений. n=3.

Семена, полученные от больных растений, также высаживали в таком же количестве как здоровые и оределили заболеваемость проросшего растения. По результатам заболеваемость вирусом сортов кукурузы на 5-7 листовой фазе развития составила в среднем 19,5 %. В результате этих исследований сортировка семян, взятых на посадку, образцов с симптомами заболевания с посевного поля в семеноводческих хозяйствах, позволили предотвратить распространение вируса.

Химические меры борьбы определяются как применение различных химических препаратов в борьбе с переносчиками вирусов. На фоне ВКМК К. Давронов провел научные исследования по мерам борьбы с насекомыми-переносчиками с помощью препарата В-58 и получил убедительные результаты [3. С. 25-28]. Но в последние годы одним из важнейших требований является получение экологически чистой продукции в сельском хозяйстве. Исходя из этой ситуации, в наших исследованиях проводилась работа по разработке мер, основанных на биологических и агротехнических, а не химических методов борьбы с вирусом.Следующим исследованием являются мероприятия фитосанитарного контроля, в которых, учитывая, что симптом болезни ВКМК четко виден, предполагается выявить зараженные растения на кукурузном поле и очистить его, тем самым предотвратить распространение вируса на поле.

Наша следующая научно-исследовательская работа – борьба с вирусными заболеваниями путем выявления сортов, устойчивых к ВКМК.

В наших исследованиях, определяя уровень заболеваемости существующих сортов кукурузы полученных из коллекции НИИ генетических ресурсов растений, мы выявили вирусоустойчивые сорта, разделили их на группы устойчивости и рекомендовали селекционерам создавать устойчивые сорта. Эти сорта перечислены ниже.

В результате очередных исследований нами были проведены визуальные и иммунодиагностические исследования на кукурузных полях, засеянных в 10 хозяйствах, расположенных в разных районах Ташкентской области, а также проведен мониторинг вирусных заболеваний. Фитосанитарные мероприятия включали профилактику распространения вирусных заболеваний путем очистки кукурузных полей от вирусоносных чужеродных растений и удаления больных растений кукурузы. В то же время фермерам в этих хозяйствах было рекомендовано различать вирусные заболевания по их симптомам и применять комплексный контроль за ними, в результате чего уровень вирусных заболеваний в ряде хозяйств был снижен. К ним относятся такие хозяйства, как “Истиклол Миргиёс Мирзахмедов” и “Мирусмон Мирхолик Барака”.

Заключение

На основании вышеизложенных научных исследований были предложены следующие научно обоснованные меры по борьбе с ВКМК:

- правильный выбор площадей для посева кукурузы и очистка полей от растительных остатков, в том числе корней кукурузы, с вспаханной площади позволит снизить очаг повторного заражения на посевной площади;

- установление количества и нормы полива полей кукурузы на уровне 500-600 м3/га исходя из состава почвы, среднего орошения с учетом способа и густоты посадки. Это приведет к снижению распространения вирусных заболеваний на полях;

- удобрение кукурузного поля в указанном количестве, дополнительно внесение сульфата магния из расчета кг/га, что повышает устойчивость растений к вирусам;

- рекомендуется удалять с кукурузного поля больные растения в зависимости от симптомов заболевания и не смешивать семена больных растений, а сортировать семена для посадки;

– практичные устойчивые сорта как : «Эврика» (Узбекистан), «Узбекистан-306 АМВ», «Узбекистан-601 ЕСВ», «Узбекская зубовидная» и «Голден Батам F1» (Франция) были рекомендованы селекционерам как - устойчивые сорта. Эти сорта были посажены на полях "Истиклол Миргиёс Мирзахмедов" и "Мирусмон Мирхолик Барака", где ВКМК широко распространен в Ташкентской области, и были применены вышеперечисленные нами комплексные меры борьбы, а заболеваемость вирусной инфекцией в хозяйстве "Мирусмон Мирхолик Барака" снизилась до 25 % в 2021 и 15 % в 2022 гг. Используя комплексные меры нами было доснигнуто снижение заболеваемость на 22 % и увеличение урожайности кукурузы на 30-45% в этих фемерских хозяйствах.

Установлен тип, что заболевание ВКМК характеризуется ярко выраженной природной очаговостью и относится к группе типичной природной очаговости.

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СВЯЗЬ ИЗМЕНЕНИЯ УРОВНЯ ГРУНТОВЫХ ВОД В БАССЕЙНЕ КАСАНСАЯ С КЛИМАТИЧЕСКИМИ И ГИДРОЛОГИЧЕСКИМИ ФАКТОРАМИ

Аннотация: *В данной статье проанализирована взаимосвязь изменения уровня грунтовых вод в бассейне Касансая с климатическими и гидрологическими факторами. На основе средне десятилетних значений атмосферных осадков и стока реки Касансай рассчитаны сезонные изменения. Также определена зависимость изменения уровня грунтовых вод в бассейне Касансая от речного стока и атмосферных осадков на основе коэффициента корреляции.*

Ключевые слова: *речной бассейн, изменение климата, температура воздуха, количество осадков, речной сток, грунтовые воды, уровень грунтовых вод, коэффициент корреляции, сезонные изменения, графики взаимосвязи.*

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RELATIONSHIP BETWEEN GROUNDWATER LEVEL CHANGES IN THE KASANSAY BASIN AND CLIMATIC AND HYDROLOGICAL FACTORS

Abstract. *This article analyzes the interrelation between changes in groundwater levels in the Kasansay Basin and climatic and hydrological factors. Seasonal variations were calculated based on decadal averages of atmospheric precipitation and the discharge of the Kasansay River. Furthermore, the study determines the dependence of groundwater level changes on river discharge and atmospheric precipitation using the correlation coefficient.*

Keywords: *river basin, climate change, air temperature, precipitation, river discharge, groundwater, groundwater level, correlation coefficient, seasonal variation, interrelation graphs.*

Введение. Изменение уровня грунтовых вод представляет собой сложный процесс, формирующийся под воздействием как природных, так и антропогенных факторов. В свою очередь, этот процесс тесно связан с множеством факторов, включая климатические и гидрологические процессы. В настоящее время изменение климата оказывает значительное влияние на температуру воздуха, атмосферные осадки и гидрологический режим рек. Это, в свою очередь, приводит к подъему или снижению уровня грунтовых вод.

Кроме того, изменение уровня грунтовых вод, нарушение водного баланса и влажности почвы напрямую влияет на плодородие почв. Исходя из этого, научный анализ изменения уровня грунтовых вод во взаимосвязи с климатическими и гидрологическими факторами имеет актуальное значение.

В данной статье проанализирована взаимосвязь между уровнем грунтовых вод, сформировавшихся в бассейне Касансая, и атмосферными осадками, а также речным стоком. Для анализа использовались данные о средних месячных и годовых атмосферных осадках, измеренных на метеостанции Касансай в 1981–2020 годах, данные о среднемесячном и среднегодовом стоке реки Касансай, а также данные наблюдений из скважин 6ма и 6мб гидрогеологической станции Намангана, расположенной в данном речном бассейне.

Анализ проводился на основе среднедекадных значений, и были определены взаимосвязи между показателями.

Цель настоящей статьи проанализировать взаимосвязь изменения уровня грунтовых вод в бассейне Касансая с климатическими и гидрологическими факторами. Для достижения этой цели были определены следующие **задачи**:

– выявить годовые и сезонные изменения атмосферных осадков на основе данных метеостанции, расположенной на территории бассейна Касансая;
– проанализировать изменения в годовом и внутригодовом распределении стока реки Касансай по сезонам;
– определить сезонные изменения уровня грунтовых вод в речном бассейне;
– оценить зависимость уровня грунтовых вод в бассейне Касансая от климатических и гидрологических факторов.

Анализ литературы и методология. Изменение климата изучается Всемирной метеорологической организацией. Проблема изменения климата освещалась в трудах зарубежных учёных, таких как С.А.Аррениус, Дж.Хансен, Р.Войет, а также российских учёных: Е.П.Борисенков (1988), М.И.Будыко (1997), Г.И.Марчук (1986), А.С.Монин (2005). В Узбекистане этот вопрос анализировался В.Э.Чубом (2007), М.Л.Арушановым (2010), Т.А.Ососковой (2005), Т.Р.Спекторманом, С.П.Никулиной, Г.Э.Глазириным, С.Р. Группером, Б.А.Камоловым, И.Р.Солиевым (2018) и другими.

Особенности подземных вод отдельных районов Ферганской долины подробно анализировались такими учёными, как О.К.Ланге (1947), В.А.Гейнс

(1967), А.Н.Султанходжаев (1972), Н.Н.Ходжибаев (1976), Л.З.Шерфединов (2015), Б.Д.Абдуллаев (2008), И.У.Бойбобоев (2008), Р.М.Бегматов (2008), К.А.Исабаев и Т.Я.Авулчаев (2008), и другими. Однако взаимосвязь изменения уровня подземных вод в бассейне Касансая с климатическими и гидрологическими факторами до настоящего времени не рассматривалась как отдельный объект исследования.

В данной статье использованы такие методы, как бассейновый подход, принцип историзма, комплексный анализ, а также географическое сравнение и статистический анализ.

Реультаты и обсуждение. Бассейн Касансая расположен в северной части Ферганской долины и охватывает площадь 1650 км². В статье проанализированы такие факторы, влияющие на изменение уровня грунтовых вод в речном бассейне, как атмосферные осадки, речной сток и изменение площади ледников.

Атмосферные осадки, выпадавшие в бассейне Касансая, были рассчитаны по сезонам на основе среднедекадных значений и приведены в таблице 1.

Таблица 1

Сезонные изменения среднедекадных атмосферных осадков на метеостанции Касансай

Десятилетия	Атмосферные осадки по сезонам, мм					Атмосферные осадки по сезонам, %				
	Весна	Лето	Осень	Зима	Годовой	Весна	Лето	Осень	Зима	Годовой
1981-1990	133	37	64	80	313	42	12	20	25	100
1991-2000	132	47	67	109	354	37	13	19	31	100
2001-2010	124	56	47	96	323	38	17	14	30	100
2011-2020	109	49	51	61	271	40	18	19	23	100

Таблица составлена автором

Годовое количество осадков в бассейне Касансая в 1991–2000 годах увеличилось на 41 мм по сравнению с 1981–1990 годами. В последующие десятилетия наблюдается тенденция к снижению годового количества осадков. Так, по сравнению с предыдущим десятилетием, в 2001–2010 годах количество осадков сократилось на 31 мм, а в 2011–2020 годах — ещё на 52 мм. Аналогичную картину можно наблюдать и в осенний и зимний сезоны. Для весны характерно снижение количества осадков в каждом последующем десятилетии. Летние осадки, напротив, увеличивались до 2010 года, но в последнем десятилетии сократились на 7 мм. Изменения внутригодового распределения атмосферных осадков также приведены в таблице 1. Согласно данным таблицы, доля летних осадков в общем годовом объёме постепенно увеличивается: если в 1981–1990 годах она составляла 12%, то в 2011–2020 годах достигла 18%. В то же время доля весеннего сезона в структуре годового распределения осадков в последние десятилетия несколько уменьшилась. Подобная тенденция наблюдается и для осеннего и зимнего сезонов. Доля осени в 1991–2010 годах снизилась, тогда как доля зимнего сезона в этот же период незначительно увеличилась.

С целью определения сезонных изменений поверхностного стока в бассейне реки Касансай были рассчитаны среднедекадные годовые расходы реки Касансай и приведены в таблице 2.

Таблица 2

Сезонные изменения среднедекадного расхода реки Касансай по десятилетиям

Десятилетия	Расход воды реки по сезонам (м³/с).					Расход воды реки по сезонам (%).				
	Весна	Лето	Осень	Зима	Годовой	Весна	Лето	Осень	Зима	Годовой
1981-1990	10	12	3	2	6	38	44	10	7	100
1991-2000	9	14	3	1	7	34	49	11	5	100
2001-2010	6	8	4	2	5	30	43	20	8	100
2011-2020	2	4	3	2	3	18	34	28	20	100

Таблица составлена автором

Данные таблицы показывают, что годовой расход воды реки Касансай увеличился на 1 м³/с в период 1991–2000 годов по сравнению с 1981–1990 годами, а затем в каждом последующем десятилетии снижался более чем на 2 м³/с. Подобные изменения наблюдались и в атмосферных осадках (таблица 1). Увеличение расхода реки в 1991–2000 годах по сравнению с 1981–1990 также характерно для летнего сезона, однако в последующее десятилетие (2011–2020) он снизился на 4 м³/с. Этот показатель составляет 50 % по сравнению с 2001–2010 годами и 66 % по сравнению с 1981–1990 годами.

В весенний сезон расход воды реки снижался во всех рассматриваемых десятилетиях по сравнению с 1981–1990 годами. В последнем десятилетии весенний расход уменьшился на 4 $м^3/с$ и составил 2 $м^3/с$.

В осенний и зимний сезоны значительных изменений не наблюдается. Однако в распределении годового расхода воды по сезонам отмечены существенные изменения. Доля весеннего расхода сократилась с 38 % до 18%, а летнего — с 44 % до 34 %. В то же время доли осеннего и зимнего сезонов значительно увеличились. Это увеличение не связано с ростом расхода в осенний и зимний сезоны, а обусловлено резким снижением расходов в весенний и летний периоды.

Изменения расхода реки тесно связаны с изменениями атмосферных осадков. Коэффициент корреляции между среднедекадными значениями расхода реки и осадков составляет 0,88, что подтверждает вышеизложенные выводы. Эти анализы показывают, что в бассейне Касансая в последние десятилетия наблюдается снижение как атмосферных осадков, так и расхода воды реки. Кроме того, изменения площади ледников в бассейне Касансая также влияют на речной сток. Общая площадь ледников в бассейне сократилась на 40 % в 2016 году по сравнению с 1976 годом. Ледники площадью менее 0,1 $км^2$ сократились на 50% [7].

Для определения связи изменения уровня подземных вод с расходом реки и атмосферными осадками в бассейне Касансай использованы данные наблюдений скважин 6МА и 6МБ гидрогеологической станции г. Наманган. На основе средних месячных значений уровня подземных вод, измеренных в скважинах 6МА и 6МБ, рассчитаны сезонные изменения, приведённые в таблице 3. В скважине 6МА, расположенной в бассейне реки, ведётся мониторинг уровня грунтовых вод до глубины 10 метров. Средний годовой уровень подземных вод в период 1981–1990 годов составлял 1,67 метра, к 2001–2010 годам уровень поднялся до 0,83 метра. В последнем десятилетии средний годовой уровень подземных вод несколько понизился и составил 0,94 метра. Изменения уровня подземных вод по всем сезонам соответствуют среднегодовым значениям.

Таблица 3

Сезонные изменения уровня подземных вод (м.)

Десятилетия	Наблюдательная скважина 6МА					Наблюдательная скважина 6МБ				
	Весна	Лето	Осень	Зима	Годовой	Весна	Лето	Осень	Зима	Годовой
1981-1990	1,57	1,59	1,74	1,76	1,67	-0,24	-0,69	-0,23	0,24	-0,23
1991-2000	1,27	1,30	1,26	1,37	1,30	0,47	0,26	0,36	0,46	0,39
2001-2010	0,71	0,87	0,90	0,85	0,83	0,72	0,94	1,01	0,84	0,88
2011-2020	0,80	0,93	1,00	1,03	0,94	1,36	1,45	1,48	1,46	1,44

Таблица составлена автором

Наблюдательная скважина 6МБ, расположенная в бассейне реки, находится в транзитной зоне подземного водоносного горизонта Касансая. В скважине наблюдается уровень подземных вод на глубине 40–45 метров. В этой части бассейна на глубине 40–45 метров распространены напорные (субнапорные) воды, которые иногда поднимаются выше уровня земли. Средний годовой уровень воды в 1981–1991 годах находился на 0,23 метра выше поверхности земли. В последующие десятилетия уровень подземных вод снижался. Изменения уровня подземных вод по сезонам соответствуют годовому изменению. Во всех сезонах в последнем десятилетии (2011–2020) уровень подземных вод находится ниже 1 метра.

Это соответствует выше рассмотренным изменениям атмосферных осадков и расхода воды рек в бассейне. Для определения связи изменения уровня подземных вод с климатическими и гидрологическими факторами были построены графики зависимости на основе данных о годовом количестве атмосферных осадков, среднем годовом расходе реки Касансай и среднем годовом уровне подземных вод, измеренных на метеостанции Касансай. Значения уровня подземных вод для графика рассчитаны на основе средних показателей из наблюдений скважин 6МА и 6МБ (см. рисунок 1).

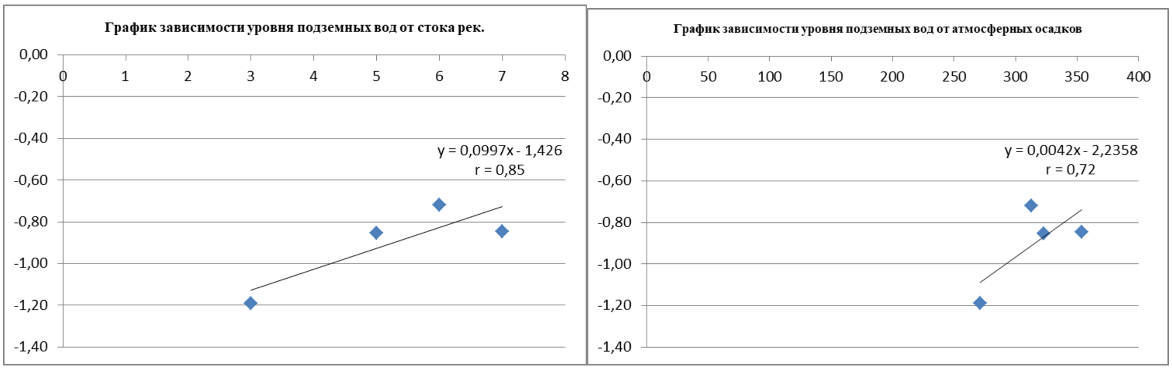

Рисунок 1. График зависимости уровня подземных вод от атмосферных осадков и стока рек

Согласно графикам, коэффициент корреляции между уровнем подземных вод и атмосферными осадками, выпадающими в бассейне реки, равен 0,72. Эти показатели свидетельствуют о связи изменения уровня подземных вод с атмосферными осадками. Также коэффициент корреляции между уровнем подземных вод и расходом реки Косансай составляет 0,85, что указывает на прямую зависимость изменения уровня подземных вод в бассейне от расхода реки.

Опираясь на приведённый анализ, можно сделать следующие выводы:

- В бассейне Касансай атмосферные осадки увеличивались до 2000-х годов, однако в последние десятилетия значительно сокращаются. Внутригодовое распределение осадков также претерпевает заметные изменения: доля осадков в летний период увеличивается, тогда как доли в остальные сезоны уменьшаются.
- Годовой расход реки Касансай увеличивался до 1991–2000 годов, а затем значительно снизился. Эти изменения соответствуют изменениям атмосферных осадков в бассейне. Кроме того, во внутригодовом распределении расхода реки наблюдаются значительные изменения: весенний и летний расход уменьшается, а доля осадков в осенний и зимний сезоны значительно возрастает.
- Уровень подземных вод в бассейне реки за последние годы снижается. Этот процесс связан с климатическими и гидрологическими факторами. Коэффициенты корреляции подтверждают связь уровня подземных вод с атмосферными осадками и расходом реки. При использовании и охране подземных вод бассейна Косансай необходимо учитывать вышеперечисленные выводы.

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К СРАВНИТЕЛЬНОЙ МОРФОЛОГИИ ИНТРАМУРАЛЬНОГО НЕРВНОГО АППАРАТА СЕРДЦА У НЕКОТОРЫХ МЛЕКОПИТАЮЩИХ ЖИВОТНЫХ

Резюме: *В статье изучены гистологическое строение нервных элементов подэпикардиального нервного аппарата у некоторых половозрелых млекопитающих животных при помощи методов серебрения. Сравнительные данные показывают, что наиболее развиты подэпикардиальные нервные сплетения, синаптический и рецепторный аппарат у свиньи, на втором месте по степени развития нервных элементов сердца находится крупный рогатый скот и лошадь, на третьем-овца.*
Ключевые слова: *подэпикардиальных нервных сплетений, млекопитающих животных, сердце, миокард, ганглиозные клетки, I типа Догеля.*

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TO THE COMPARATIVE MORPHOLOGY OF THE INTRAMURAL NERVOUS APPARATUS OF THE HEART IN SOME SMALL-FOODED ANIMALS

Abstract: *The article studies the histological structure of the nerve elements of the subepicardial nerve apparatus in some sexually mature mammals using silvering methods. Comparative data show that the most developed subepicardial nerve plexuses, synaptic and receptor apparatus are in pigs, in second place in terms of the development of the nerve elements of the heart are cattle and horses, and in third place is sheep.*
Keywords: *subepicardial nerve plexuses, mammals, heart, myocardium, ganglion cells, Dogel type I.*

Введение. В связи с возрастающей распространенностью нарушений ритма сердца актуальным является изучение процесса формирования сердечного ритма [5]. В настоящее время имеются факты, демонстрирующие существование генератора ритма в центральной нервной системе наряду с генератором ритма в самом сердце. Внутрисердечный генератор является жизнеобеспечивающим фактором, который поддерживает насосную функцию сердца тогда, когда центральная нервная система находится в состоянии глубокого торможения [2,4]. Центральный генератор обеспечивает адаптивные реакции сердца в естественных условиях. Ранее в хронических опытах на животных и наблюдениях на людях, которым во время кардиохирургической операции на эпикардиалную поверхность области синоатриального узла сердца был в целях диагностики имплантирован многоканальный электродный зонд и произведено компьютерное картирование очага первоначального возбуждения, было установлено следующее [1,3]. В отличие от состояния наркоза, когда на изохронной карте очаг первоначального возбуждения находится под одним из электродов и его месторасположение зависит от частоты сердечных сокращений, в условиях полной адаптации организма к внешней среде (усвоения сердцем центрального ритмогенеза) отмечается возникновение первоначального очага возбуждения в нескольких рядом расположенных точках

Цель исследования. Изучить к сравнительной морфологии интрамурального нервного аппарата сердца у некоторых млекопитающих животных.

Материалы и методы исследования. Целью настоящего исследования является изучение структуры нервных элементов подэпикардиального нервного аппарата у некоторых половозрелых млекопитающих животных при помощи методов серебрения (Бильшовский-Гросс, Кампос).

Результаты исследования. В составе нервного подэпикардиального нервного апапрата задней стенки предсердий у половозрелых свиней, крупного рогатого скота, лошади и овец представлен как крупными ганглиями, находящимися в местах перекреста пучков по их ходу, а также вблизи сосудов, так и отдельными нервными клеткам. Некоторые узлы находятся в соединительнотканных прослойках поверхностных слоев миокарда. Наряду этим наблюдалось расположение отдельных нейронов внутри нервных стволов. Сравнивая размеры узлов, залегающих под эпикардом, можно отметить, что у свиньи они достигают наибольших размеров (1456Х416 мк), на втором месте по величине находятся узлы крупного рогатого скота и лошади (873,6Х377,4 мк), и на третьем месте - овцы (728,0Х416 мк). Узлы снабжены хорошо развитой стороной и капсулой. Ганглиозные клетки имеют наибольшие размеры у свиньи (86,2х37,8 мк); у крупного рогатого скота и лошади-67,4Х33:6 мк, у овцы-50,4×42,3 мк. Наряду с указанными крупными нейронами в составе подэпикардиального нервного аппарата наблюдаются клетки средней и малой величины. ядра нервных клеток светлые, пузырькообразные, лежат эксцентрично, либо центрально и содержат одно-два ядрышка. Нейрофибриллярный аппарат чаще приближается к сетчатому типу, реже к фасцикулярному. Хроматофильное вещество распределяется в нейронах различно: от пы-левидной до мелкой и крупной зернистости. Наблюдается апополярное расположение глыбок нисслевского вещества. В единичных клетках оно окрашивается гомогенно. В узлах, залегающих под эпикардом в области предсердий и проксимальной части желудочков сердца, среди клеток I типа Догеля выявляются единичные крупные гепераргентофильные клетки овальной или грушевидной формы с длинными отростками, покидающими пределы ганглия и образующими рецепторные аппараты в строме узла, вблизи соседних нейронов. Часть отростков клеток, схожих с нейронами II типа Догеля, образует синаптические связи с клетками I типа Догеля. Наряду с клетками, схожими с нейронами II типа Догеля имеются единичные псевдоуниполярные клетки. Отростки ганглиозных клеток, переплетаясь с соседними, образуют часто двухнейронные агрегаты, свидетельствующие об усложнении межнейрональных связей внутри нервных узлов. Обнаружены межнейрональные связи между клетками I и II типа Догеля, а также между нейронами I типа Догеля. У всех видов исследованных нами животных были найдены транзиторные и концевые синаптические окончания. Нейрофибриллярный остов состоял из густого сплетения нейрофибрилл, являющихся продолжением пресинаптического нервного волокна. Найденные синапсы чаще имели колечкообразную, пуговкообразную, грушевидную, шаровидную, овальную колбообразную форму. Такое разнообразие синаптического аппарата, по-видимому, свидетельствует о приспособительной их реакции к различным условиям функционирования, а также к возникающим в процессе жизни животного различным вегетативным дисфункциям на почве нарушений физико-химического и биохимического балансов. Что касается рецепторного апапрата, то наибольшее разнообразие чувствительных окончаний было найдено в сердце свиньи. Наряду с компактными несвободными чувствительными окончаниями, находящимися в эпикарде, под эпикардом и в эндокарде были найдены несвободные и свободные рецепторы диффузного харрактера. Для диффузных несвободных рецепторов характерно многократное дихотомическое деление концевых ветвей и значительная их протяженность. Компактные чувствительные окончания, в отличие от. диффузных, образуют обширные рецепторные поля. В миокарде у всех исследованных животных имеются рецепторы «лазающего» типа, нервно-мышечные веретена, свободные и несвободные кустиковидные окончания. В эндокарде и под эндокардом предсердий обнаружены, главным образом, чувствительные окончания компактного типа. В сердечных ганглиях найдены свободные диффузные чувствительные окончания. В желудочках найдены рецепторы преимущественно диффузные кустиковидные.

Вывод. Таким образом, наши сравнительные данные показывают, что наиболее развиты подэпикардиальные нервные сплетения, синаптический и рецепторный аппарат у свиньи, на втором месте по степени развития нервных элементов сердца находится крупный рогатый скот и лошадь, на третьем-овца. Чувствительные нервные, окончания располагаются у исследованных животных во всех слоях задней стенки предсердий. Компакктные рецепторы в эндокарде и эпикарде образуют рецепторные поля, для диффузных - характерна значительная их протяженность. В миокарде найдены рецепторы «лазающего» типа, нервно-мышечные веретена, свободные и несвободные кустиковидные чувствительные окончания.

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ДЕРВИШЕСТВО РУССКОЙ И РУССКОЯЗЫЧНОЙ ЛИТЕРАТУРЕ

Аннотация: *Рассмотрен образ дервиша в современной русской литературе. Двойником дервиша в является молодой Учитель, Учитель с большой буквы, с появлением новое знание и долгожданная вода.*
Ключевые слова и фразы*: СухбатАфлатуни; современная литература; дервиш; учитель;*

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DERVISH IN RUSSIAN AND RUSSIAN-LANGUAGE LITERATURE

Abstract*: The image of a Dervish was observed in modern Russian literature. The twin of Dervesh is young teacher, a teacher with a capital letter, with the advent of new knowledge and the long-awaited waterKey words and phrases:*
K***eywords:*** *Aflatouni's conversation, modern literature, Dervish, teacher*

Образ дервиша и феномен дервишества в современной отечественной литературе потребовали не только исследования более раннего опыта обращения к дервишеству в русской литературе, но и характеристики происхождения и сути самого явления.Слово «дервиш» имеет несколько взаимосвязанных значений. [4,с.200]. Прослеживая историю возникновения слова «дервиш» некоторые исследователисчитают, что оно впервые упоминается в зороастрийских гимнах X-IV вв. до н. э.: Дервишество - это течение исламского мистицизма, созвучное учению суфиев, в котором актуализируется тематика мистического единения с Богом, любви к божественному, аскетизма, отказа от мирского богатства. Образ дервиша в мировой культуре связан с такими характерными особенностями, как странничество и бродяжничество, аскеза и бедность, сила чувства и специфические практики погружения в мистическое состояние.Важнейшими из них являются следующие: вопервых, это последователь определенного мистического учения суфийского толка; во-вторых, носитель определенной мудрости, связанной с некоторыми упражнениями мистического порядка; в-третьих, нищий, живущий подаянием и независимый, выключенный из обычных механизмов социального бытия.[4,с.202]. Привлекательность образа дервиша для русской литературы рубежа XIX – XX вв. имела несколько причин, наиболее важными из которых стали экзотические мистические практики, привлекавшие внимание; бродячий образ жизни, ассоциируемый одновременно и со свободой юродства, и с поэтическим блужданием; мистическое вдохновение, получившее воплощение в традиционных символах персидской поэзии, созвучное вдохновению поэтическому; соответствие института дервишества живой мистической традиции. Эта традиция впоследствии будет развита в произведениях прозаиков рубежа XX – XXI вв.: СухбатаАфлатуни, Тимура Зульфикарова. Мотив дервишества играет значимую роль в прозе СухбатаАфлатуни. Главный герой в повести «Глиняные буквы, плывущие яблоки», учитель, является двойником дервиша, некогда пришедшего в деревню. Дервиш был убит; учитель также становится жертвой косности и зависти, однако его спасает вера в него некоторых жителей деревни, и вместе они совершают чудо -возвращают воду, спасаясь от «безводного ада» косности, суеверия, закрытости. СухбатАфлатуни вводит образ дервиша в сложное сплетение культурных нитей, проводя параллель с христианским Мессией. Творчество Тимура Зульфикарова - пример взаимодействия мусульманской и христианской картин мира, взаимовлияния поэтики суфизма и русской поэзии. Образ дервиша у Зульфикарова отражает реальную фигуру исламского мистика, выполняющего зикры, или радения, и живущего подаянием, и раскрывается в поликультурном слове как параллель к образу юродивого, несет коннотацию поэта и мудреца. Дервиш в картине мира Зульфикарова - поликультурный герой, воззрения которого имеют параллели и в буддийской мудрости, и в христианском учении.на повести СухбатаАфлатуни «Глиняные буквы, плывущие яблоки».[1,с. 3-63]. Один из ключевых персонажей повести - дервиш. Главного героя повести, учителя, современные жители среднеазиатской деревни сопоставляют с дервишем, когда-то приходившим к ним, - он принес чудесные буквы, зашифрованные в стенах древней бани, и предсказал приход пресной воды. История мифического дервиша, объясняющая постройку бани в безводной местности, становится историей об умирающем страннике, учителе, и его возвращении, своего рода трансформацией истории жертвоприношения: «…дервиш пришел, волосы до колена болтаются, попробовал воду и выплюнул: “Люди, для мечети она не подходящая”. Люди говорят: “Поняли, не плюйся. Говори, для чего подходящая?”. Он своими святыми мозгами подумал, говорит: “Для бани подходящая. Грязь смывать, сопли разные с тела. Раз в год, в такой-то день. А пока я не вернусь, воду, которая оттуда идти будет, не пейте”. “Так-так, - сказали люди. - А когда ты вернешься, о волосатый?”. “Не знаю... Когда с безоблачного неба дождь пойдет, и когда сухая земля воду родит. А теперь меня убейте”. “Как же ты вернешься, если мы тебя убьем?”. Его еще поотговаривали немного: давай, мол, постригись и у нас жить оставайся. Потом убили. Неудобно гостю отказывать» [5, с.481] В образе учителя много аллюзий на Христа, причем не только евангельского, но и на булгаковскогоИешуа. Подобно Иешуа, он не чудотворец и очень наивен:

называет жителей деревни «святыми» и представляет их в виде детей (ср.: «Будьте как дети …» – в проповеди Христа). Очевидно, что общая ситуация инакости, сумасшествия, унижения объединяет учителя и с дервишем, и с унижаемым Мессией. Он называется «лунный, ненормальный Учитель» [1,с. 3-63]. В творчество Тимура Зульфикарова своеобразно и по форме, и по содержанию. Оно представляет собой поликультурное и синкретическое единство стиха и прозы, пророчества и песни. Каждое его произведение – своеобразный синтез стиха и прозы: «…поэма Тимура Зульфикарова насыщена стихами, а прозаические части напоминают персидско-таджикский садж – рифмованную, ритмически организованную прозу» [2,с.1.8]. Образ дервиша в творчестве Зульфикарова многолик. Один из божьих странников – Диловар-Дурды-бай, «…дервиш-бродяга. Каландар из Ходжента» [3,с.582]. Ангел Последнего Дня Исрафил сказал ему о Дне Суда, но запретил рассказывать другим под угрозой страшной смерти: «Дервиш немой пророк – павлин без хвоста иль ночное небо без письмен Аллаховых плеяд! … Так он и ушел навек с Великой Тайной своей... О Азья моя! Сколько немых пророков бродит по тебе в немой жгучей тоске?..» [3,с.31].

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ТУРИСТИЧЕСКИЕ ВОЗМОЖНОСТИ ГОР НУРОТА

Аннотация: *в данной статье представлена информация о туристических объектах, расположенных на северных склонах Нуратинских гор, и туристических возможностях Нуратинских гор, одного из туристических направлений Узбекистана.*

Ключевые слова: *туризм, склон Нуроты, наследие, памятник, турист, приключение, принцип, экотуризм, село Сентоб, удобство*

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TOURISM OPPORTUNITIES OF NUROTA MOUNTAINS

Abstract: *this article provides information about the tourist facilities located on the northern slopes of the Nurota Mountains and the tourist opportunities of the Nurota Mountains, one of the tourist destinations of Uzbekistan.*

Key words: *tourism, Nurota slope, heritage, site, tourist, adventure, principle, ecotourism, Sentob village, convenience.*

Северные склоны Нуратинских гор с их природной красотой, историческим значением и уникальными ландшафтами предлагают большие возможности для развития туризма. Основываясь на общих тенденциях в горных регионах и туристических направлениях, мы представляем некоторые типы туристических достопримечательностей, которые можно найти в Нуратинских горах. Горные курорты: высококачественные курорты, предлагающие комфортное размещение с великолепными видами на горы, могут привлечь туристов, желающих отдохнуть в красивой обстановке.

Популярные достопримечательности в Нуратинских горах. Путешествие по Нуратинским горам открывает новые и завораживающие чудеса на каждом шагу. Одно из таких мест — каскадные водопады, которые создают потрясающие природные панорамы. Вода, текущая по скалистым склонам, создает, как говорят местные жители, успокаивающий звук. Помимо природных чудес, район богат археологическими памятниками, которые рассказывают историю древних цивилизаций, живших здесь тысячи лет назад. Священные святыни, расположенные среди гор, хранящие духи предков, служат местами паломничества для многих туристов. Местные жители охотно делятся легендами и историями о своей земле. Одна из таких историй гласит, что в этих горах обитает дух горы, который защищает природу и животных.

Для любителей активного отдыха горы Нурата — настоящая находка. Здесь можно отправиться в поход по красивейшим маршрутам, насладиться пейзажами нетронутой природы и подышать свежим горным воздухом. Для тех, кто ищет более высокие вершины и трудности, есть возможность заняться альпинизмом. Любители верховой езды также найдут здесь что-то для себя. В седле верного коня вы сможете исследовать долины и ущелья, открывать новые, скрытые места. Если вы новичок, мы рекомендуем начинать с коротких маршрутов и постепенно увеличивать их сложность. Опытные путешественники и альпинисты могут выбирать более сложные маршруты, требующие не только физической подготовки, но и душевного равновесия.

Советы по экологичному туризму. Уважение к природе — главный принцип, которому должен следовать каждый турист. Нуратинские горы — уникальное место, и его красота зависит от нашего отношения к нему:

-во-первых, всегда следует придерживаться принципа «Не оставлять следов». Это означает, что вы должны убирать за собой мусор и не оставлять ничего, что нарушило бы естественное состояние природы.

-во-вторых, использование биоразлагаемой косметики и бытовой химии поможет минимизировать воздействие на местные водоемы.

-в-третьих, необходимо поддерживать местные инициативы, направленные на сохранение природы. Многие сообщества вокруг Нуратинских гор разрабатывают программы устойчивого туризма, которые не только защищают природу, но и поддерживают местных жителей.

Хотя конкретные характеристики туристических объектов в Нуратинских горах зависят от местных правил, инфраструктуры и инициатив сообщества, в этой красивой горной местности есть возможности для создания разнообразных и интересных объектов.

1. Естественная красота: Нуратинские горы известны своими потрясающими природными ландшафтами, включая густые леса и красивые долины. Туристов часто привлекают в регион такие мероприятия, как пешие походы, наблюдение за птицами и фотосъемка природы.

2. Культурные и исторические памятники: Нуратинские горы являются домом для нескольких культурно значимых объектов, включая древние петроглифы, исторические руины и священные святыни. Эти объекты привлекают любителей истории и духовных путешественников, заинтересованных в изучении богатого наследия региона.

3. Приключенческий туризм: пересеченная местность Нуратинских гор предлагает широкие возможности для приключенческого туризма, такого как скалолазание, катание на горных велосипедах и спелеология. Искатели приключений и любители активного отдыха могут насладиться захватывающими впечатлениями в этом динамичном ландшафте.

4. Экотуризм: горы Нурата являются основным местом для инициатив по экотуризму, ориентированных на устойчивость и защиту окружающей среды. Ответственные туристические практики помогают сохранить биоразнообразие региона и поддержать местные сообщества.

5. Кемпинг и отдых на природе: северные склоны гор Нурата предлагают множество возможностей для кемпинга и отдыха на природе. Посетители могут разбить лагерь под звездами, насладиться пикниками на открытом воздухе и насладиться кемпингом на открытом воздухе в захватывающей дух природной обстановке.

Между Нуратинскими горами и пустыней Кызылкум расположился поселок Сентоб — село в Навоийской области, которое сейчас признано туристическим. Благодаря своей удаленности от города, оно сохранило свой аутентичный сельский пейзаж и традиционный облик, характерный для среднеазиатского села. Все сохранило свою самобытность и гармонию — природа, местные жители, национальные блюда из натуральных продуктов, свои овощи и фрукты, деревянные дома. Хотя старинные жилища имеют необычную форму с узкими дверными проемами и низкими потолками, здесь созданы все удобства для туристов: гости могут остановиться в уютных коттеджах и при этом наслаждаться всеми возможностями сельской жизни — верховой ездой, походами по окрестностям или в горы, экскурсиями к наскальным петроглифам Сармышсая и т.д. Несмотря на удаленность от крупных городов, жизнь в Сентобе кипит. Местность давно пользуется популярностью у местных и иностранных туристов, здесь открылись гостевые дома и курорты в национальном стиле. Гостевые дома оснащены всеми удобствами для туристов. Озеро Айдаркул, ущелье Сармышсай с древними петроглифами, таинственными пещерами и водопадами — популярные места посещения туристов.

Сегодня микрорайоны Ухум, Дустлик, Сайёд, Учкулоч Форишского района, расположенные на склонах Нуратинских гор, становятся туристическими микрорайонами. В микрорайонах Ухум и Дустлик создано 13 гостевых домов и хостелов, в которых созданы все необходимые условия для экотуристов. Только за последние месяцы этого года предпринимателями Ихтиёром и Омонбоем Анджировыми в селе Хаётбоши микрорайона построено и сдано в эксплуатацию 2 гостевых дома на 19 мест каждый.

Ежегодно в это село приезжают тысячи любителей экотуризма из Великобритании, Франции, Испании, Германии, России и Казахстана. Тысячелетняя ель (восточная биота) в селе Дустлик махалля Можрум также стала излюбленным местом для любителей экотуризма. Ежегодно 600-800 туристов приезжают посмотреть и изучить тысячелетнюю ель. Кроме того, деревня Асраф в этом районе привлекает туристов из Италии, Испании, Великобритании, Германии, Франции, Российской Федерации и других стран.

Кроме того, на берегах озера Айдар построено несколько туристических объектов, которые также посещают тысячи любителей экотуризма. Место паломничества Ходжабагбон Ата, расположенное в склоне Нурак района, всегда заполнено любителями паломнического туризма. Местные власти и туроператоры могут использовать эти возможности для содействия развитию устойчивого туризма на северных склонах Нуратинских гор, что может сохранить природное и культурное наследие региона и привлечь туристов.

Сельский туризм — это вид туризма, который предлагает туристам возможность узнать о местном образе жизни, традициях и культуре в сельской местности. Этот туризм обычно включает в себя флору, фауну и природные чудеса, а также следующие аспекты:

1. Местные традиции и культура: туристы взаимодействуют с местными жителями и узнают об их обычаях и традициях.

2. Сельскохозяйственная деятельность: туристы имеют возможность участвовать в сельскохозяйственных работах или собирать урожай собственными руками.

3. Естественная красота: сельские районы богаты природными ландшафтами, горами, ущельями, скалами, ручьями, родниками и другими природными ресурсами.

4. Здоровый образ жизни: сельский туризм обычно ориентирован на потребление натуральных местных продуктов питания.

Учитывая растущую значимость сельского туризма для экономического развития, создания рабочих мест для местного населения и сохранения культурного наследия, сельский туризм также развивается в большинстве деревень района Фориш. Посетители Фориша имеют возможность узнать о местных традициях, национальной кухне и обычаях. Город также славится своей природной красотой, особенно горами и зелеными ландшафтами. Размещение и услуги в Форише хорошо развиты, что создает удобства для туристов. Было отмечено, что за последние месяцы этого года район посетили более 43 620 иностранных и более 179 450 внутренних туристов. В настоящее время здесь функционируют 31 средство размещения, около 20 семейных гостевых домов, 19 хостелов, 4 кемпинга, которые принимают иностранных и местных туристов. Местные предприниматели также вносят достойный вклад в развитие сферы туристических услуг, а в развитие экономики района предприниматель Шерзод Норбеков и его туристическая компания «Responsible Travel» были признаны лучшим предприятием мира 2023 года Немецким институтом развития туризма и крупнейшей в мире международной туристической ярмаркой «ITB Berlin» за вклад в развитие экотуризма и получили международную премию «TO DO AWARD 2023». 14 августа 2024 года Указом Президента нашей страны руководителю туристической компании «Responsible Travel» Шерзоду Норбекову был вручен нагрудный знак «Активный предприниматель». Также с 2012 года данный предприниматель работает над развитием экотуризма в Нуратинском хребте, сохранением природы Нуратинского хребта, Фаришского района, продвижением и рекламой национальных гостевых домов, созданных в Хаёте, Ухуме, Эски Фориш, организацией регулярных обучающих курсов и тренингов для привлечения туристов и повышения качества услуг.

Заключение. Несомненно, горы Нурата не только предлагают потрясающую красоту и высокие вершины, но и представляют собой гармонию природы и культуры. Исследование этого региона позволяет нам стать свидетелями уникальной среды, которая достойна нашего восхищения и усилий по защите природы. Путешествие по горам Нурата помогает нам глубоко оценить их уникальность и осознать, насколько важно сохранять такие красивые места на благо будущих поколений. Каждый человек играет решающую роль в сохранении этого замечательного наследия гор Нурата на благо общества.

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СТРАТЕГИИ ИСПОЛЬЗОВАНИЯ КРИПТОВАЛЮТ В МЕЖДУНАРОДНОЙ ВАЛЮТНОЙ СИСТЕМЕ

Аннотация: *В статье анализируются стратегические возможности применения криптовалют в международной валютной системе на примере компании Ant Group. Особое внимание уделяется потенциалу использования стейблкоинов в трансграничных платежах и их интеграции в финтех-платформы. Исследование основано на изучении бизнес-модели Ant Group, технологической инфраструктуры и глобальных тенденций в области цифровых валют. В работе представлены выводы о перспективности криптовалютных решений в рамках глобальной финансовой трансформации.*

Ключевые слова: *криптовалюта, стейблкоины, международные платежи, Ant Group, финансовые технологии, блокчейн*

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STRATEGIES FOR USING CRYPTOCURRENCIES IN THE INTERNATIONAL MONETARY SYSTEM

Abstract: *This article examines the strategic potential of using cryptocurrencies in the international monetary system, focusing on the case of Ant Group. Special attention is given to the use of stablecoins in cross-border payments and their integration into fintech platforms. The study is based on an analysis of Ant Group's business model, technological infrastructure, and global trends in digital currencies. The article concludes that crypto-solutions represent a promising direction in the context of global financial transformation.*

Keywords: *cryptocurrency, stablecoins, international payments, Ant Group, financial technology, blockchain*

Введение

Основной бизнес Ant Group охватывает платежи, финансовые услуги и облачные вычисления, а ее стратегия глобализации направлена на распространение своих услуг на большее количество стран и регионов, особенно в сфере трансграничных платежей, расширения доступа к финансовым услугам и цифровых финансовых услуг. С быстрым развитием глобальных финтехов криптовалюта, как новый финансовый инструмент, открывает новые возможности для Ant Group. Криптовалюты (например, биткойн, эфир и т. д.) постепенно рассматриваются как дополнение или альтернатива традиционным валютам в силу их децентрализации, прозрачности и эффективности. Криптовалюты демонстрируют огромный потенциал для трансграничных платежей, перевода активов и расширения доступа к финансовым услугам, и, в частности, имеют значительные преимущества в решении проблем высоких комиссий, неэффективности и финансовой изоляции.

Ant Group обладает мощным потенциалом развития технологий и обширным опытом в сфере финансовых услуг, особенно в области блокчейна, искусственного интеллекта и аналитики больших данных. Ее Alipay стала одной из крупнейших мобильных платежных платформ в мире, а Ant Group также предоставляет диверсифицированные финансовые услуги глобальным пользователям с помощью Ant Cloud и других финтех-продуктов. Эти ресурсы обеспечивают прочный фундамент для развития Ant Group в криптовалютной сфере.

Методы и исследования

Данное исследование основано на структурном и контент-анализе открытых источников, включающих отчёты международных финансовых организаций, корпоративные документы компании Ant Group, а также академические публикации, посвящённые использованию криптовалют в международной валютной системе. В рамках работы применялись методы сравнительного анализа, систематизации и индуктивного обобщения, позволяющие выявить основные направления развития криптовалютных решений в трансграничных расчётах.

Особое внимание было уделено изучению практических кейсов внедрения стейблкоинов в бизнес-процессы Ant Group и сопоставлению этих стратегий с тенденциями, наблюдаемыми в других финтех-компаниях. Методологическая база включала как качественные, так и количественные подходы: на первом этапе исследование носило теоретико-аналитический характер, а на втором — ориентировалось на оценку потенциальной применимости криптовалют в глобальной финансовой инфраструктуре.

Использование комбинированного подхода позволило сформировать целостное представление о возможностях и рисках, связанных с внедрением цифровых валют в практику трансграничных платежей, а также определить стратегические направления для дальнейшего развития в рамках бизнес-модели Ant Group.

1. Основной бизнес Группы «Ант Group»

Alipay - самый известный продукт Ant Group и один из основных видов ее деятельности. Будучи ведущей в мире мобильной платежной платформой, Alipay не только имеет сотни миллионов пользователей в Китае, но и распространяет свои услуги на весь мир благодаря бизнесу трансграничных платежей. Пользователи могут совершать международные покупки, трансграничные переводы и оплату счетов за рубежом через Alipay, что значительно облегчает международную торговлю и личные трансграничные платежи. Бизнес трансграничных платежей Alipay опирается на мощную технологическую базу Ant Group, обеспечивая эффективные и безопасные трансграничные расчеты.

Chanting и Borrowing - это потребительские кредитные продукты, запущенные Ant Group, которые в основном предоставляют пользователям услуги мгновенной рассрочки и кредитования на небольшие суммы. Эти продукты предоставляют пользователям услуги мгновенной рассрочки и кредитования на небольшие суммы, отличаются высокой степенью точности оценки кредитоспособности и контроля рисков благодаря использованию больших данных и технологий искусственного интеллекта. Chanting и borrowing не только удовлетворяют потребительские потребности пользователей, но и расширяют экосистему финансовых услуг Ant Group и способствуют дальнейшему продвижению компании в области финансовых технологий.

Ant Group является лидером в области инвестиций и применения технологии блокчейн. Ее самостоятельно разработанные блокчейн-платформы (например, Ant Chain) применяются во многих сценариях, включая финансовые услуги, управление цепочками поставок и смарт-контракты. Благодаря технологии блокчейн компания Ant Group может предоставлять более прозрачные, эффективные и безопасные финансовые услуги, способствуя развитию финансовых инноваций.

2. Потенциальное применение криптовалют в бизнесе Ant Group

2.1 Снижение стоимости трансграничных платежей

Традиционные трансграничные платежи обычно осуществляются с участием множества банков и посредников, с высокими комиссиями и длительными сроками расчетов. Криптовалюты, благодаря своей децентрализованной природе, могут напрямую соединять две стороны платежа и сокращать промежуточные звенья, тем самым снижая стоимость платежей. Ant Group может использовать криптовалюты (например, stablecoin) для осуществления недорогих трансграничных платежей и дальнейшего улучшения пользовательского опыта.

2.2 Повышение эффективности и прозрачности платежей

Криптовалюта основана на технологии блокчейн, которая отличается высокой степенью прозрачности и несанкционированности. Ant Group может реализовать расчеты в режиме реального времени с помощью криптовалют, уменьшив проблему задержки традиционных трансграничных платежей из-за межбанковского клиринга. Кроме того, технология blockchain может предоставить полную информацию о платежах, обеспечивая прозрачность и возможность отслеживания транзакций.

2.3 Преодоление ограничений традиционных платежных систем

Традиционные платежные системы ограничены национальной денежно-кредитной политикой, колебаниями обменных курсов и трансграничным регулированием, в то время как криптовалюты могут преодолеть эти ограничения. Ant Group может предоставить пользователям более удобные и быстрые услуги трансграничных платежей с помощью криптовалют, особенно в сценариях микроплатежей и высокочастотных платежей, обладая значительными преимуществами.

3. Криптовалютная стратегия Ant Group

Ant Group может выпустить стабильные монеты, привязанные к местным валютам, таким как китайский юань, чтобы удовлетворить спрос на трансграничные платежи и торговлю. Стабильные монеты могут снизить риски, связанные с волатильностью цен на криптовалюты, и повысить эффективность транзакций. Благодаря привязке к юаню Ant Group может использовать свое сильное присутствие на китайском рынке для продвижения использования стейблкоинов в трансграничных платежах. Ожидается, что введение стейблкоина упростит процесс трансграничных операций и снизит транзакционные издержки, тем самым помогая предприятиям и частным лицам более эффективно осуществлять трансграничные платежи, снижая риск колебаний обменного курса и повышая ликвидность капитала.

Ant Group может интегрировать Stablecoin в свои существующие платежные и финансовые платформы (например, Alipay), чтобы еще больше повысить удобство работы и эффективность транзакций. Интегрировав стейблкоин, Ant Group сможет предоставить пользователям более удобные и эффективные решения для трансграничных платежей, чтобы удовлетворить растущий спрос на трансграничные транзакции.

Для решения проблем, связанных с регулированием стабильных монет, Ant Group может сотрудничать с глобальными регулирующими органами, чтобы обеспечить соответствие выпуска и применения своих стабильных монет законам и нормам каждой страны. Ant Group может использовать децентрализованную техническую архитектуру для снижения регуляторного риска. Для обеспечения соответствия деятельности Ant Group может принять ряд мер, включая прозрачность операций, создание механизмов по борьбе с отмыванием денег (AML) и финансированием терроризма (CFT), а также регулярную отчетность перед регулирующими органами о выпуске и обращении стейблкоинов. Эти меры помогут Ant Group организовать криптовалютные операции в соответствии с требованиями законодательства по всему миру, избегая при этом конфликтов с регулирующими органами.

Заключение

По мере цифровой трансформации мировой финансовой системы криптовалюты и стейблкоины будут играть все более важную роль в международной валютной системе. В будущем популярность цифровых валют приведет к значительному повышению эффективности трансграничных платежей и снижению транзакционных издержек. Децентрализованная природа криптовалют также открывает новые возможности для финансовой инклюзии и децентрализованного финансирования (DeFi). Кроме того, появление цифровых валют центральных банков (CBDC) дополнит частные стабильные монеты и позволит создать более открытую и эффективную глобальную финансовую систему.

Ant Group, как ожидается, станет ключевой движущей силой глобальной финансовой трансформации. Благодаря своей ведущей платформе для платежей и финансовых услуг Ant Group может применить стейблкоины и технологию блокчейн для трансграничных платежей, финансирования торговли и расширения доступа к финансовым услугам, поддерживая цифровую трансформацию мировой экономики. В то же время Ant Group может внести свой вклад в развитие и совершенствование глобальной политики регулирования криптовалют путем сотрудничества с международными регуляторами, играя таким образом более активную роль в глобальном финансовом ландшафте.

Ожидается, что в будущем Ant Group будет и дальше расширять свое влияние на мировом финансовом рынке за счет технологических инноваций и соответствия требованиям, предоставлять пользователям более безопасные, эффективные и инклюзивные финансовые услуги и в то же время способствовать развитию мировой финансовой системы в направлении большей открытости и инклюзивности.

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РАЗВИТИЕ ПЕРСОНАЛИЗИРОВАННОГО МАРКЕТИНГА В ЭКОСИСТЕМЕ ALIBABA GROUP

Аннотация. *Крупные технологические холдинги, работающие в сфере электронной коммерции, имеют определенные конкурентные преимущества, основанные на возможностях собственных интегрированных экосистем. Для таких компаний переход от «универсального» к «персонализированному» маркетингу становится, с одной стороны, легче – за счет множества взаимодействующих компонентов и технологий, обеспечивающих цифровую трансформацию бизнеса; с другой стороны – сложнее, так требует четкой координации, слаженной работы множества юридических лиц в составе холдинга, сотрудничества разнородных команд, не связанных административными отношениями подчиненности. Автор статьи исследует эти проблемы на примере экосистемы Alibaba Group, в том числе мощностей и технологий Alibaba Cloud. Доказано, что большие данные, предиктивная аналитика, искусственный интеллект формируют «окно возможностей» для крупных технологических холдингов, одновременно развивающих десятки взаимосвязанных сегментов рынка электронной коммерции.*

Ключевые слова: *маркетинг персонализированный, инструменты, цифровая трансформация, экосистема, Alibaba Group.*

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DEVELOPMENT OF PERSONALISED MARKETING IN THE ALIBABA GROUP ECOSYSTEM

Abstract. *Large technology holdings operating in the field of e-commerce have certain competitive advantages based on the capabilities of their own integrated ecosystems. For such companies, the transition from "universal" to "personalized" marketing becomes, on the one hand, easier - due to the many interacting components and technologies that ensure the digital transformation of business; on the other hand, it is more difficult, as it requires clear coordination, well-coordinated work of many legal entities within the holding, cooperation of heterogeneous teams that are not connected by administrative subordination relationships. The author of the article examines these problems using the example* *of the Alibaba Group ecosystem, including the capacities and technologies of Alibaba Cloud. It has been proven that big data, predictive analytics, artificial intelligence form a "window of opportunity" for large technology holdings that simultaneously develop dozens of interconnected segments of the e-commerce market.*

Keywords: *personalized marketing, tools, digital transformation, ecosystem, Alibaba Group.*

В современном мире инструменты традиционного «универсального» маркетинга, рассчитанного на «среднего» потребителя – из состава целевого контингента – функционируют далеко не всегда эффективно. Все более актуальными становятся данные пользователей, история взаимодействия с каждым из них, и персонализированные рекомендации по контенту. Такой подход позволяет участникам электронной торговли разрабатывать и корректировать свои маркетинговые кампании на основе взаимодействия с клиентами.

Используя алгоритмы машинного обучения, искусственного интеллекта современные компании электронной торговли изучают поведение клиентов, историю их покупок, предпочтения выбора, чтобы предлагать индивидуальные рекомендации по продуктам, тем самым повышая коэффициент конверсии.

Цифровая трансформация – это необходимость в современной экономике, она обеспечивает повышение гибкости электронной коммерции, интеграцию онлайн- и офлайн опыта. Многие авторы сосредоточили внимание на соответствующих тенденциях, факторах, и проблемах. Так, Н.П. Вахрушева исследовала «..тенденции развития электронной торговли в условиях формирования цифровой экономики, ..особенности и перспективы развития электронной коммерции» с позиций применения разнообразных инструментов маркетинга» [2].

А.Р. Гончаренко, О.Ю. Чубукова утверждают, что «..интернет-маркетинг играет важную роль в процессе экономической глобализации, поскольку она расширяет возможности для компаний со всего мира по доступу к информационным, финансовым, производственным и трудовым видам ресурсов, существенно упрощает развитие электронной коммерции». А.Р. Гончаренко, О.Ю. Чубукова глубоко рассматривают «..концептуальные основы интернет-маркетинга, его инструментарий, ..роль интернет-маркетинга как эффективного инструмента, что «..выводит электронную коммерцию на новый уровень». Однако нам трудно согласиться с утверждением авторов о том, что «интернет-маркетинг является «..методом расширения целевой аудитории с оптимизацией ресурсов» [3].

А.В. Меркулова исследовала «динамику развития рынка электронной коммерции в современных условиях, а также сопряженное «развитие интернет-маркетинга», его инструментов [8].

А.К. Кадалова в 2015 году обратила внимание на «..тенденцию индивидуализации спроса и повышение потребительской вовлеченности в процесс маркетинговых коммуникаций. Этим «..обусловлена необходимость использования персонализированных маркетинговых коммуникаций» [5].

В.М. Брежнева, В.Я. Башкатова, А.А. Головин глубоко рассматривают «сущность, алгоритм действий и преимущества.. новой концепции персонализированного маркетинга, возникшей под воздействием объективных процессов, происходящих на рынке потребительских товаров и услуг» [1].

В 2021 году О.В. Завьялова исследовала «динамику концепций маркетинга в современной экономике», выделяя «..маркетинг вовлечённости, персонализированный и ретроспективный маркетинг», и провела анализ «..среды маркетинга в условиях цифровой трансформации» экономики. Мы считаем неудачным термин «ретроспективный маркетинг», но в целом исследования О.В. Завьяловой очень важны в теоретическом и прикладном смысле [4].

В.Д. Малыгина, С.В. Антошин творчески рассмотрели «эмпирический базис» персонализированного маркетинга, предприняли попытку «..проанализировать его отличительные особенности, инструментарий, преимущества, перспективы применения в практической деятельности в контексте организационного развития системы обеспечения безопасности потребительского рынка». Практический интерес представляют рассмотренные В.Д. Малыгиной, С.В. Антошиным «технологии персонализации, а также вопросы поддержки мобильного персонализированного маркетинга» [7].

И.В. Роздольская, М.С. Старикова, А.А. Волобуев глубоко исследовали «..обеспечение ценностно-ориентированной персонализации взаимодействий с клиентами», на основе использования инновационных маркетинговых технологий. Авторы сделали акцент на «инновационный маркетинг», с позиций обеспечения конкурентоспособности. Подчеркнута важность этих технологий «..для фирм, стремящихся к ценностно-ориентированной персонализации взаимодействия с клиентами». Проведенный И.В. Роздольской, М.С. Стариковой, А.А. Волобуевым обзор инновационных маркетинговых технологий в контексте «..ценностно-ориентированной персонализации взаимодействий с клиентами» имеет высокое практическое значение, в том числе в области электронной коммерции [9].

М.А. Карцева, О.М. Потемкина, В.В. Ильинова в 2021 г. обратили внимание исследователей на то, что «..Цифровизация маркетинга в КНР успешно развивается последнее десятилетие. Еще десять лет назад на Китай приходилось менее 1 % соответствующего мирового рынка, сегодня это крупнейший в мире рынок электронной коммерции, увеличивший свою долю на мировом рынке более чем до 40 %. Китай доминирует в электронной торговле, электронной коммерции, обрабатывая больше транзакций в год, чем Франция, Германия, Япония, Соединенное Королевство и Соединенные

Штаты вместе взятые. При этом «..китайский маркетинг не собирается останавливать свое развитие и только набирает обороты. М.А. Карцева, О.М. Потемкина, В.В. Ильинова исследуют «..ключевые причины успеха цифровизации маркетинга в Китае», выявляют актуальные тенденции развития маркетинга, его перспективы» [6].

Alibaba Group – крупный китайский холдинг, работающий в основном в сфере электронной коммерции, он включает сотни дочерних структур, зарегистрированных в КНР и в других странах, обеспечивающих взаимодействие с пользователями, клиентами, путем предоставления технологической инфраструктуры, платформ, маркетинговой поддержки производителям, оптовым и розничным ритейлерам.

Экосистема Alibaba Group включает в себя десятки бизнесов, платформ таких как «Ant Group», которая объединяет юридические лица, предоставляющие финансовые услуги. Два подразделения Alibaba Group – Taobao и Tmall – являются крупнейшими сегментами холдинга. Taobao – онлайн-платформа, которая в первую очередь работает по модели продажи рекламы, где продавцы платят за повышение видимости, представления, продвижения своих продуктов. Сегмент международной и цифровой коммерции состоит из AliExpress, Trendyol, Lazada и Alibaba.

Экосистема в целом способствует сотрудничеству между участниками e-коммерции, позволяя им взаимно использовать накопленный опыт для достижения успеха.

Заметную роль в развитии маркетинга всего холдинга Alibaba играет Alibaba Cloud, предоставляющая ряд услуг, таких как облачные вычисления, хранение данных, обработка больших данных, искусственный интеллект. С помощью средств аналитики и инструментов, основанных на искусственном интеллекте, достигается высокая степень персонализации клиентского опыта.

Alibaba Cloud способствует персонализированному взаимодействию, которое привлекает новых клиентов, способствует высокой степени лояльности, и стимулирует рост продаж торговых платформ, их клиентов со стороны товарного предложения.

Облачные решения для электронной коммерции обеспечивают переход к комплексному многоканальному опыту покупок, тем самым повышая удовлетворенность клиентов и увеличивая продажи.

Alibaba Cloud обеспечивает менеджерам и клиентам расширенную аналитику в режиме реального времени, позволяя разрабатывать индивидуальные маркетинговые стратегии, что повышает вовлеченность потребителей, обусловливает рост бизнеса.

Возможности платформы в области искусственного интеллекта и машинного обучения предлагают прогнозную (в том числе предиктивную) аналитику, персонализированные рекомендации по продуктам, акциям, ценам. Инструменты на базе искусственного интеллекта – чат-боты и др. – способствуют улучшению взаимодействия с клиентами, оптимизации задач поддержки.

Благодаря таким решениям Alibaba Cloud способствует цифровой трансформации и оптимизации процессов, реализуя инновационные маркетинговые стратегии каждой торговой платформы, площадки, интегрированной экосистемы Alibaba.

В современной е-коммерции сложность заключается не в получении данных, а в эффективности их использования. Инструменты Alibaba Cloud при этом играют важную роль, позволяя компаниям-продавцам создавать персонализированные маркетинговые акции, основанные на точной аналитике в режиме реального времени. Ценность подобных инструментов состоит в их оперативности, и отслеживании отклика потребителей сразу после запуска соответствующей акции, рекламной кампании.

Alibaba Cloud использует искусственный интеллект для анализа данных клиентов и определения инновационных маркетинговых подходов для отдельных пользователей. Используя возможности больших данных, и технологии «потоковой» передачи в режиме реального времени, маркетологи всего холдинга могут получать, обрабатывать и оценивать данные для персонализированных коммуникаций со всеми участниками процессов электронной торговли.

Специализированная аналитика DLA (Data Lake Analytics) Alibaba Cloud дает маркетологам уникальные знания о поведении покупателей, тенденциях рынка, и соответствующих индивидуальных маркетинговых стратегий. Это, в свою очередь, усиливает вовлеченность клиентов и стимулирует рост бизнеса – не только в материковом Китае, но и за его пределами.

Важная прикладная задача – формирование и доставка «правильного» сообщения «правильному» клиенту в подходящий момент времени. Инструменты анализа данных Alibaba Cloud предназначены в том числе для планирования и реализации целевых маркетинговых кампаний, в рамках комплекса маркетинга, помогая участникам электронной коммерции повышать коэффициенты конверсии, и соответственно – финансовые результаты деятельности. Аналитика Alibaba Cloud позволяет компаниям-участникам определять наиболее эффективные каналы продаж, адаптировать предложения, персонализировать процесс покупок, на базе оценки поведения, и предпочтений конкретных потребителей.

Инструменты предиктивной аналитики Alibaba Cloud позволяют компаниям-участникам параллельно осваивать несколько целевых аудиторий, повышая точность целевых маркетинговых кампаний.

Одним из важных направлений развития персонализированного маркетинга, по мнению автора, должна стать интеграция так называемой «модели интереса покупателя» (на базе истории просмотров товаров) и алгоритма срочного формирования, отправки персонализированных предложений и рекомендаций.

Важным элементом алгоритма является использование маркетинга «социального доказательства», который использует отзывы клиентов, социальные репосты, для оказания влияния на решения потенциальных клиентов о покупке. Этот подход в сочетании с предиктивной аналитикой, прогнозированием на основе искусственного интеллекта, расширяет возможности маркетологов по планированию и реализации эффективных маркетинговых кампаний.

Такой подход помогает маркетологам оптимизировать процессы маркетинга в социальных сетях, повышая их эффективность и охват, масштабируемость обращений, их отдачу.

Проведенный анализ позволил обосновать ряд выводов и рекомендаций. Для быстрого, успешного развития электронной коммерции в условиях цифровой трансформации рынка, топ-менеджменту крупных технологических холдингов целесообразно активизировать усилия в области перехода от «универсального» к «персонализированному» цифровому маркетингу. Приоритетной задачей в этом ряду является достижение высокой интеграции множества взаимодействующих юридических лиц холдинга, специализированных команд, от координации действий которых во многом зависит степень адаптивности электронной коммерции в целом.

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ИЗМЕНЕНИЕ КЛИМАТА И ОСНОВНЫЕ ЭТАПЫ И НАПРАВЛЕНИЯ ИССЛЕДОВАНИЙ ПО МЕТЕОЧУВСТВИТЕЛЬНОСТИ

Аннотация: *Расширение диапазона экстремальных погодных явлений на фоне антропогенного глобального потепления усиливает биометеорологическую нагрузку на население. Обзор объединяет ранние исследования XIX - начало XX века, а также влияние погоды на здоровье в советский период (1950-1980-е годы), затем современные данные (2019-2025 гг.). В статье обсуждаются вопросы международных исследований и научных организаций (1990-е – по настоящее время). Современные направления исследований с применением спутниковых данных и технологий (2000-е – по настоящее время) о клинических проявлениях метеопатии, механизмов её формирования и эволюции под воздействием сценариев SSP/RCP. Следовательно рассмативаются некоторые последствия из за ухудшение комфортных погодных условий для человека. На примере усугубления сердечно-сосудистой, респираторной и ментальной заболеваемости при тепловых волнах, резких колебаниях барометрического давления и атмосферной влажности.*

Ключевые слова: *изменение климата; биометеорология; метеопатия; тепловые волны; барометрические колебания; психическое здоровье.*

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CLIMATE CHANGE AND THE MAIN STAGES AND DIRECTIONS OF RESEARCH ON WEATHER SENSITIVITY

Abstract: *Expansion of the range of extreme weather events against the background of anthropogenic global warming increases the biometeorological load on the population. The review integrates early studies from the 19th to early 20th century, as well as the impact of weather on health during the Soviet period (1950s-1980s), followed by contemporary data (2019 2025). The article discusses* *international research and scientific organizations (1990s-present). Current research directions with satellite data and technologies (2000s-present) on the clinical manifestations of meteopathy, mechanisms of its formation and evolution under the influence of SSP/RCP scenarios. Consequently, some consequences of the deterioration of comfortable weather conditions for humans are considered. On the example of aggravation of cardiovascular, respiratory and mental morbidity under heat waves, sharp fluctuations of barometric pressure and atmospheric humidity.*

Keywords: *climate change; biometeorology; meteopathy; heat waves; barometric fluctuations; mental health.*

Введение.

Рассмотрим понятие метеопатии его определение, распространённость и диагностика. Метеопатия, которую нередко рассматривают как отдельный синдром или даже как новое заболевание, представляет собой состояние, при котором наблюдаются психологические и физиологические реакции организма на изменения погодных условий. Термин происходит от греческих слов meteora (небесные явления) и pathos (страдание, боль) и начал активно использоваться в научной литературе в конце XX — начале XXI века. По данным различных исследований, до 30% населения планеты в той или иной степени испытывают симптомы, характерные для метеопатии. Особенно подвержены этому состоянию женщины, в частности в периоды гормональной перестройки, такие как менопауза. Более того, наблюдается устойчивая тенденция к росту числа случаев метеопатии, что может быть связано с увеличением частоты и амплитуды погодных колебаний, а также со снижением способности организма к адаптации. Среди факторов, влияющих на нарушение процессов саморегуляции, рассматриваются, в том числе, воздействие электромагнитных волн широкого диапазона, а также особенности современного образа жизни, в котором преобладают малоподвижность, искусственный микроклимат и длительное пребывание в кондиционируемых помещениях с нестабильными температурными условиями.

Важно отличие метеопатии от метеочувствительности и методы оценки. Необходимо различать два близких, но не тождественных понятия: метеопатия и метеочувствительность. Метеопатия относится к состояниям, при которых изменение погодных условий провоцирует развитие новых заболеваний или обострение уже существующих. В то же время метеочувствительность описывает повышенную восприимчивость к погодным переменам на психофизическом уровне без обязательного развития патологических симптомов. Для диагностики этих состояний используется специальный инструмент — опросник METEO-Q, включающий 11 пунктов, оценивающих как изменения настроения и самочувствия при различных метеорологических условиях (температура, сезонность, атмосферное давление, география, смена часовых поясов), так и характер и выраженность симптомов. Каждому пункту присваивается балл от 0 (отсутствие) до 4 (сильное проявление). Также используется дополнительный контрольный список, включающий 21 симптом, позволяющий уточнить степень выраженности метеопатии. Согласно данным, полученным Маззой и соавторами, существует дифференцированная шкала оценки METEO-Q: у женщин метеопатия диагностируется при сумме баллов выше 11, у мужчин — выше 9; метеочувствительность предполагается при показателях выше 8 и 6 баллов соответственно. При этом наличие метеочувствительности не всегда означает развитие метеопатии.

Если рассматривать с точки зрения форм метеопатии и влияние погодных факторов, то метеопатия классифицируется на две основные формы — первичную и вторичную. Первичная форма развивается у людей без предшествующих хронических заболеваний и проявляется в виде неспецифических симптомов, таких как мышечные и суставные боли, общее недомогание, колебания настроения и снижение физической активности. Эти симптомы, как правило, исчезают после стабилизации погодных условий. Вторичная метеопатия наблюдается у лиц с хроническими заболеваниями, особенно с сердечно-сосудистой патологией и хроническими обструктивными заболеваниями лёгких, и может приводить к серьёзному ухудшению состояния. Основными метеорологическими факторами, способными вызывать негативные реакции организма, считаются изменения атмосферного давления, температуры воздуха, влажности, облачности, интенсивности солнечного излучения, скорость ветра и погодные фронты. Эти природные переменные могут влиять на нейрофизиологические процессы, в частности — изменять концентрацию нейромедиаторов в головном мозге, что и объясняет развитие целого спектра метеозависимых симптомов. Климатические изменения влияют не только на общества, окружающую среду и экономику, но и на психическое здоровье людей. В последние годы учёные всё чаще фиксируют явления, обозначаемые как экологический стресс, климатическая тревожность или экологическое горе. Эти состояния сопровождаются такими симптомами, как депрессия, тревожность и посттравматическое стрессовое расстройство, и связаны как с непосредственным переживанием экстремальных погодных условий, так и с осознанием того, что климатический кризис усиливается.

Показано, что доля «метеочувствительных» лиц достигает 30-45 % в европейских выборках и более 60 % среди пациентов с хроническими болезнями. Приводятся клинико-экологические пороговые значения ($\Delta T > \pm 7$ °C, $\Delta P > 8$ гПа/24 ч, Humidex > 40), при которых риск острых событий возрастает более чем в 1,8 раза. Предлагается концептуальная модель климат → биометеофакторы → → заболевание».

Климатические аномалии усиливаются: к примеру в 2023 г. зафиксировано 38 дней с глобальной среднесуточной температурой > 1,5 °C к доиндустриальному уровню [1]. Параллельно растут публикации о метеопатии — комплексе симптомов, возникающих у людей при быстрых изменениях погоды или при экстремальных температурах [2]. Несмотря на разный дизайн исследований, сходными остаются данные об участии автономной нервной системы, эндокринных и воспалительных каскадов в ответ на биометеофакторы [3].

Цель и вопросы исследования обобщить современные сведения о влиянии климатического изменения на метеопатологию и общее самочувствие людей.

Одним из первых ранних исследований в XIX - начало XX веках были крупных исследований, связанного с метеочувствительностью, можно считать работы немецкого врача и климатолога Ганса Хенгеля (Hans Hengel) в конце XIX века. Он проводил исследования о влиянии погодных условий на обострения различных заболеваний, в частности, суставных и респираторных заболеваний, а также психоэмоциональных реакций. Известные учёные и исследовательские группы: Владимир Кузнецов – российский исследователь, основоположник направления по метеозависимости и её влиянию на заболевания в Советском Союзе. Барри Голдштейн (Barry Goldstein) – известный британский врач и исследователь, изучающий влияние погоды на психическое здоровье, особенно в условиях сильных погодных изменений и стресса. Исследовательские группы в Японии – в стране активно изучают метеозависимость, с особым вниманием к экстренным климатическим явлениям (цунами, сильные дожди, жаркие летние дни).

Рассматривая влияние погоды на здоровье в советский период в 1950-1980-е годы, следовательно в СССР исследования метеозависимости населения проводились на протяжении десятилетий, и одним из значимых проектов был "Глобальный проект метеорологии и здоровья". Учёные из разных стран (в том числе Советского Союза) активно изучали, как изменения климата влияют на физиологические и психологические процессы в организме человека. В СССР особое внимание уделяли сезонным заболеваниям, таким как грипп, гипертония, заболевания органов дыхания и сустава. Важную роль в исследованиях сыграл Институт медико-биологических проблем (ИМБП) в Москве, где разрабатывались различные модели метеозависимости, проводились экспериментальные работы, а также проводилась оценка влияния изменения климата на здоровье населения и отдельных групп.

В последние десятилетия научные исследования ведутся и международными научными организациями (1990-е – по настоящее время). по направлению метеочувствительности населения. Они также активно развиваются в разных странах. Это связано с изменениями климата, увеличением количества экстренных погодных явлений и ростом числа заболеваний, связанных с климатическими колебаниями. Среди таких организаций, активно работающих в области метеочувствительности, можно выделить:

- Всемирная организация здравоохранения (ВОЗ): ВОЗ с конца 20-го века активно занимается мониторингом связи климата и здоровья. В 2004 году была запущена Программа «Здоровье и климат», которая исследует, как глобальное изменение климата влияет на здоровье населения, включая метеочувствительность.

- Американское общество метеорологии (AMS): Это организация исследует различные аспекты метеорологии, включая влияние погоды на здоровье человека. Изучаются метеозависимые заболевания, такие как сердечно-сосудистые болезни, астма и депрессии, а также последствия экстремальных погодных явлений, таких как тепловые волны и холодные фронты.
- Европейская метеорологическая ассоциация: Эта ассоциация проводит научные исследования, направленные на изучение связи между климатом и здоровьем. В рамках ЕС реализуется программа «Healthy climate», в которой активно изучаются заболевания, вызванные изменениями в климате и погоде.

В настоящее время появляются все более современные направления исследований, посвящённые метеочувствительности с учётом изменения климата, более частых экстремальных погодных явлений (например, аномальных температур, сильных осадков, засухи). На базе метеорологических центров и медицинских исследовательских организаций ведутся следующие работы:

- Влияние температурных аномалий на развитие сердечно-сосудистых заболеваний и обострение респираторных заболеваний (например, астма, аллергии).
- Психологические последствия экстремальных погодных условий, включая депрессии, стресс и тревожность, особенно у метеозависимых людей.
- Исследования по изменениям климата и их влиянию на долгосрочные тенденции заболеваемости и смертности (например, через повышение частоты заболеваний, вызванных экстремальными температурами, такими как тепловые волны).
- Использование спутниковых технологий для мониторинга влияния погодных условий на здоровье населения. На базе данных с спутников (например, NASA, NOAA, EUMETSAT) разрабатываются прогностические модели, которые учитывают связь между погодой и заболеваемостью.

В последние годы применение спутниковых данных и технологий (2000-е – по настоящее время) имеет большое внимание уделяется использованию спутниковых данных и технологий для изучения метеочувствительности населения. Спутниковые данные о температуре, влажности, атмосферном давлении, уровне загрязнения воздуха и других климатических факторов дают возможность создавать более точные прогнозы для метеозависимых людей. Примеры таких исследований включают использование спутниковых технологий для мониторинга:

- Наблюдения за температурой поверхности Земли и изменение её колебаний.
- Измерение уровня влажности воздуха с использованием спутников, что помогает предсказать возможные эпидемии или ухудшения здоровья людей с респираторными заболеваниями.

• Прогнозирование экстренных ситуаций, таких как тепловые волны, с помощью спутниковых данных.

Если рассматривать в ракурсе цифровизации и технологических решений этих задач, то можно привести следующие организации, которые проводили исследования и реализовали проекты :

1. Global Climate and Health Alliance (GCHA) – глобальная сеть организаций, занимающихся исследованием связи климата и здоровья, включая метеочувствительность.

2. Climate and Health Assessment (CCHA) – проект, реализуемый в США, для исследования влияния изменения климата на здоровье.

3. Сетевые исследования, такие как AIRS (Atmospheric Infrared Sounder) и другие программы по мониторингу атмосферных изменений, использующие спутниковые данные для анализа климатических изменений и здоровья населения.

Материалы и методы. Были изучены научные платформы PubMed, Scopus, Web of Science, РИНЦ, изучены статьи 2019-2025 гг по поисковым темам: «meteoropathy» или «weather sensitivity» и «climate change». В мета-анализе включены оценка эффекта — относительный риск (RR) при экстремальных значениях. Результаты изучения показало, что частота и клиника метеопатии по результатам многоцентрового опроса показывает, (METEO-Q) частота первичной метеопатии у здоровых составляет 32 % (N = 4 812) [4]. Среди лиц с COPD (ХОБЛ хронической обструктивной болезни легких) и ИБС (Ишемическая болезнь сердца) — 58-62 % (N = 2 137) [5] . Симптоматика включает цефалгии, артромиалгии, астению, нарушения сна; психические реакции — тревога, раздражительность [6]. Климатические детерминанты. (табл.1)

Таблица 1

Ключевые погодные изменения и ответ организма.

№	Параметр	Критический порог	Физиологическая реакция	RR острого события
1	ΔT сутч.	> ±7 °C	Вазоспазм/ тепловой стресс	1.5 – 1.9
2	ΔP 24 ч	> 8 гПа	Активация барорецепторов	1.3 – 1.6
3	Humidex	> 40	Тепловое истощение, тахикардия	2.2
4	THI (холод)	< –20	Вазоконстрикция, гипертония	1.4

В обзоре 2024 г. психического здоровья подверженных климатическим либо погодным показал рост риска тревожных расстройств на 34 % после тепловых волн и на 21 % после наводнений. «Климатическая тревога» демонстрирует чёткую зависимость от восприятия угрозы.

Прогноз по сценариям SSP. SSP5 8.5: к 2070 г. частота дней с Humidex > 40 в Средней Азии возрастёт с 3 5 до 25 35 дней/год, что потенциально увеличит годовое число тепловых коллапсов на > 60 %. SSP1 2.6 ограничивает рост до 8 12 дней (+15 %).

Обсуждение.

Быстрые изменения температуры и давления приводят к дизрегуляции вегетативного баланса (↑SNS/↓PNS (периферическая нервная система (ПНС)), выбросу катехоламинов и цитокинов. В тепловые волны усиливается проницаемость гематоэнцефалического барьера, что частично объясняет усиление тревоги и мигрени. Если рассматривать с точки зрения социальных факторов,то урбанизированные территории испытывают эффект «теплового острова», повышая ночную T° на 2 5 °C и продлевая стресс период.

Заключение.

Исследования метеочувствительности на протяжении последних десятилетий стали важной частью мониторинга здоровья населения и защиты от возможных негативных последствий изменений климата. С развитием технологий и использованием спутниковых данных, а также с усилением внимания к глобальным климатическим изменениям, этот тренд будет продолжаться.

1. Изменение климата уже усиливает биометеорологический стресс; частота метеопатии растёт параллельно экстремальным погодным событиям.
2. Критичными остаются пороги Humidex > 40 и ΔP > 8 гПа; преодоление каждого увеличивает RR госпитализаций 1,5-2,2 раза.
3. Смягчение сценария до SSP1-2.6 способно сдержать рост тепловых дней < 20 % к 2070, тогда как «пессимум» приведёт к > 60 % росту случаев теплового стресса и психической дистресс-симптоматики.
4. Требуются мультидисциплинарные вмешательства: раннее оповещение, «зелёные» городские зоны, индивидуальные рекомендации для метеочувствительных групп.

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ИССЛЕДОВАТЕЛЬ НАРОДНЫХ ПОЭТИЧЕСКИХ ЖАНРОВ

Аннотация. *Автор, будучи учителем узбекского языка, рассматривает Фитрата не только как творческую личность, но и как настоящего знатока фольклора. Как педагог, он высоко оценивает эти научные исследования Фитрата. Как специалист, он стремится открыть новую грань творчества Фитрата.*

Ключевые слова: *Сказка, массовый жанр, произведение «Девону луғатит-турк», диффузия, явление, чопчак, фантастические явления, эквивалент.*

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RESEARCHER OF FITRAT’S FOLK POETIC GENRES

Abstract. *As a teacher of the Uzbek language, the author sees Fitrat not only as a creative figure but also as a true expert in folklore. As an educator, they highly appreciate Fitrat's scholarly research. As a specialist, they strive to discover a new aspect of Fitrat's work.*

Keywords: *Fairy tale, popular genre, "Devonu Lu'atit-Turk" work, dispersion, phenomenon, spoof, fantastic phenomena, equivalent.*

Сказки, как и в устном творчестве других народов мира, являются одним из самых популярных жанров у узбеков и любимы нашими соотечественниками, живущими в различных регионах страны. Об их древнем происхождении свидетельствует то, что термин «сказка» (в оригинале — «etuk») использован в произведении Махмуда Кашгари «Девону луғатит-ттурк», написанном в 1074 году: «Etuk – рассказ, сказка; это слово также употребляется для донесения какой-либо цели шаху. Происходит от рассказа о каком-либо событии». О древности этого жанра говорит и то, что в устном творчестве таких тюркских народов, как казахи, кыргызы, туркмены, он также называется сказкой. Когда мы рассуждаем о мифах, легендах, преданиях, мы также упоминаем, что следующим этапом в диффузионном процессе является сказка. Следовательно, если мы ценим устное народное творчество как древнее достояние, то сказки можно по праву считать его уникальным жемчужным зерном.

Хотя термин «сказка» хорошо известен населению всех регионов Узбекистана, произведения этого жанра в разных областях называются по-разному. Например, ташкентцы называют их «чопчак», ферганцы – «матал», жители Хорезма – «варсаки», а узбеки и таджики, говорящие на двух языках, – «ушук». Кроме того, в живой речи иногда встречаются такие названия, как «афсона» (легенда), «ўтрик» (вымысел), «тутал». Даже великий поэт Алишер Навои использовал слово «чопчак» в одном из своих газелей:

Хабибим хусни васфин уйла мухлик англаким болгай, Кошинда киссайи Юсуф бир уйқу келтурур чопчак.

(В издании «Наводиру-ш-шабоб» 1959 года слово «чопчак» написано как «чорчак». Это позволяет предположить, что в эпоху Навои существовал термин «чорчак» или «чопчак»). Обратите внимание на слово «уйқу» (сон) в байте. Мы видим, что и сегодня сказки используются как средство усыпления детей вечером, и эта традиция имеет глубокие корни.

В отличие от дастанов (эпических поэм), в которых отсутствует вступительная формула вроде «жили-были», события в которых воспринимаются как реальные, в сказках царит совсем иной подход. Начальные слова «был-не был», «богат-беден» сразу же вызывают сомнение в достоверности рассказа. Однако эта преднамеренная неуверенность почти не влияет на восприятие слушателя. Мы безоговорочно верим вымышленным историям, сопереживаем героям, радуемся их успеху как своим.

Содержание народных сказок охватывает все стороны общественной, экономической, бытовой жизни. Народ по природе своей всегда выступает за справедливость. Несмотря на то что сказки своими корнями уходят в мифологию, при выборе темы, создании образов и отражении жизненных проблем они подчиняются критерию справедливости. Обман, бесчестие, предательство, ложь, моральная нечистота неизменно осуждаются, в то время как доблесть, правдивость, трудолюбие, вера и чистота воспеваются. Развязка сюжета неизменно подчеркивает торжество этих добродетелей. Придуманные народом фантастические явления, волшебные предметы, магия, сверхъестественные события служат поэтическим материалом для выражения борьбы добра со злом.

Фитрат, рассуждая об эпических жанрах устного народного творчества узбеков – сказках и дастанах – также делился своими мыслями о природе жанра.

Жанр сказки насчитывает многотысячелетнюю историю. В концепции Фитрата сказка представлена как жанр устного народного творчества. По мнению фольклористов, сказка – один из древнейших жанров. Она возникла на основе мифологического мировоззрения наших древних предков, их обычаев и ритуалов. В сказках народные мечты о благородных человеческих качествах выражаются через вымысел. В древности люди рассказывали друг другу простые истории, что постепенно привело к появлению образцов сказок. Вера в различные божественные детали придавала сказкам фантастическую атмосферу. Сказки имели свои сезоны повествования. Люди, обладавшие даром рассказчика, чаще пожилые, рассказывали сказки.

Сказка как общефольклорное явление считается одним из древнейших эпических жанров. Махмуд Кашгари в своем труде «Девону луғатит-турк» отмечал, что у тюркских народов это явление обозначалось словом «etuk», что означает устное изложение события. Однако в живой речи в разных частях Узбекистана, например, на юге Намангана, сказки называют «эртанги» (то, что будет завтра – в смысле древняя история), в Самарканде, Фергане и Сурхандарье – «матал», в Хорезме – «варсаки», в Бухаре – «ушук», в Ташкенте – «чопчак», а в других местах – «хикоя», «огзаки хикоя», «ўтрик» или «афсона». Но в фольклористике закрепился научный термин «сказка», который эквивалентен русскому термину «сказка». Даже в древнем словаре произведений Алишера Навои «Абушка» встречается термин «эртак», что подчеркивает его древнее происхождение. Сказки имеют свои структурные особенности.

Фитрат, говоря о сказках, утверждает: «Рассказам в народной литературе дается название “сказка”. Сказка создается с помощью воображения народных поэтов. Один из примеров – сказка “Предсказатель без воли” под псевдонимом Абу Бакр Девоев. Эта сказка высмеивает предсказателей и шаманов, которых народ считает вредными». Фитрат далее приводит краткое содержание сказки:

«Жена одного старика идет мыться в баню. В это время в баню приходит жена царского предсказателя. Старуху выгоняют наполовину вымытой. Она ругает мужа за то, что он не предсказатель. Старик берет гадальные принадлежности и идет на базар. Когда чиновники царя везли на ослах налог из далекого региона, один из ослов потерял золото. Царь вызывает старика и просит найти потерянное золото. Старик, никогда не занимавшийся предсказаниями, наугад называет место, и оно оказывается правильным. Позже он также находит вора, укравшего из казны. Его делают главным предсказателем. Боясь разоблачения, он начинает притворяться сумасшедшим. Он приходит к царю прямо из бани, голый, сбрасывает царя с трона, в это время обваливается навес. Хитрый старик спасается от наказания под разными предлогами и остается при дворе».

Таким образом, Фитрат объясняет природу сказки, приводя пример из народного фольклора. Поскольку сказки оказывают положительное влияние на мораль, поведение и воспитание человека, Фитрат уделял им особое внимание.

Он также высказался и о дастанах. Не обошел этот жанр стороной: «Дастан – в основном, сказка. Однако он отличается от сказки наличием героев, большей протяженностью и сложной структурой, а также тем, что повествуется акынами под музыкальное сопровождение».

Очевидно, что Фитрат хотел показать близость сказок и дастанов, не забывая при этом, что это разные жанры. Действительно, как отмечал Фитрат, «дастан – это сказка, переплетенная с вымышленными событиями и героями»...

Итак, Фитрат, основываясь на своих наблюдениях, отметил, что поэмы (дастаны) обладают более эпическим размахом по сравнению со сказками, имеют большой объём и, как правило, исполняются бахшиями с музыкальным сопровождением. В то же время он знал, что они состоят из поэтических и прозаических частей. На этой основе он различал жанры дастана и сказки.

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ГИГИЕНИЧЕСКАЯ ОЦЕНКА ДЕТСКОЙ ДОШКОЛЬНОЙ ОРГАНИЗАЦИИ «ВОЛШЕБНЫЙ ЗАМОК»

Аннотация. *В статье рассмотрены результаты оценки санитарно-гигиенических условий размещения, оборудования и содержания территории и помещений детской дошкольной организации. Социально-гигиенические факторы дошкольного образовательного учреждения, а также условия воспитания и обучения детей оказывают выраженное влияние на формирование здоровья подрастающего поколения.*

Ключевые слова: *дошкольно-образовательная организация, санитарно-гигиенические условия, образовательная деятельность.*

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HYGIENIC ASSESSMENT OF THE CHILDREN'S PRESCHOOL ORGANIZATION "MAGIC CASTLE"

Annotation. *The article discusses the results of the assessment of the sanitary-hygienic conditions of placement, equipment and maintenance of the territory and premises of a preschool organization. The socio-hygienic factors of the preschool educational institution, as well as the conditions for the upbringing and education of children in it, have a pronounced effect on the health of the younger generation.*

Key words: *preschool-educational organization, sanitary conditions, educational activities.*

Актуальность. Многочисленные исследования состояния здоровья дошкольников показали, что при поступлении в дошкольные образовательные учреждения до 20 % детей имеют хронические заболевания, значительное число функциональных отклонений, высокий уровень острой заболеваемости [1, 5, 7]. Количество детей, относящихся к 1-й группе здоровья, уменьшается от 3 к 7 годам жизни с одновременным увеличением числа детей с 3-й группой здоровья [3, 4, 6]. Одним из важнейших факторов, оказывающих влияние на формирование здоровья ребенка, является его индивидуальный суточный распорядок. Рациональный суточный режим предполагает соответствие его содержания и построения гигиеническим принципам, основывающимся на биологических законах жизни растущего и развивающегося организма, и должен учитывать особенности функционирования нервной системы дошкольников: высокий уровень активности коры больших полушарий в утренние и дневные часы, снижение его после обеда, падение в вечерние часы, закономерности развития утомления. Необходимо отметить, что жизнедеятельность современных дошкольников характеризуется увеличением статической, умственной и эмоциональной нагрузки на фоне дефицита двигательной активности, что может привести к нарушению физиологических функций организма, снижению иммунобиологической резистентности, ухудшению здоровья [9, 10].

Неблагоприятные санитарно-гигиенические условия оказывают отрицательное влияние на здоровье детей. В частности, обусловливают рост заболеваемости аллергическими болезнями органов дыхания, болезнями нервной системы, органов зрения, острой и хронической патологии верхних дыхательных путей, нарушений физического развития. Это указывает на значимость среды, окружающей ребенка и формирующей его как личность, здоровую в физическом и психическом плане [2, 8].

Цель исследования – гигиеническая оценка условий размещения, оборудования и содержания территории и помещений детской дошкольной организации «Волшебный замок».

Материалы и методы исследования. Объектом исследования является детская дошкольная организация «Волшебный замок»; в ходе исследования использовались метод санитарно-гигиенического обследования, метод лабораторных исследований. Обследованы территория, помещения, их оборудование и содержание, внутренняя отделка детской дошкольной организации, дана характеристика микроклимата и освещенности старшей группы дошкольной образовательной организации. Полученные данные оценивались на соответствие **СанПиН РУз 0355-18 - “Санитарно-гигиенические требования к содержанию, устройству и организации режима работы дошкольных образовательных учреждений в Республике Узбекистан”.**

Результаты исследования и их обсуждение. Данная дошкольная образовательная организация функционирует в режиме сокращенного дня (8-10-часовое пребывание детей). В дошкольную организацию принимаются дети в возрасте от 1,5 лет до прекращения образовательных отношений. Здание дошкольной образовательной организаций размещено на территории поселка, за пределами санитарно-защитных зон предприятий, рядом находятся жилые дома и магазины, поэтому возможных источников шума и загрязнения атмосферного воздуха нет. На территории дошкольной образовательной организации имеются игровая и хозяйственная зоны. Зона игровой территории включает в себя 6 групповых площадок - индивидуальные для каждой группы и одну физкультурную площадку. В ходе санитарно – гигиенической характеристики территории было выявлено наличие плодоносящих деревьев, присутствие теневого навеса на территории. А также недостаточная отдаленность площадки для сбора мусора, которая находится на расстоянии 9 метров от здания, вместо 15 метров. Здание дошкольной образовательной организации имеет 2 этажа. На первом этаже располагаются 3 групповые для детей до 3-х лет, медицинский блок, пищеблок, постирочная, комната кабинет завхоза, туалет для персонала. На втором этаже здания дошкольной образовательной организаций размещены 3 групповые для детей старше 3-х лет, музыкальный зал, кабинет заведующей, методический кабинет. При оценке групповой ячейки старшей группы дошкольной образовательной организации было выявлено отсутствие условий для просушивания верхней одежды и обуви. Так же в групповой находятся игрушки, которые дети приносят с собой из дома. В туалетной групповой ячейки старшей группы 4 раковины для детей, вместо 5, отсутствует раковина для взрослых в туалетной групповой ячейки. При измерении параметров микроклимата групповой ячейки старшей группы были получены следующие данные: средняя температура воздуха в игровой составила $21{,}5^0$С, в спальне $20{,}6^0$С, в приемной 21,80С, что соответствует требованиям; относительная влажность воздуха в приемной 28,2%, игровой 28,05%, спальне групповой ячейки 29,1%, что не соответствует санитарно-гигиеническим требованиям. Помещения групповой ячейки имеют естественное боковое освещение, организованное посредством оконных проемов, ориентированных на северную сторону. Световые проемы в игровой оборудованы тюлем, который закрывает всё окно. В спальне темные шторы, которые закрывают всё окно. Зашторивание окон в спальне проводится лишь во время сна детей, в остальное время шторы раздвинуты в целях обеспечения инсоляции помещения. Искусственная освещенность представлена люминесцентными лампами. В игровой 9 светильников, в спальне 2. Осветительные приборы оборудованы защитной светорассеивающей арматурой для обеспечения равномерного освещения. Измерение естественной и искусственной освещенности проводилось в игровой и спальне групповой ячейки. Полученные значения КЕО в игровой и спальне групповой ячейки обеспечивают требования гигиенических нормативов и составили в игровой 18,1, в спальне 11,6. Нормируемые показатели общей освещенности и коэффициента пульсации в каждой измеренной точке соответствуют санитарно-гигиеническим требованиям.

Выводы. При исследовании здания, помещений, их оборудования и содержания, внутренней отделки выявлены следующие отклонения: отсутствие условий для просушивания верхней одежды и обуви, в спальне групповой ячейке старшей группы, ориентированной на северную сторону, стены покрашены в холодный синий цвет. А в помещениях, ориентированных на северную сторону, краски должны быть теплых тонов. 3. При оценке размещений оборудования в старшей группе дошкольной образовательной организации выявлены следующие нарушения: игрушки в групповой, которые дети приносят с собой из дома, в туалетной 4 раковины для детей, вместо 5, отсутствует раковина для взрослых в туалетной групповой ячейки, туалет для персонала находится только на 1 этаже здания дошкольной образовательной организации.

При исследовании естественного и искусственного освещения помещений старшей группы нарушений не выявлено. При изучении воздушно-теплового режима в старшей группе дошкольной образовательной организации выявлено несоответствие относительной влажности воздуха в приемной, игровой и спальне групповой ячейки санитарно-гигиеническим требованиям.

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МИЖОЗЛАР ТОМОНИДАН АДВОКАТЛИК ХИЗМАТЛАРИГА ГОНОРАРНИ ТЎЛАНИШНИ ТАКОМИЛЛАШТИРИШ ЙЎЛЛАРИ

Аннотация:*ушбу мақолада адвокатга тўланган гонорар- хизмат ҳақини тўланишлик самарадорлиги ошиши оқибатида адвокат томонидан унинг хизмат турларига тезда, сифатли киришишликга олиб келишлиги асослантирилган. Адвокат томонидан мижоз билан тузилган шартномани “юридик ёрдам ахборот тизими платформаси” орқали рақамлаштириш йўли билан шартнома тузиш оқибатида яширин иқтисодиётнин олди олиниб адвокат томонидан тезда ўз вазифасига киришишлик самарадорлиги ошади ва адвокатлик хизматлари учун тўлов миқдори адвокатлик тузилмаси хисобварағига тушуш имкониятлари кенгайишлиги кўрсатиб берилган. Адвокатлик хизматларига тўланиши лозим бўлган пул миқдорини самарали йўлга қўйиш, мижознинг химоясига тезда ва сифатли киришишлиги учун тўлов жараёнини “юридик ёрдам ахборот тизими платформаси” орқали тўлов миқдорининг шаффофлигини таъминлашга йўналтирилган рақамлаштириш механизми такомиллаштирилди.* *Мижоз томонидан тўланиши лозим адвокатлик хизмат ҳақи миқдорини тезда, самарали ва энг қулай бўлган ҳолда тўланишли такомиллаштирилган.*

Калит сўзлар*: такомиллаштириш, механизми, кенгайган.тўланиши лозим, миқдор, тезда, химоясига, киришишлик, платформа, рақамлаштириш.*

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WAYS TO IMPROVE PAYMENT FOR LEGAL SERVICES BY CLIENTS

Abstract: *The article argues that improving the efficiency of payment of attorney fees leads to faster and better implementation of attorney services. It is shown that digitization of the contract concluded between an attorney and a client through the "legal assistance information system platform" prevents hidden economy, increases the efficiency of an attorney to quickly start performing his duties, expands the possibilities of receiving legal fees to the legal entity's bank account. In order to effectively determine the amount of payment for legal services, quickly and efficiently intervene in the defense of the client, the digitalization mechanism has been improved, aimed at ensuring transparency of the amount of*

payment through the "legal assistance information system platform". The amount of the attorney's fee payable by the client has been increased so that it can be paid quickly, efficiently and in the most convenient way.

***Keywords**: improvement, mechanism, extended, payable, amount, fast, protection, availability, platform, digitalization.*

Кириш. Хозирда жахон ва мамлакатимизда иш –хизматлар, товарлар каби махсулотларни олиш, улардан фойдаланиш учун тўланиши лозим миқдор хеч бир тўсиқларсиз такомиллашган ҳолда, хар бир жисмоний ва юридик шахслар томонидан мураккаб бўлмаган тартибда тўланишлик мухим саналади. Бу борада босқичма босқич рақамлаштириш йўллари орқали тўланиш механизимларини такомиллаштириб борилмоқда. Адвокатлик хизматлари учун тўланиши керак бўлган хизмат хақининг тўланишининг соддалиги энг мухум саналади, мижоз буни осонлик билан амалга оширилиши лозим хисобланади. Адвокатлик хизмат ҳақининг тўланиш самарадорлиги оқибатида яъни куннинг хохлаган вақтида у иш вақтими йўқми ёки дам олиш кунларими, байрам кунларими адвокат мижознинг химоясига киришади бу эса инсон химоясининг устунлиги хисобланади.

Мавзуга оид адабиётларнинг таҳлили. Ш.Мирзиёев 2017-2021 Ҳаракатлар стратегияси, Хван Л.Б., Солиқ Ҳуқуқи, Отахонов Ф.Ҳ. Юридик хизматнинг хўжалик шартномаларини тузиш ва уларнинг ижросини таъминлашдаги роли, Каримов И.А. “Адолат қонун устиворлигида” номли адабиётларда юридик хизматларини самарали ривожлантириш билан боғлиқ муаммолар, юридик хизматнинг назарий- ҳуқуқий муаммолари мавзусида илмий тадқиқот олиб борилмаган бўлса - да, Ўзбекистон Республикасида ҳуқуқий давлат ва фуқаролик жамиятини шакллантиришнинг умумназарий ва хусусий муаммолари Ш.Н.Бердияров, Ҳ.Б.Бобоев, М.С.Восиқова, И.Б.Зокиров Ў.Х.Мухамедов, З.Муқимов, Х.Т.Одилқориев, О.Оқюлов, Ф.А.Примов, Ф.Х.Рахимов, Х.Рахмонқулов, М.Х.Рахмонқулов, ва бошқаларнинг асарларида ўрганилган бўлиб, унда адвокатлик хизматларида фонд тўлови ва аъзолик бадал тўловлари уларнинг муоммоли масалалари ўрганилмаган. Бу эса, танланган мавзунинг хозирги кунда долзарблигини кўрсатади.

Тадқиқот методологияси. Мақолада синтез, анализ, сабаб ва оқибат, замон ва макон, тизимли ёндошув, индукция ва дедукция, иқтисодий таҳлилнинг анъанавий, иқтисодий математик ва статистик каби усуллардан фойдаланилган.

Таҳлил ва натижалар. Ҳозирда юридик хизматлар томонидан қонунчиликни такомиллаштириш, ҳуқуқни қўллашда амалиётга қандай тадбиқ этиш умумлаштириш, юзасидан таклифлар ишлаб чиқиш ишлари самарали ташкил этилмаганлиги ушбу соҳадаги ишлар ҳуқуқни муҳофаза қилувчи уни назорат қилувчи органлар томонидан аниқланган хато ва камчиликлар, қонун бузилишларини бартараф этишга қаратилган чораларни кўрилиб ва такомиллаштирилмоқда. Давлат органлари ва ташкилотлари фаолиятида қонунийликни янада мустаҳкамлашга, демократик ва ҳуқуқий ислоҳотларни амалга оширишга, юридик хизматларнинг роли оширишга эътибор қаратилиб, жавобгарлигини изчиллик билан кучайтириш билан бир қатор чораларни бажариш заруратлари пайдо бўлади.

1-жадвал.

Йиллар кесимида хизматлар хажми ва унда юридик хизматлар миқдори.

Йиллар	ЖАМИ ХИЗМАТЛАР		
	Хажми млрд сумда		Ўсиш суръати фоизда
2024	564777,7		112,8
2023	448484,4		112,1
2022	259768,5		115,4
2021	204729		119,5
2020	155449,5		101,8
Шундан			
ЮРИДИК ХИЗМАТЛАР			
Йиллар	Хажми млрд сумда	Жамига хизматларга нисбатан фоизда	Ахоли жон бошига минг сум
2024	477,6	0,08	12,9
2023	395,4	0,09	109
2022	271,4	0,10	7,6
2021	249,2	0,12	7,2
2020	210,7	0,14	6,2

Бу жадвалда stat.uz нинг 03.04.2025 йил ҳолатидага маълумот асосида Ўзбекистон Республикасизнинг ижтимоий-иқтисодий ҳолатини 2020 йилдан 2024 йил сентябр ойигача бўлган давр мобайнида жами хизматлар миқдори қанчани ташкил килганлиги ва унинг йиллар давомида ўсиш суръати фоизларда ифодаланган. Шунинг билан бирга йиллар кесимида жами хизматларга нисбатан юридик хизмат фоизда ва ахоли жон бошига туғри келадиган миқдор минг сумда ифодаланган.

Юридик хизматларнинг асосий таркиби саналган адвокатлик хизматлари учун хизмат турларига қараб фукаролик ишларига базавий хисоблаш миқдорини уч баробари, маъмўрий ишларга икки баробари, иқтисодий ишларга беш баробари, жиноят ишларига беш баробари этиб тавсия бердик ва булар оқибатида тўлов миқдори сезиларли даражада ошди. Хақиқатда бажарилган ишлар турига нисбатан таҳлил қилганимизда адвокатлик хизматларидан тушган даромадларни ошганлиги қўйидаги жадвалларда уз ифодасини топган.

Самарқанд вилояти буйича хақиқатда бажарилган адвокатлик ишлар сонига нисбатан тавсия этилаётган микдор асосида тушумнинг купайиши. *2.-жадвал.*

минг сумда.

ЙИЛЛАР КЕСИМИДА	Хақиқатда қатнашган ишлар сони	Тавсия этилаётган энг кам микдор	Тавсия этилаётган энг кам микдорга нисбатан ҳосил бўлган СУММА
1	2	3	4
ФУҚОРОЛИК ВА БОШҚА ИШЛАР ЮЗАСИДАН			
2024	10067	1046	10532599
2023	7282	947	6899688
2022	7639	810	6187590
2021	8229	755	6208781
2020	6111	669	4088259
ИҚТИСОДИЙ ИШ ЮЗАСИДАН			
2024	812	1744	1415925
2023	702	1579	1108574
2022	446	1350	602100
2021	461	1258	579708
2020	333	1115	371295
МАЪМЎРИЙ ИШ ЮЗАСИДАН			
2024	1696	698	1182960
2023	1307	632	825587
2022	1274	540	687960
2021	1235	503	621205
2020	1009	446	450014
ЖИНОЯТ ИШ ЮЗАСИДАН			
2024	22868	1744	39876075
2023	17573	1579	27750667
2022	18399	1350	24838650
2021	16490	1258	20736175
2020	11391	1115	12700965

3.-жадвал.

Республика буйича хақиқатда бажарилган адвокатлик ишлар сонига нисбатан тавсия этилаётган микдор асосида тушумнинг купайиши.

минг сумда.

ЙИЛЛАР КЕСИМИДА	Хақиқатда қатнашган ишлар сони	Тавсия этилаётган энг кам миқдор	Тавсия этилаётган энг кам микдорга нисбатан ҳосил бўлган СУММА
1	2	3	4
ФУҚОРОЛИК ВА БОШҚА ИШЛАР ЮЗАСИДАН			
2024	74285	1046	77720681
2023	64114	947	60747951
2022	62958	810	50995980
2021	64639	755	48770126
2020	46197	669	30905793
ИҚТИСОДИЙ ИШ ЮЗАСИДАН			
2024	11336	1744	19767150
2023	10111	1579	15966937
2022	8930	1350	12055500
2021	7927	1258	9968203
2020	3901	1115	4349615
МАЪМЎРИЙ ИШ ЮЗАСИДАН			
2024	17568	698	12253680
2023	14962	632	9450987
2022	13780	540	7441200
2021	13798	503	6940394
2020	10154	446	4528684
ЖИНОЯТ ИШ ЮЗАСИДАН			
2024	247138	1744	430946888
2023	226540	1579	357744039
2022	214963	1350	290200050
2021	195399	1258	245714243
2020	125838	1115	140309370

2.- жадвал Самарқанд вилоятида ва 3.- жадвалда Республикамиз бўйича адвокатлар томонидан ҳақиқатда бажарилган адвокатлик хизматларини турлари асосида уларнинг хар бирининг сонига нисбатан алохида тавсия миқдорининг купайтмаси ишлаб чиқилган. Республикамиз ва вилоят статистика маълумотларида хизматларга қўшилган улушларнинг адвокатлик хизматлари учун алохида хисобот ёки алохида таркиблари юритилмаган. Шу сабабли 1.1. -жадвалда кўрсатилган умумий хизматлар ва унга нисбатан юридик хизматларнинг хажмига нисбатан туловлар миқдорини ажратган ҳолдаги солиштириш имкони йўқ бўлиб, юридик хизматлар сохасининг энг катта қисмини адвокатлик хизмати ташкил қилганлиги сабабли алохида хисоб ёки хисобот олиб борилишликни тавсия этамиз.

4.-жадвал.

Республика хизматлар миқдорига нисбатан тавсия этилаётган миқдорнинг ошиши.

Йиллар	ХИЗМАТЛАР (млрд сумда)		Жамига хизматларга нисбатан фоизда
	Хақиқатда жами хизматлар хажми	Тавсия этилаётган миқдор асосида адвокатлик хизмати	
2024	564777,7	540,7	0,10
2023	448484,4	443,9	0,10
2022	259768,5	360,6	0,14
2021	204729	311,4	0,15
2020	155449,5	180,1	0,12

Бу жадвалда хақиқатда Республикамиз миқиёсида кўрсатилган хизматлар хажми ва тавсия асосида адвокатлик хизматлари ошиш фоизи кўрсатилган. Жами хизматларга нисбатан тавсия асосида адвокатлик хизмати ўртача беш йилда 0,12 фоизни ташкил қилиши ишлаб чиқилди. Тавсия асосидаги адвокатлик хизматининг тушум миқдори ўз салмоғи билан мухумлиги кўринади.

Адвокат мижозга (юридик ёки жисмоний шахсга) адвокатлик хизматини кўрсатиш учун улар ўртасида шартнома асос бўлганда, унга мувофиқ адвокатлик хизматларига киришилганда, адвокатнинг номига келиб тушадиган маблағ яъни гонорар-адвокатлик хизмати учун тўлов мижоз билан адвокат ўртасида тузилган шартнома (битим) да унинг қанча миқдордалиги тўланиш тартиби адвокатлик хизматини бошлаш учун аванс яъни хизмат хақи учун бўнак миқдори бажарилган хизматларнинг натижаларига қараб қўшимча ёки рағбатлантириш тариқасидаги тўловлар кўрсатилиниб, бу тўлов фақатгина адвокат фалоият олиб бораётган адвокатлик тузилмаси ҳисобварағигагина тўланади.

Ўзбекистон Республикаси Вазирлар Маҳкамасининг 2019 йил 23 ноябрдаги 943-сон қарорига асосан “Аҳоли билан пулли ҳисоб-китобларни амалга оширишда онлайн назорат-касса машиналари ва виртуал касса тизимини қўллаш тартиби тўғрисида” ги НИЗОМ талаблари адвокатнинг хизмат хақи тўловининг тўлашда бир қанча тўсиқ ва қийинчиликларга сабаб бўлади ва адвокатлик хизмат ҳақининг бундай тўланиши умуман мос келмайди. Низом талаблардан келиб чиқиб мижоз адвокатга хизмат ҳақини тўлаш учун адвокат фаолият олиб борувчи манзилга яъни жойлашган тўзилмасига бориш керак бўлади, агар бу иш вақтидан кейин, тунгги вақтларга, байрам кунларига ёки дам олиш кунларига тўғри келса адвокатлик тузилмасининг маъмўрий техник ходимлари (хазиначи ёки иш юритувчи) тузилма идорасида иш ўрнида бўлмайди. Бундай холатда тўловни тўлашликни имкони йўқ бўлиб, бу адвокатга тегишли адвокатлик хизмат ҳақини тўланишдаги асосий тўсиқ ҳисобланади. Низом талабларидан келиб чиқадиган бўлсак унинг номутаносибликлардан яна бири мижоз пулини тўлаб касса апарати орқали чекни қабўл қилганда у товарлар ёки хизматларни хам мос равишда шу вақтнинг ўзида қабул қилиш керак бўлади. Адвокатга тузилган шартнома асосида хизмат ҳақи тўланмасдан туриб адвокат мижозга ишонч билдира олмайди. Бу мижознинг ҳимоясига кириша олмаслигига сабаб ҳисобланади. Адвокат томонидан адвокатлик хизматини уша жойида бира-тўла бажариб мижоз талабини қондиришни умуман имкони йўқ. Бунинг оқибатида мижознинг адвокатлик хизматидан фойдаланиш, ундан юридик ёрдам олиш ҳуқуқи кескин чекланишига олиб келади.

Фискал хотирали касса апаратидан фойдаланиш низом талабларидан келиб чиқиб адвокатлик хизмат ҳақини тўланишлик кунларини формула орқали ишлаб чиқдик;

Ах= Шт (1-кун=1) +(То (2-кун) + Чт (2- кун)=1) +Ак (3- кун=1)= 3 кун.

Ах-адвокатлик хизмати;

Шт- шартнома тузиш;

То-тўловни амалга ошириш;

Чт-тўлов чиптасини адвокатга етказиш;

Ак-адвокат хизматига киришишлик;

Формуламизда кўриниб турибдики адвокат томонидан хизмат вазифасига киришишликга мижоз билан шартнома тузигач, мижоз тўловни амалга ошириш учун адвокат жойлашган тузилмага бориб тўловни амалга оширади ва тўлов чиптаси билан адвокат ёни қайтиб келади, бу жараёнга камид уч кун вақт сарфланади. Агарда адвокатлик тузилмаси туман ёки шахар марказларида жойлашган бўлиб адвокатнинг ўзини яшаш манзили ёки мижозларни қабўл қилиш жойи туман, қишлоқларда бўлса, бундай жараёнга яна камида бир кун қўшилади. Байрам дам олиш кунларига тўғри келса шу кунлар яна устига қўшилиб адвокатлик хизматидан фойдаланиш имкониятлари қийинлашади, тўловларни амалга ошириш самараси пасайиб кетади. Ишимизнинг 1.1.-чизмасида кўринганидек хизматлардан ёки бошқа мақсадлардан тушган накд пул маблағи, қандай усулда бўлишидан қатъий назар, банк кассаси орқали хисобварақга кирим қилиниши асосий омиллардан бири саналади.

5-жадвал.

Мижоз томонидан адвокатлик хизмат ҳақини тўлашга сарфланган кунлар ҳисоби.

Адвокатлик хизмати	Киши кун хисобида					
	Шартнома тузиш	Тўловни амалга ошириш ва тўлов чиптасини адвокатга етказиш	Адвокат ўз хизмат вазифасига киришиш лик	Шартнома тузиб хизмат ҳақини қабўл килиш ва ишга киришиш	Жами кун	Ортиқча сарф ланган кунлар
Хизмат турлари бўйича	1	1	1		3	2
	0	0	0	1	1	0

Жадвалимизда адвокатлик хизмат ҳақининг тўланиш интинсевлигини ошириш учун, унинг тўланишлигини расмийлаштиришга ортиқча вақт сарфлашдан кўра тўланишликнинг мухумлиги орқали хизмат ҳақини тўланишлик самарадорлиги кўрсатилган.

Мижозни адвокатлик хизматидан қулай ва бемалол, тезликда куннинг ҳар қандай ҳолатида у иш куними ёки байрами, дам олиш кунларими фойдаланиш имконини яратиш, мижоз манъфати устунлигини таъминлаш мақсадида, адвокатнинг хизматидан мижоз эркин ва ўзига кераклигича тўсиқсиз фойдаланиш шароитларини яратиш лозим. Бунинг учун мижоз томонидан ёки исталган усулда тузилма ҳисобварағига адвокатнинг хизмат ҳақи тўлови туланиши керак. Бу тўловни ким томонидан ва қандай тўланишини аҳамияти йўқ, провардида тўлов белгиланган муддат ичида тўланиши керак холос деб ҳисоблаймиз.

Шартнома (битим)да адвокатлик хизмат ҳақи миқдори аниқ кўрсатилган тақдирда унга асосан адвокатга тўланадиган хизмат ҳақи тўлови адвокатнинг “Yuridik yordam” axborot tizimi (платформаси) орқали мижозга инвойс жунатилиниши ва ушбу тўловни мижоз томонидан банк ҳисобварағига тўланиши билан бир қаторда адвокат ўз мижозидан қабўл қилиб банкга топширишлиги адвокатнинг хизматига киришишлик интенсивлигини оширади ва яширин иқтисодиётни олди олинишлигини таъминлайди.

Адвокатлик хизмати учун шартнома тузиш ва тўланиши лозим ҳақни тўланиш босқичларини қўйидагича ишлаб чиқдик;

“Yuridik yordam” axborot tizimi га шартнома намунаси жойлаштирилади ва бу хабар мижоз телефонига автомат равишда юборилади.

Бу шартномани қуйидаги босқичларда тулдирилади:

Биринчи босқич- шартномада адвокатлик хизматининг тури кўрсатилади;

Иккинчи босқич - шартноманинг бажариш тартиби, муддати, ишга киришишлик вақти кўрсатилади;

Учинчи босқин- шартномада адвокатлик хизмат ҳақи миқдори кўрсатилади;

Тўртинчи босқич- шартноманинг қушимча шартлари кўрсатилади;

6-Жадвал.

Адвокат билан мижоз ўртасидаги шартнома (битим)нинг тузиш таркиби.

ШАРТНОМА ТУЗИШНИНГ АСОСИЙ ТАРКИБИ			
ШАРТНОМА САНАСИ	АДВОКАТЛИК ХИЗМАТЛАРИНИНГ ТУРЛАРИ	ШАРТНОМА МУДДАТИ	ХИЗМАТ ҲАҚИ МИҚДОРИ
1	2	3	4
Мижоз билан адвокат ўртасида келишув амалга ошгач шу сана билан имзоланади.	Фуқаролик суд ишларини юритиш	2025 йил якунига қадарли	БҲМ нинг уч баробари миқдорида
	Иқтисодий суд ишларини юритиш		БҲМ нинг беш баробари миқдорида
	Маъмурий суд ишларини юритиш		БҲМ нинг икки баробари миқдорида
	Жиноий суд ишларини юритиш		БҲМ нинг беш баробари миқдорида

Бу жадвалда “Yuridik yordam” axborot tizimi орқали шартнома тузишда платформасига киритиладиган асосий босқичлар кўрсатилиб, адвокат ва мижоз томонидан келишув асосида мижознинг талаблари инобатга олиниб, керакли қисмилари белгиланиши акс эттирилган. Бу босқичларни белгилашдан олдин шартноманинг тўлиқ намунавий шакли мижозга тақдим этилади.

Бу босқичлар тугагач шартнома ўзгартириш имкониятисиз адвокатнинг шу платформасида сақланади ва бу шартномага асосан адвокат ишга қатнашиш учун ордер олиш имкони пайдо бўлишлик яратилади. Бундай ҳолатда шартномада кўрсатилган адвокатлик хизматлари учун тўланадиган маблағнинг қандай тартибда, қандай куринишда тўланишлиги умуман ахамиятсиз бўлиб, адвокатлик тузилмаси хисобрақамига кирим бўлишлиги мухим деб ҳисоблаймиз. Оқибатда тўланиши лозим адвокатлик хизмат ҳақи аниқ тизимда кўриниб туради унинг тўлашлиги шарт ва мухим саналиб, мижозлар, уларнинг ишончли вакиллари ёки адвокат, унинг вакили, фаолият юритаётган тузилмадаги ходимлар каби ишончли шахслар томонидан тўланишлиги мумкин бўлиб, бу хизмат хақининг қандай холатда тўланиш ахамияти йўқолади. Натижада хизмат хақи тусиқларсиз хар қандай холатда тез, самарали усуллар орқали тўланади.

1- расм. **Адвокатга тўланиши лозим хизмат хақининг тўланиш жараёни.**

Бу расмда адвокат билан мижоз ўртасида шартнома тузилгандан сунг, асосий масала адвокатлик хизмати учун шартномада кўрсатилган тўлов тўланиши кўрсатилиб бу жараённинг қайси бири орқали бўлсада хизмат ҳақи адвокатлик тузилмаси хисобварағига тўланиши масаласи мухим жихатлардан бирилиги кўрсатилган.

Адвокатлик хизмати учун тўланиши лозим хизмат ҳақи миқдорининг хисобварақга тушуш интенсивлигини ошириш учун уни тўланиш жараёни эмас балким хизмат ҳақини тўланишлиги зарўр хисобланади. Буни формулада қўйидагича ишлаб чиқдик;

Ах= (Шт (1-кун) +АТо (1-кун) +Ак (1- кун))= 1 кун.

Ах-адвокатлик хизмати;

Шт- шартнома тузиш;

АТо-тўловни амалга ошириш;

Ак-адвокат хизматига киришишлик;

Бу орқали адвокат билан мижоз тўлов миқдорларни “Yuridik yordam” axborot tizimi да белгиланиб, тўланадиган миқдор шу вақт тўланишлигига ёки адвокатнинг ўзи қабўл қилишлиги, шу куннинг ўзида мижознинг хисоя фаолиятига киришиб адвокатлик хизмат самарадорлигини ошишига шу билан бирга адвокатлик хизмат ҳақи тўланиши оптималлашишга олиб келади.[219]

ИСПОЛЬЗОВАННЫЕ ИСТОЧНИКИ:

НОРМАТИВ-ҲУҚУҚИЙ ХУЖЖАТЛАР ВА МЕТОДОЛОГИК АҲАМИЯТГА МОЛИК НАШРЛАР

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ЧЎНТАК ГОСТРОНОМИК ТУРИЗМ МАРКАЗИНИНГ ШАКЛЛАНИШИДА ГЕОГРАФИК ОМИЛНИНГ ЎРНИ

Аннотация: *Ушбу мақолада Чўнтак чойхонаси мисолида Фарғона водийсида гастрономик туризмни ривожлантириш имкониятлари таҳлил қилинган. Хусусан, ҳаво ҳарорати ва ёғин миқдорининг Фарғона водийси бошқа ҳудудларига нисбатан фарқли бўлиши, инсон саломатлиги ва дам олиш имкониятларига ижобий таъсир этувчи омил сифатида қайд этилган. “Чўнтак” чойхонасида тайёрланадиган таомларнинг мазаси унинг географик жойлашуви билан боғлиқ ҳолда ёритилган. Гастрономик туризм учун табиий кондиционер ҳисобланган бу ҳудуд сайёҳлар учун жозибадор маскан сифатида тавсифланган.*

Калит сўзлар: *Гастрономик туризм, Фарғона водийси, Чўнтак чойхонаси, иқлим, табиий кондиционер, шамоллар, саёҳат, миллий таомлар, табиий-географик ўрни, оромбахш муҳит.*

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THE ROLE OF THE GEOGRAPHICAL FACTOR IN THE FORMATION OF THE POCKET GASTRONOMIC TOURISM CENTER.

Abstract: *This article explores the development potential of gastronomic tourism in the Fergana Valley, using the “Chontak” teahouse as a case study. The author highlights the unique natural and climatic features of the region, such as temperature differences, precipitation levels, and the influence of mountain-valley winds. These factors create a favorable microclimate that enhances the area's appeal for tourists. The taste and quality of the dishes served at the teahouse are examined in relation to its geographic setting. The “Chontak” location is presented as a natural "air conditioner," offering a refreshing atmosphere and cultural relaxation, making it an attractive destination for gastronomic tourism.*

Keywords: *Gastronomic tourism, Fergana Valley, Chontak teahouse, climate, natural air conditioner, winds, travel, national cuisine, physical-geographical location, relaxing environment.*

Кириш: Туризм жаҳон иқтисодиётининг энг йирик тармоқларидан бири бўлиб, кўплаб мамлакатларнинг миллий иқтисодиёти таркибида муҳим ўрин тутади, айримлари учун эса халқаро ихтисослашуви, аҳоли бандлиги ва фаровонлигининг асосини ташкил этади. Туризм энг тез ривожланаётган тармоқлардан бири ҳисобланади. Мутахассисларнинг фикрига кўра, туризм XXI асрнинг энг даромадли соҳасига айланди. Туризм транспорт, озиқ-овқат, меҳмонхона, савдо- сотиқ, ҳунармандчилик, қурилиш ва бошқа хизмат турларини ҳам ривожланишига олиб келади. Ўзбекистонда туризм соҳасини тубдан ислоҳ қилиш миллий иқтисодиётни ривожлантиришнинг стратегик йўналишига айлантириш ва унинг диверсификация ва ҳудудларни жадал ривожланишини таъминлаш борасида устувор вазифалар сифатида белгиланган .

"Туризм" сўзининг тарихий илдизлари, тилшуносларнинг тахминларига кўра, "айлана бўйлаб ҳаракат" маъносини билдирган лотинча "tornus" сўзига бориб тақалади. [7]

Биринчи бўлиб, "туризм" атамасига илмий таърифни 1830 йилда француз олими В.Жекмо берган эди. Унинг фикрича, "туризм йўлга чиққан жойга қайтиб келиш билан якунланадиган саёҳатдир" [8].

Гаага декларациясида туризм қуйидагича тавсифланган: "Туризм миллатлар ҳаётида барча соҳаларнинг байналмилаллашуви натижаси ўлароқ инсонлар ва замонавий жамоалар ҳаёт фаолиятида муҳим ҳисобланган шахсий, маданий, сиёсий ва иқтисодий алоқалар ўрнатишнинг асосий воситасига айланди" [6].

Шунингдек, Япониянинг Осака шаҳрида бўлиб ўтган Туризм лидерларининг халқаро анжуманида қабул қилинган Декларацияда мазкур соҳанинг миллий иқтисодиётларга қўшаётган салмоқли ҳиссасини инобатга олиб, "туризм - замонавий иқтисод феномени", деб эътироф этилган [9].

Бизда туризм кўпинча қадимий шаҳарларимиз, тарихий-маданий ёдгорликлар доирасида чекланиб қолмоқда. Ваҳоланки, мамлакатимизнинг бетакрор табиати, миллий қўриқхоналар, тоғли ҳудудларда туризмни ривожлантириш учун катта салоҳият мавжуд.

Туризмни мақсадига кўра бир нечта турларга ажратиш мумкин. Улар орасида гастрономик туризм ҳам алоҳида ўринга эга.

Гастрономик туризм - мамлакат билан унинг гастрономияси, маҳаллий ошхонаси ва пазандалик маҳорат дарслари орқали танишиш учун саёҳат ва гастрономик турлардир. *Global Report on Food Tourism* тадқиқотларига кўра, туристларнинг 79 % и ўз саёҳат йўналишларини гастрономик тадбирлар ва миллий таомларнинг ўзига хослигига қараб шакллантиради. Ҳар уч сайёҳдан бири миллий таомларни саёҳат учун мотивация деб ҳисоблайди ва саёҳат давомида 30 % маблағини овқатланиш учун сарфлайди.

Ўзбекистон Республикаси Президентининг 2018 йил 3 февралдаги ПФ-5326-сон "Ўзбекистон Республикаси туризм салоҳиятини ривожлантириш учун қулай шароитлар яратиш бўйича қўшимча ташкилий чора-тадбирлар тўғрисида"ги, 2021 йил 9 февралдаги "Ўзбекистон Республикасида ички ва зиёрат туризмни янада ривожлантириш чора-тадбирлари тўғрисида"ги ПФ-6165-сон Фармонлари, Ўзбекистон Республикаси Вазирлар Маҳкамасининг

2018 йил 15 февралдаги 120-сон “Муқаддас қадамжолар, зиёратгоҳлар, масжидлар ва қабристонларни ободонлаштириш ишларини самарали ташкил этиш тўғрисида”ги Қарори ҳамда ушбу соҳага тегишли бошқа меъёрий-ҳуқуқий ҳужжатлар белгиланган вазифаларни амалга оширишда дастури амал бўлиб хизмат қилади.

Аналогия- (мослик, айнан, ўхшашлик) нарса ва ҳодисалар бирор хусусиятларнинг ўхшашлигини ўрганиш усулидир. Бу усул ёрдамида икки ёки бир неча предметнинг ўхшаш хусусиятлари ўрганилади. Масалан, физикада аналогияга тебраниш контуридаги, бир учи маҳкамланган пружинанинг, сув юзида сузиб юрган жисмнинг, маятникнинг ва ҳаказоларнинг тебранишлари мисол бўла олади. Аналогия усули моделлаштириш жараёнида ишлатилади.

Моделлаштириш- объектнинг айрим хусуссиятлари ва белгиларини унинг ўзида эмас, балки унинг ўлчамлари кичиклаштирилган, ўзига айнана ўхшаш нусхасида (моделида) илмий изланишлар олиб бориш жараёнидир. Моделлаштириш асосида тадқиқ қилинаётган объект билан унинг модели ўртасида ўхшашлик, мувофиқлик ётади.

Агар ҳудудларни аналогия усули оркали тадқиқ этадиган бўлсак. Табиатда ҳам ҳаво ҳароратини бир меъёрда ушлаб турадиган доимий шамоллар таъсирида ҳавонинг намлигини, софлигини таъминлайдиган оромбахш ҳаво оқимлари йўлида жойлашган ҳудудлар мавжудлигини кўришимиз мумкин.

Биология билан техника фани ўртасида вужудга келган бионика фанини ўзига хос талқинини географияда ҳам кузатиш мумкин. Бионика (юнонча бион — ҳаёт элементи, асл маʼноси — яшовчи) - кибернетиканинг янада мукаммал техник воситалар ёки қурилмаларни яратиш мақсадида организмларнинг тузилиши ва ҳаёт фаолиятини ўрганадиган бир йўналиши. Кишиларни физиологик жиҳатидан нормал ҳаёт кечиришлари ва дам олишлари учун энг кўп таъсир этадиган табиат компоненти бу иқлимдир. Иқлимни кишилар учун муқобил ҳолатга келтирувчи мослама техникада ишлаб чиқилаган бўлиб, бу қурилма кондиционердир.

Кондиционер (инглизча: сондитионер) - қурилиш иншоотлари, транспорт воситалари ва бошқа ускуналар биноларида мақбул иқлим шароитларини сақлаб турувчи қурилма.

Энг оддий шаклда кондиционер хонадаги ҳаво ҳароратини тартибга солиш ва сақлаш учун мўлжалланган.

Кондиционер- ҳавони мўътадиллаш агрегати; вентилятор, ҳавони иситкич, ҳавони совиткич ва ҳаво фильтрларидан иборат.

Атроф географик муҳитда ҳам худди шундай кондиционер кўринишида ишловчи ўзига хос табиий ҳудудлар мавжуддир. Бундай ҳудудларда ёз ойларида ҳаво температурасини одатдаги атрофдан ёз ойларида 2-40 С пастроқ бўлиши кузатилади. Гастрономик туризм соҳасида олиб борилаётган тадқиқотларимиз натижасида шундай ҳудудлардан бири бўлган, Асака шаҳридаги “Чўнтак” чойхонаси ҳудуди ўрганиб чиқилди. Бу ҳудуд Фарғона водийсининг чекка жанубий шарқий қисмидаги Ойим-Хўжаобод-Марҳамат ботиғи билан Фарғона водийси бошқа ҳудудларини ажратиб турувчи адирлик ҳудудида жойлашган. Бу адирлик Асака адири ва Бўстон адирини Шахрихонсой кесиб ўтган кўндаланг водийнинг чекка шимоли-шарқий қисмида жойлашган. Бу ҳудуд иқлимшунослик назарияси асосида таҳлил қилинса, Бабушкин маълумотларига кўра адирларнинг жануб томонлари ҳудудида ҳавонинг ёз ойларидаги ўртача температураси 28–32 °C бўлса, адирнинг шимол томонида жойлашган Фарғона ҳудудлари температураси 25–28 °C ташкил этади. Худди шунингдек, намлик миқдори Марҳамат туманида 200-300 мм бўлса, адирнинг шимол яъни водий қисмида бу миқдор бошқача кўрсаткичга эга. Бундан ташқари Фарғона водийси учун хос бўлган тоғ водий шамолларининг эсиши ҳам бу ерда ўзига хос иқлим шаклланишига олиб келади.Тоғ водий шамоллари кўпроқ йилнинг иссиқ вақтларида фаоллашади.[4]

Бу ҳудуд йил фасллари бўйича турли йўналишдаги шамоллар таъсирида бўлади. Январьда 50-60% шамоллар шарқдан, 30% и шимолдан, июлда ҳам худди шундай бўлса-да, лёкин баҳор (апрель) вақтида 40-50% шарқдан, 30% шимолдан, 20-30% и жануби-ғарбдан эсади. [5]

Тоғ олди ландшафтлари учун маҳаллий тоғ-водий шамоллари ҳам характерлидир. Улар одатда кундузги иссиқ ҳаво оқимининг юқорига кўтарилиши, кечқурун совигандан сўнг водийга ёки юқоридан пастга эсиши туфайли юзага келади. Қиш фаслида бу шамоллар янада фаоллашади.

Хаво хароратининг йил давомида водийнинг бошқа қисмларидан 2-3^{0}C баъзи йиллари 4-5^{0}C пастроқ бўлиши, ёғин миқдориниг эса 100-150 мм кўпроқ ёғиши ҳудуддаги иқлимнинг ўзига хос хусусияти ҳисобланади. Бу ўзига хослик ҳудудда оромбахш ҳавони юзага келтиради.

“Чўнтак” чойхонасининг мана шундай табиий кондиционер ҳудудда жойлашганлиги унда гастрономик туризмнинг шаклланишига сабаб бўлган. Чойхонада тайёрланаётган таомларнинг мазаси бошқа ҳудудда тайёрланаётган таомлар мазаси, сифати билан бир хил лекин, “Чўнтак” чойхонаси ҳудудга келувчилар сонининг кўплиги билан ажралиб туради. Чойхонага ташриф буюрган инсон оромбахш ҳаводан тўйиб нафас олади ва маданий ҳордиқ чиқаради. Бу ҳудуд ҳақида хонандалар томонидан қўшиқлар куйланган.

Асаканинг чўнтагида майин эсган шабода
Ширмон юзли жононани кўрмадингми мободо.

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ОБРАЗЦЫ ИСТОРИЧЕСКИХ ИННОВАЦИЙ, ЭВРИСТИЧЕСКОГО НАРОДНОГО НАСЛЕДИЯ ПО СЕЙСМИЧЕСКОЙ БЕЗОПАСНОСТИ, ЗАЛОЖЕННЫЕ В ИНЖЕНЕРНО-ЗОДЧЫХ РЕШЕНИЯХ ЗДАНИЯ МЕМОРИАЛА «МАДРАСАИ МИР» В ГОРОДЕ КАКАНД

Аннотация: *здание состоит из четырех отсеков-порталей, которые с четырех сторон обрамляют двора мечети. Габаритные размеры главной – Северной порталы: длина 49,4 м, ширина 24,5 м; Южной порталы: длина 50,7 м, ширина 8,9 м; Восточной порталы: длина 49,4 м, ширина 9,0 м; Западной портали: длина 49,4 м, ширина 9,0 м. Здание одноэтажное, имеет три купола, два находятся в главной портале, одна находится в южной портале здания, по четырем углам здания расположены незавершенные минареты. Худжры, находящиеся на пересечении взаимно перпендикулярных частей мемориального комплекса, разделены по диагонали на две треугольные комнаты при помощи отдельных смежных стен, то есть устроен своеобразный осадочный и сейсмический шов. Не догладываешь, существовали ли 226 лет тому назад нормативы антисейсмического строительства?! Или мемориал «Мадрасаи Мир» ещё один яркий пример интуитивной, исторической памяти, парой, эвристической мудрости народного зодчества.*

Ключевые слова*: мемориал, архитектурное решение, фундамент, стена, сейсмостойкость, долговечность, реставрация, реконструкция.*

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EXAMPLES OF HISTORICAL INNOVATIONS, HEURISTIC FOLK HERITAGE ON SEISMIC SAFETY, EMBEDDED IN THE ENGINEERING AND ARCHITECTURAL SOLUTIONS OF THE MADRASAI PEACE MEMORIAL BUILDING IN KAKAND

Abstract: *The building consists of four portal compartments that frame the mosque courtyard on four sides. Overall dimensions of the main – Northern portals: length 49.4 m, width 24.5 m; Southern portals: length 50.7 m, width 8.9 m; Eastern portals: length 49.4 m, width 9.0 m; Western portals: length 49.4 m, width 9.0 m. The building is one-story, has three domes, two are in the main portal, One is located in the southern portal of the building, and unfinished minarets are located at the four corners of the building. The hujras, located at the intersection of mutually perpendicular parts of the memorial complex, are divided diagonally into two triangular rooms using separate adjacent walls, that is, a kind of sedimentary and seismic seam is arranged. Don't you know if there were standards for antiseismic construction 226 years ago?! Or the Madrasai Peace Memorial is another vivid example of intuitive, historical memory, a couple of heuristic wisdom of folk architecture.*

Keywords: *memorial, architectural solution, foundation, wall, earthquake resistance, durability, restoration, reconstruction.*

Вступление

Мемориал «Мадрасаи Мир» построен в 1799 году под историческом названием «Норбутабек мадрасаси» и является историко-архитектурным памятником Республики Узбекистан. Реставрация и реконструкция объекта требует особого подхода, при этом важную роль играют изучение и понимание инженерных решений национального зодчества Какандского ханства в XVIII веке [1].

Объемно-планировочные особенности здания. Здание состоит из четырех отсеков-порталей, которые с четырех сторон обрамляют двора мечети. Габаритные размеры главной – Северной порталы: длина 49,4 м, ширина 24,5 м; Южной порталы: длина 50,7 м, ширина 8,9 м; Восточной порталы: длина 49,4 м, ширина 9,0 м; Западной портали: длина 49,4 м, ширина 9,0 м. Здание одноэтажное, имеет три купола, два находятся в главной портале, одна находится в южной портале здания, по четырем углам здания расположены незавершенные минареты. Худжры, находящиеся на пересечении взаимно перпендикулярных частей мемориального комплекса, разделены по диагонали на две треугольные комнаты при помощи отдельных смежных стен, то есть устроен своеобразный осадочный и сейсмический шов.

Не догладываешь, существовали ли 226 лет тому назад нормативы антисейсмического строительства?! Или мемориал «Мадрасаи Мир» ещё один яркий пример интуитивной, исторической памяти, парой, эвристической мудрости народного зодчества [4].

Материалы и методы

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий . Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

Результаты и обсуждение:

Главный портал в медресе традиционен, со стрельчатой нишей, разбитой на два яруса. В первом ярусе в углублении находится входная стрельчатая арка с деревянной дверью, над которой, в углах прямоугольной ниши, мозаики выполнен растительный орнамент. Во втором ярусе располагается балкон-галерея. В верхней части портала выполнены арочные ниши с имитацией решетки. В боковых частях портала чередуются арочные и прямоугольные ниши. По углам портала традиционные гульдасты с декоративными фонарями и куполами.

В углах медресе возвышаются купола читальной (дарсханы), стоящие на невысокой платформе четверика, переходящего в восьмерик. Барабан расчленен на оконные стрельчатые проемы с панджарой.

Основание здания. На основании вырытого шурфа и литологического разреза грунтов основания ближе расположенного здания определили мощности и другие механические показатели грунтовых пластов. 1-пласт – насыпной слой, мощностью 0,4 м, состоит из супеси, песка, гравия с содержанием строительного мусора; 2-пласт – несущий слой основания, где залягаются тела фундаментов, супесь от коричневого до темно-серого света, водонасыщенная, от пластичной до текущей консистенции, с прослоями суглинка, с включением карбонатных конкреций до 20 %, мощностью в среднем 4 метров; 3-пласт – гравийно-галечникового отложения с песчаным заполнителем, водонасыщенные, состоят из осадочных и изверженных пород. Уровень грунтовых вод – 3,6 м.

Фундаменты здания. Фундаменты под стен – ленточные, возведены на двух слоях, нижний слой на грунтовом-глиняном растворе из бутовых не обтесанных камней, толщина слоя –300 мм, свес (консоль) со стены на верхней части – 320 мм; верхний слой – пятиразовая кирпичного кладка на ганчевым растворе, толщина кирпича 60-65 мм, толщина раствора 25-30 мм, общая высота кладки 400 мм, свес (консоль) со стены на верхней части 650 мм. Общая форма фундамента на поперечном разрезе – клинообразная, в виде усеченной треугольной пирамиды, меньшее основание направлено вниз. Следует отметить, поперечное сечение фундаментов по вертикали имеет самую устойчивую форму, при землетрясениях никогда не опрокидывается.

Сейсмические колебания способствуют дополнительному погружению тела фундамента в грунт, подошвы никогда не отрываются от земли, фундамент и основания приспосабляюися меду собой, совместность принятия особых нагрузок не нарушаются. Кажется, пришло время пересмотреть основы фундамент строения с точки зрения обеспечения сеймоустойчивости зданий и сооружений в особых инженерно-геологических условиях строительных площадок. Расчетная несущая способность грунта основания (супеска) по КМК -2.02.01-98 и результатам инженерно-геологических изысканий R_0 = 630 КПа.

Произведённые расчеты нагрузок на основание здания показали что, это требование выполняются. По частям здания значения давление под подошвами фундаментов здания p колеблются от 320 кПа до 550 КПа.

Но в целом непрерывность и согласованность соседних частей в пригодном состоянии сохраняются. Натурными исследованиями [3] и опытом эксплуатации исторических зданий тоже установлены, что известковым и глинистым растворам свойственна гибкость, которая часто сопровождается смещением, не подвергая напряжению отдельных валунов и кирпичей, из которых состоит конструкция фундамента [3].

Стены здания. Стены возведены из обожженного «мусульманского кирпича», квадратной формы со сторонами 240-260 мм.на ганчевом растворе, толщина кирпича 55-72 мм, раствора 20-30 мм. Объемный вес (средняя плотность) кирпича –1,45 г/ см3, предел прочности при сжатии 8,6 МПа, это соответствует прочности современного кирпича марки М100, прочность ганчевого раствора при сжатии 3,0-6,5 МПа, соответствует прочности раствора марки М50.

Общие выводы

1. Общая форма фундамента на поперечном разрезе – клинообразная, в виде усеченной треугольной пирамиды, меньшее основание направлено вниз.

2. Исследованиями и опытом эксплуатации исторических зданий тоже установлены, что известковым и глинистым растворам свойственна гибкость, которая часто сопровождается смещением, не подвергая напряжению отдельных валунов и кирпичей, из которых состоит конструкция фундамента [2].

3. Худжры (отсеки), находящиеся на пересечении взаимно перпендикулярных частей здания мемориального комплекса, разделены по диагонали на две треугольные комнаты при помощи отдельных смежных стен, то есть устроен своеобразный осадочный и сейсмический шов.

4. Не догадывается, что существовали ли 226 лет тому назад нормативы ссейсмического строительства?! Мемориал «Мадрасаи Мир» - яркий пример интуитивной, исторической прозорливости по сейсмостойкому строительству, эвристической мудрости народного зодчества [4].

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РАЗВИТИЕ МАТЕМАТИЧЕСКОЙ ГРАМОТНОСТИ БУДУЩИХ УЧИТЕЛЕЙ НАЧАЛЬНОГО ОБРАЗОВАНИЯ НА ОСНОВЕ КОНТЕКСТНОЙ ОБРАЗОВАТЕЛЬНОЙ ТЕХНОЛОГИИ

Аннотация: *В данной статье рассматриваются вопросы развития математической грамотности у будущих учителей начального образования на основе контекстной образовательной технологии. Анализируются преимущества организации педагогического процесса в контекстной среде, ее роль в формировании практического и аналитического мышления у учащихся, а также эффективность подходов, сочетаемых с цифровыми технологиями. Также учитываются современные методы оценки и изменения компетенций учителей.*

Ключевые слова: *Контекстное образование, начальное образование, математическая грамотность, педагогические технологии, цифровые инструменты.*

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DEVELOPMENT OF MATHEMATICAL LITERACY OF FUTURE PRIMARY EDUCATION TEACHERS BASED ON CONTEXTUAL EDUCATIONAL TECHNOLOGY

Abstract: *This article examines the development of mathematical literacy in future primary education teachers based on contextual educational technology. The advantages of organizing the pedagogical process in a contextual environment, its role in the formation of practical and analytical thinking in students, as well as the effectiveness of approaches combined with digital technologies are analyzed. Modern methods of assessing and changing teachers' competencies are also taken into account.*

Keywords: *Contextual education, primary education, mathematical literacy, pedagogical technologies, digital tools.*

В современном образовательном процессе этап начального образования играет важную роль в формировании мышления учащихся, развитии ключевых компетенций и подготовке их к будущей образовательной деятельности. Уровень подготовки, педагогический подход и методическое мастерство учителей, осуществляющих образование на этом этапе, напрямую влияют на будущий успешный процесс обучения детей. Уровень математической грамотности особенно важен при обучении математике. Математическая грамотность – это не только умение выполнять числовые расчеты, но и умение математически мыслить, выявлять проблемы, анализировать, находить решения и применять эти решения в реальных жизненных ситуациях. Поэтому актуальным является вопрос подготовки будущих учителей начального образования на основе современных образовательных технологий, в частности, посредством контекстной образовательной технологии. Контекстная образовательная технология – это образовательный метод, основанный на сочетании теоретических знаний с практической деятельностью в образовательном процессе. При таком подходе знания предоставляются на основе реальных жизненных ситуаций, приближенных к будущей профессиональной деятельности ученика, а полученные знания применяются на практике. Для учащихся начальной школы изучение математики посредством контекстного обучения не только помогает им понять темы, но и помогает им понять, как применять их в реальных процессах урока. Это не только повышает их математическую грамотность, но и формирует их профессиональные компетенции. Например, при обучении детей выполнять действия с простыми числами, приводя примеры на основе ситуаций из повседневной жизни, таких как поход по магазинам, определение времени, измерение расстояния, повышается интерес к предмету и повышается эффективность знаний. Основная цель технологии контекстного обучения — обеспечить неразрывную связь изучаемых знаний с профессиональной деятельностью. Благодаря этой технологии будущие учителя начальной школы узнают не только о теоретических математических знаниях, но и о том, как их преподавать, как применять на уроке, какими методами можно их объяснить детям. Например, при изучении предмета геометрия требуется не только определять фигуры, но и думать о значении этих фигур в строительстве, дизайне, искусстве или повседневной жизни. Это формирует у учащихся широкое мышление и глубокое восприятие. Для повышения эффективности за счет контекстного подхода к развитию математической грамотности важно, чтобы в первую очередь содержание урока базировалось на контекстных ситуациях. В этом случае задания, примеры и упражнения, подготовленные учителем, должны быть основаны на реальных жизненных ситуациях. Например, вычисляя цены в магазине, определяя транспортные расходы, планируя время или производя количественные расчеты в процессе приготовления пищи, ученики увидят, как математические знания используются непосредственно в жизни. Будущий учитель получит возможность еще больше оживить процесс урока, составляя, объясняя и анализируя такие задания.

Также в контекстном обучении учащихся учат самостоятельно проводить исследования, решать проблемные ситуации и работать в команде. Эти аспекты имеют большое значение в обучении в начальной школе. Ведь математика часто выражается в абстрактных терминах, но посредством контекстного подхода эту абстракцию можно заменить конкретными примерами из реальной жизни. Например, при изучении темы акций и процентов учитель представляет учащимся в классе различные финансовые ситуации: взятие кредита, определение дисконтной цены, расчет сберегательного счета. Благодаря таким примерам не только становится понятной тема, но и развивается финансовая грамотность. Еще одним преимуществом контекстного обучения для будущих учителей является формирование у них навыков разработки планов уроков, подготовки методических материалов и управления деятельностью класса. Ученик узнает, какие педагогические приемы использовать на уроке, какие дидактические материалы подготовить и какими вопросами побудить детей к размышлению. Благодаря этому они не только приобретают математические знания, но и приобретают навыки их преподавания. Например, с помощью математических игр, ролевых игр и задач на решение проблем ученики активно участвуют и глубже усваивают тему.

Математическая грамотность считается одной из базовых компетенций, которой должен обладать каждый гражданин сегодня. В условиях цифровой экономики, современных технологий и инновационного развития каждый человек должен уметь понимать цифры, формулы, графики и статистику. С этой точки зрения математическая грамотность учителей начальных классов имеет решающее значение не только для личностного развития, но и для будущего детей в обществе. Ведь эти учителя работают в самой чувствительной части общества — в начальной школе. Знания, которые они передают, мышление, которое они формируют, интерес, который они воспитывают, будут сопровождать ребенка на протяжении всей его жизни.

Контекстная образовательная технология — один из самых эффективных подходов к формированию математической грамотности у будущих учителей начальных классов. Такой подход объединяет теоретические и практические знания и развивает умение применять их в реальных жизненных ситуациях. Будущие учителя не только понимают математические концепции, но и учатся их преподавать, адаптировать к различным ситуациям и закреплять у учеников. Таким образом, они формируются как конкурентоспособные специалисты, отвечающие современным требованиям и обладающие развитым педагогическим мышлением. Математическая грамотность становится главным критерием их деятельности.

Для эффективной реализации контекстной образовательной технологии большое значение также имеют педагогическая психология, коммуникативные навыки, рефлексивный потенциал мышления будущих учителей начальных классов. В процессе формирования математической грамотности ученик должен овладеть не только своими знаниями по предмету, но и подходами, соответствующими психологическим особенностям детей. Например, каждый ребенок воспринимает математику на разных уровнях — одни склонны к аналитическому мышлению, а другие ближе к воображению или эстетике. Поэтому учитель должен обладать навыками разработки индивидуального подхода к каждому ученику. Контекстный подход очень гибок в этом процессе, позволяя разрабатывать соответствующие методические приемы для разных учеников.

Контекстное образование в сочетании с цифровыми технологиями также становится еще одним важным инструментом повышения математической грамотности. Интерактивные приложения, средства математической визуализации и цифровые платформы делают уроки более интересными и понятными. Обучение будущих учителей использованию этих инструментов и повышение их цифровой педагогической грамотности также напрямую повлияет на качество математического образования. Например, использование цифровых досок, визуальных симуляций или программ-калькуляторов для построения графиков, объяснения статистического анализа или объяснения алгебраических функций делает предмет более понятным для детей. Благодаря таким подходам учитель получит высокий уровень профессиональной подготовки, овладев современными педагогическими технологиями. Еще одним важным аспектом является уникальная организация процесса оценки в контекстном образовании. Вместо традиционных тестов или письменных работ используется система оценки через реальные задания, проектную работу, устный анализ или портфолио.

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К ИЗУЧЕНИЮ ПЛАСТИЧНОСТИ БАССЕИНОВ ВЕТВЛЕНИЙ АРТЕРИЙ ЖЕЛУДКА И 12-ПЕРСТНОЙ КИШКИ В ЭКСПЕРИМЕНТЕ

Резюме:*Данная статья описывает изучено пластичности бассеинов ветвлений артерий желудка и 12-перстной кишки в эксперименте. Для уточнения данного вопроса мы первоначально на ангиограммах 5 интактных желудков и 12-перстной кишки собаки изучали бассейны ветвления отдельных артерий этих органов. Каждая магистральная артерия названных органов имеет свою зону ветвления, где кровоток осуществляется преимущественно данной артерией.*
Ключевые слова: *эксперимент, собаки, артерий желудка, 12-перстной кишки, ангиограмма, индигокармин, магистральных сосудов.*

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TO STUDY THE PLASTICITY OF THE BASINS OF THE BRANCHES OF THE ARTERIES OF THE STOMACH AND DUODENUM IN AN EXPERIMENT

Resume: *This article describes the studied plasticity of the basins of the branches of the arteries of the stomach and duodenum in an experiment. To clarify this issue, we initially studied the branching basins of individual arteries of these organs on angiograms of 5 intact stomachs and 12 duodenum of a dog. Each main artery of these organs has its own branching zone, where blood flow is carried out mainly by this artery.*
Keywords: *experiment, dogs, gastric arteries, duodenum 12, angiogram, indigocarmine, great vessels.*

Введение. В последние годы проблема химиотерапии злокачественных опухолей вообще и опухолей органов брюшной полости, в частности, путем регионарной инфузии и перфузии привлекает внимание как клиницистов, так и экспериментаторов [3,4]. Введение лекарственных веществ в артерию, кровоснабжающую область очага поражения, позволяет создать высокую концентрацию препарата в крови, контактирующего непосредственно с опухолевой клеткой или воспалительным очагом. В настоящее время имеется большое количество работ, посвященных зондированию магистральных артерий головы, туловища и конечностей с целью химиотерапии опухолей разной локализации [1,2]. Развитие метода регионарной инфузии и перфузии органов непосредственно связано с изучением бассейнов ветвления сосудов, возможностей их изоляции для предотвращения утечки перфузата. В отношении ряда органов такие исследования проводятся [5]. Однако исследования, посвященные прижизненному изучению зон ветвления магистральных артерий желудка и 12-перстной кишки, крайне малочисленны и противоречивы.

Цель исследования. Нами были изучено пластичности бассеинов ветвлений артерий желудка и 12-перстной кишки в эксперименте.

Материалы и методы исследования. Для уточнения данного вопроса мы первоначально на ангиограммах 5 интактных желудков и 12-перстной кишки собаки изучали бассейны ветвления отдельных артерий этих органов. Далее, в экспериментах на 18 собаках прижизненно выявлялись зоны ветвления отдельных артерий желудка и 12-перстной кишки путем раздельного введения в артерии 5% раствора индигокармина. Сопоставлялись данные острых и хронических экспериментов с посмертными ангиограммами желудка и 12-перстной кишки 5 собак в норме.

Результаты исследования. Бассейны ветвления магистральных сосудов желудка и 12-перстной кишки изучались при сохраненных других артериях и венах, что, естественно, уже само вызывало противодействие вводимому индигокармину и, таким образом, ограничивало его распространение естественными границами. Для выявления зоны ветвления магистральных артерий желудка собаки в эксперименте индигокармин вводился в левую желудочную артерию у 4 собак, левую желудочно-сальниковую артерию - у 4 собак, правую желудочную - у 3 собак, правую желудочно-сальниковую - у 4 собак. Введение раствора индигокармина в краниальную поджелудочно- 12-перстнокишечную артерию производилось у 6 собак, каудальную поджелудочно- 12-перстнокишечную артерию - у 6 собак и вторую ветвь краниальной брыжеечной артерии - у 6 собак. После операции собаки оставались жить. При введении 5% раствора индигокармина в левую желудочную артерию раствором окрашивались область кардии, частично дно, малая кривизна и малый сальник вплоть до пилорической части, две трети передней и задней стенок желудка. При введении раствора индигокармина в правую желудочную артерию раствор распространяется, в основном, пилорической части желудка со стороны его малой кривизны, включая переднюю и заднюю стенки органа. Раствор, введенный в правую желудочно-сальниковую артерию, распространялся по большой кривизне желудка от начального отдела 12-перстной кишки до места перехода тела желудка в пилорическую часть, охватывая переднюю и заднюю стенки органа и правую половину большого сальника. Из-за малого калибра коротких артерии, кров снабжающих дно желудка, раствор индигокармина вводили в селезеночную артерию. До введения раствора в селезеночную артерию её предварительно перевязывали у ворот селезенки. При этом раствор индигокармина распространялся до дна желудка, охватывая треть передней и задней поверхностей органа и левую половину большого сальника, достигая места перехода тела желудка в пилорическую часть.Таким образом, несмотря на большое количество интра органных анастомозов между конечными ветвями магистральных артерий желудка, каждая магистральная артерия имеет свою зону ветвления, где в норме циркуляция крови осуществляется данной артерией. Магистральная артерия желудка, многократно разветвляясь, образует сеть «конечных» артерии, в которых кровь в обычных условиях мало смешивается. Из каждой магистральной артерии желудка кровь поступает преимущественно в соотвествующие зоны ветвления этой артерии. Отсутствие смешения крови в зоне ветвления магистральных артерий желудка может объясняться тем, что давление в разветвлениях магистральных артерий желудка при обычных условиях примерно одинаковое. Те области сосудистого русла оболочек желудка, где имеется наибольшее количество анастомозов между бассейнами ветвления магистральных артерий органа, обозначаются обычно зонами смежного кровоснабжения. Область смежных зон кровоснабжения окрашивалась раствором индигокармина во всех случаях независимо от того, через какую артерию мы вводили раствор индигокармина. Результаты сопоставления данных эксперимента с полученными посмертными ангиограммами желудка подтверждают зональность кровообращения в стенке этого органа; что обусловливается наличием нескольких источников кровоснабжения. Наличие многочисленных артериальных анастомозов между конечными ветвями магистральных артерий желудка создает оптимальные условия для быстрого коллатерального притока крови из одной артерии в сохранившиеся бассейны ветвления магистральных артерий после выключения их экстра-органных отделов. Полученные нами результаты прижизненной иньекции магистральных артерий 12-перстной кишки расанором индигокармина и сопоставление их с посмертными ангиограммами, показывают, что каждая артерия 12-перстной кишки имеет свою зону ветвления, где в обычных условиях обеспечивает циркуляцию крови.

Вывод: Каждая магистральная артерия названных органов имеет свою зону ветвления, где кровоток осуществляется преимущественно данной артерией.

2. Сопоставлением посмертных ангиограмм и прижизненной иньекции артерий желудка и 12-перстной кишки устаналивается, что основными артериями желудка по широте занимаемой зоны является левая желудочная и левая желудочно-сальниковая артерия, а для 12-перстной кишки - краниальная и каудальная поджелудочно- 12-перстнокишечная артерии. Полученные данные могут представить интерес при выполнении регионарной инфузии и перфузии области желудка и 12-перстной кишки.

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ИЖТИМОИЙ ТАРМОҚДАГИ АХБОРОТ ХУРУЖЛАРИДАН АСРАШНИНГ ДОЛЗАРБ МАСАЛАЛАРИ

Аннотация. *Maqolada dunyo jamoatchiligini tobora jiddiy tashvishga solayotgan ijtimoiy tarmoqlardagi axborot xurujlari shiddatli tus olib borayotganligi, bunga ta’sir ko‘rsatayotgan ayrim omillar va buning oqibatida insoniyat boshiga tushayotgan katta muammolar va ularning oldini olish muammolari yuzasidan fikr yuritilgan.*
Калит сўзлар*: yoshlar, internet, globallashuv jarayonlari, ijtimoiy tarmoqlar, axborot xurujlari, mafkuraviy xurujlar, axborot urushlari, yoshlar ongi.*

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CURRENT ISSUES OF PROTECTION FROM INFORMATION ATTACKS ON SOCIAL NETWORKS

Abstract. *This article examines the rising threats of terrorism, which are causing serious concern among the general public. It also discusses some factors influencing this process, outlines the consequences of terrorism for all of humanity, and addresses issues related to preventing these threats.*
Keywords: *youth, internet, globalization processes, social networks, information attacks, ideological assaults, information warfare, youth consciousness.*

Интернет – фан техника тараққиёти натижасида вужудга келган ижтимоий тармоқ ҳисобланади. Ҳозирги кунда ҳаётни интернетсиз тасаввур қилиш жуда мушкул. Айниқса, ёшлар ҳаётида вертуал маконнинг ўрни тобора ошиб бормоқда. Интернетнинг афзал томонлари дунёнинг турли нуқталарида яшовчи одамларнинг ўзаро мулоқотини ҳамда ахборот алмашинувини мукаммал даражада осонлаштиради. Статистик маълумотларга кўра, дунё бўйича интернетдан энг кўп фойдаланувчилар айнан 21 дан 30 ёшгача бўлган ёшлар ҳисобланар экан. Бугунги кунда Ўзбекистонда ҳам интернет тизими ривожланиб, ундан фойдаланувчилар сафи жадал суръатлар билан кенгайиб бормоқда. Сўнгги ўн йилда глобал тармоқдан фойдаланувчилар ўн баробарга ошган. Тармоқ орқали ахборот излаш, қабул қилиш, узатишнинг жуда қулай ва оммабоплиги ундан фойдаланувчилар сонининг тобора ортиб боришини таыазо этмоқда. Мамлакатимизда 2007 йилда интернетдан фойдаланувчилар сони мобил интернет фойдаланувчилари билан қўшиб ҳисоблаганда бир миллионни ташкил этган бўлса, 2020 йил якунида бу кўрсаткич йигирма миллиондан ошди. Интернет ёшлар онги ва ҳиссиётларига, тафаккур тарзига, хулқ-атворларига таъсир кўрсатишда катта имкониятларга эга. Интернетнинг ривожи ёшларга ғоявий таъсир ўтказишнинг миқёси ва кўламининг кескин даражада ўсишига олиб келди. Глобаллашувнинг ижобий ва салбий томонлари бўлгани каби, интернет тармоғи ҳам шундай хусусиятларга эга эканини унутмаслик зарур. Албатта, глобал тармоқ – улкан ресурс ҳисобланади. Бироқ, бу ресурсдан ким ва қандай мақсадларда фойдаланиши ҳам жуда жиддий масалалар сирасига киради.

Хусусан, маълумотларда келтирилишича, бугунги кунга келиб, интернет тармоғида маънавий-ахлоқий тубанликни тарғиб этувчи саҳифаларнинг сони бир неча юз миллионни ташкил этган. Ушбу факт ва рақамлар интернет саноати ривожланиб бораётган даврда кишиларнинг ахборотларга нисбатан жуда эҳтиёткорлик, огоҳлик ва зийраклик билан муносабатда бўлишлари талаб этилади. Бошқача айтганда, ёшларда ахборот истеъмоли маданиятини шакллантириш бугунги куннинг муҳим вазифаларидан ҳисобланади. Айнан шу тараққиёт воситасидан устамона фойдаланиб, қалбларни забт этишда диний омилнинг роли юқори. Шунинг учун ҳам турли диний-экстремистик ва террорчи уюшмалар ўз ғояларини тарғиб қилишда интернетни энг самарали восита сифатида қўлламоқда. Бунда диний-экстремистик оқимлар ўз мақсадларини амалга ошириш учун замонавий ахборот коммуникацияларидан кенг фойдаланиш, интернет орқали турли тилларда тарғибот олиб бориш ва пухта ишланган стратегия асосида виртуал жамоатлар тузиш асосий вазифага айланган.

Айтиш керакки, бугунги кунда бир неча йирик террорчи ташкилотлар ўз сахифаларига фаол тарзда ижтимоий тармоқлар орқали асосан 17-35 ёш оралиғида бўлган кишиларни ёлламоқда. Бунда психологик таъсир самарадорлигини янада ошириш мақсадида ижтимоий тармоқ аъзоларининг саҳифалари, қўйилаётган расмлар, шарҳ ва изоҳлар ҳамда олиб борилаётган суҳбат мавзуларини пухта ўрганади ва шу асосда «нишон»га олинган шахсга мавзуга оид материаллар интернетнинг Facebook, Odnoklassniki, Telegram, WhatsApp каби кенг аудиторияга эга бўлган ижтимоий тармоқлар орқали ёзма хабар, матн, фотосурат, стикер расмлар, аудио-видео ролик жўнатилади ва ўзаро алоқа йўлга қўйилади. Ёшлар орасида мутаассибликка йўғирилган бундай форумларнинг тобора оммалашуви ҳамда уларда турли кўринишдаги бузғунчи «фатво»ларнинг бериб борилиши муаммонинг нақадар жиддий эканини намоён этади. Чунки дунё аҳолисининг асосий қисмини ёшлар ташкил қилади. Ёшлар катта куч ҳисобланади. Уларнинг энди шаклланиб келаётган онгига нимани сингдирилса, ўша тошга ўйилган нақшдек муҳрланади. Шунинг учун ҳам радикал оқимлар айнан ёшларни тузоғига илинтиришга ҳаракат қилади. Улардаги ишонувчанлик, куч ғайрат, қизиққонлик уларнинг мақсадини амалга оширишда қўл келади. Шунинг билан бирга, бугунги кунда аксарият ёшларнинг қўлида интернетга уланган замонавий уяли алоқа воситалари мавжуд. Бу ҳол уларнинг юқорида санаб ўтилган турли хил ижтимоий тармоқларга бевосита уланиш, дўстлари ва танишлари билан узлуксиз мулоқот қилиш имконини беради. Айни пайтда, статистик маълумотларга кўра, Ўзбекистонда энг кўп юклаб олинаётган дастур ичида «WhatsApp», «Telegram» тармоқлари етакчи ўринни эгаллайди. Илм-фаннинг ютуғи бўлмиш бу янгиликлар инсонларнинг узоғини яқин, мушкулини осон қилаётгани шубҳасиз. Шу билан бирга, бу кашфиётлар дунё янгиликларидан бир зумда воқиф бўлиш ва маълумотларни осон тарқатиш имконини ҳам беради. Бироқ, мазкур тармоқларда миллатлар ва динлар ўртасида адоватни келтириб чиқарувчи, низоли вазиятларга сабаб бўлувчи, шунингдек, инсонлар орасида ваҳима уйғотишга қаратилган иғво, фитна-фасод хабарларнинг кенг тарқатилаётгани кўпчиликни ташвишга солиши табиий. Айниқса, ёшлар ўртасида урфга айланган мазкур мулоқот тизимидан диний-экстремистик оқим аъзолари ҳам унумли фойдаланмоқда. Чунки интернет орқали алоқа боғлашнинг осонлиги, фойдаланувчилар сонининг кўплиги, алоқанинг анонимлиги, ташқаридан бошқариш ва таҳрир қилиш чекланганлиги, ахборотлар қисқа муддатда кенг маконда тез тарқалиши, фаолият сарф-харажатларининг бир неча баробар камлиги террорчи гуруҳлар учун ўз тарафдорлари сонини кўпайтиришнинг қулай жиҳатларидан бири ҳисобланади. Минг афсуски, бундай манфур кучлар асосан илм ва маърифатдан йироқ, соф диний тушунчаларнинг асл мазмунини билмаган кишиларни, асосан ёшларни жалб этишга интилиб, ижтимоий тармоқлар орқали «жиҳод», «шаҳидлик», «ҳижрат» тушунчаларини нотўғри талқин этмоқдалар. Провард натижада ўз Ватанларини тарк этишга чиқармоқдалар.

Шунингдек, айрим кимсалар томонидан мақсадли равишда ислом моҳиятига зид бўлган турли хил асоссиз ахборотлар, манбаси аниқ бўлмаган диний тусдаги хабарлар ёки кишиларни ваҳимага солувчи фото ва видеолавҳалар кенг тарғиб этилмоқда. Бунда баъзи ёшларнинг ахборот воситалари орқали тарқатилаётган миллий ва диний қадриятларимизга зид бўлган хабарлар, аниқ манбаси кўрсатилмаган, асоссиз ахборот ва маълумотларга ишониб қолишаётгани, мулоҳаза қилмасдан кўр-кўрона қабул қилаётгани ундан ҳам кескин оқибатларни келтириб чиқармоқда. Бугун ахборот истеъмол қилинадиган товарга айланган экан, ҳар бир инсон ўзида уни истеъмол қилиш маданиятини тарбиялаши лозим. Ёшлар шахсий характердаги ахборот ҳимояси бўйича билим ва кўникмаларга эга бўлиши, ўзи фойдаланаётган салбий ахборотлардан ҳимоялана олиши зарур. Ахборот истеъмоли маданияти, энг умумий маънода, ахборот оқимидан инсон манфаатлари, камолоти ҳамда жамият тараққиётига хизмат қилувчи маълумотларни қабул қилиш, саралаш, тушуниш ва талқин этишга хизмат қиладиган билимлар, қобилият ва малака тизимини англатади. Инсон ўзида бундай маданиятни тарбиялаши учун у ёки бу ахборотни эшитар экан, ҳеч бўлмаганда «Бу ахборотни ким узатаяпти?», «Нима учун узатаяпти?» ва

«Қандай мақсадда узатаяпти?» деган саволларни ўз-ўзига бериши, унга асосли жавоб топишга ҳаракат қилиши керак. Шундагина турли ғоялар таъсирига тушиб қолиш, тақдим этилаётган маълумотларга кўр-кўрона эргашишнинг олди олинади. Шаклланган ахборот истеъмоли маданияти миллий манфаатларимиз ва қадриятларимизга зид бўлган хабар, маълумотларга нисбатан ўзига хос қалқон ролини ўтайди, шахс дунёқараши ва хулқидаги собитликни таъминлашга хизмат қилади. Ёш авлодда бу жиҳатлар шу даражада шаклланган ва қарор топган бўлиши лозимки, улар вертуал маконда умуммиллий манфаатга хизмат қиладиган, унинг тараққиётига ёрдам берадиган ахборотни танлай олсин. Ахборот истеъмоли маданиятига эга ёшлар, салбий ва нохолис ахборотлар таъсирига тушиб қолмайди, чунки уларда бундай ахборотларга нисбатан мустаҳкам мафкуравий иммунитет шаклланади. «Кимки ахборотга эга бўлса, у, дунёга эгалик қилади», деган фикр бугунги кунда барча томонидан эътироф этилган.

Шундай экан, бугунги кунда ёшларда ахборот олами имкониятларидан оқилона фойдаланиш малакасини шакллантириш ҳаётий-амалий аҳамиятга эга. Шу ўринда «Интернетдаги таҳдидлардан ҳимоя» китобида ёшларнинг турли оқимларнинг таъсирига тушиб қолмасликлари учун интернетдан фойдаланишда қуйидаги зарурий кўрсатмаларга аҳамият беришни тавсия этади:

*Ёшларнинг бўш вақтларини ижтимоий тармоқларда ўтириш билан ўтказиши хатодир. Чунки, ҳеч нарса жонли, ҳақиқий ва реал мулоқотлар ўрнини боса олмайди;

*Интернетдан фойдаланувчилар шахсий маълумотларини турли ижтимоий тармоқлар, блогларга, электрон почталарга киритишлари, ғаразли мақсаддаги кишиларга айни муддао бўлиб хизмат қилади;

*«ўргимчак тўри»да ақидапарастликни тарғиб қилувчи сайтлар тобора кўпайиб бормоқда. Бундай таҳликали замонда ёшларга фақат «uz» доменидаги сайтлардан фойдаланиш тавсия қилинади;

*Ҳар қандай хабарни бошқаларга тарқатиш керак дейилса, тарқатавермаслик лозим. Баъзан исломий иборалар аралашган мактуб келади. Унда бу хатни шу кечанинг ўзида, бир неча кишига тарқатишингиз керак. Шундай қилсангиз ундоқ бўлади. Қилмасангиз оқибати ёмон бўлиши айтилади. Аслида бу нарсаларнинг бари ёлғон ҳисобланади.

Дарҳақиқат, ислом дини кўрсатмаларида ҳам нақл қилинган бирор хабарга ишонишдан аввал уни текшириб, аниқлаб олиш талаб этилади. Жумладан, Қуръони Каримда шундай дейилади: «Эй, мўминлар! Агар сизларга бирор фосиқ кимса хабар келтирса, сизлар ҳақиқий аҳволни билмаган ҳолингизда бирор қавмга азият етказиб қўйиб, кейин қилган ишларингизга пушаймон бўлмаслигингиз учун у хабарни аниқлаб текшириб кўрингиз!» (Ҳужурот, 6). Бу ҳақида Қуръони каримнинг яна бир оятида инсонлар учун муҳим кўрсатма келган бўлиб, унда ҳам турли воситалар орқали олинаётган хабар ва маълумотларга кўр-кўрона эргашишдан қайтарилади: «Эй, инсон! Ўзинг аниқ билмаган нарсага эргашма! Чунки қулоқ, кўз, дилнинг ҳар бири тўғрисида ҳар бир инсон масъул бўлур жавоб берур » (Исро, 36). Демак, инсон кўрган, эшитган ҳар бир маълумотига ишониши, унга эргашиши оқибатида Аллоҳ олдида ҳам сўралади. Пайғамбар Муҳаммад (алайҳис-салом)дан ривоят қилинган бир неча ҳадисларда ҳам шундай дейилади: «Хабарни текшириш Аллоҳдан, (унда) шошқалоқлик қилиш шайтондандир», деганлар (Имом Байҳақий ривояти).

Таъкидлаш лозимки, интернетда бузғунчиликларни тарғиб қилувчи веб-сайтлар, ижтимоий тармоқдаги гуруҳлар сони кун сайин кўпаймоқда. Турли ёлғон маълумотлар кўпайган бир вақтда тўғри ва ҳаққоний ахборотни ажратиш йўлларини билиш лозим. Жумладан, бундай шароитда аждодлар тутган йўлни танлаш керак. Имом Бухорий ҳадисларнинг саҳиҳ, заиф ва тўқималарини ажратишда жуда моҳир бўлганлари сир эмас. Ривоят қилинишича, Имом Бухорий бир ҳадиснинг ровийси, яъни ривоят қилувчисини қидириб топадилар. Лекин ровий бир отни қуруқ тўрва билан алдаб, қўрага олиб кираётганини кўриб, суҳбатлашмасдан қайтганлари ҳақида баён қилинган. Бунда чуқур маъно бор. Демак, ҳар бир олинган маълумотни текшириб, асосли ёки асоссиз эканини аниқламай туриб, ўша маълумотга қараб иш тутиш ислом моҳиятига кўра, шайтон йўлига кириш ҳамда ёлғончи бўлиб қолиш билан баробар бўлади. Чунки бунда хабар тарқатаётган кишининг ғаразли мақсадини амалга оширишига замин яратиб қўйилади. Ёшларни турли хилдаги ёт ғоялардан асрашда қуйидагиларга алоҳида эътибор қаратиш муҳим аҳамият касб этади.

Биринчидан, жамоатчилик фикрини чалғитаётган, вайронкор ахборотлар ташқаридан келаётганини назарда тутиб, мунтазам уларга қарши туриш. Бефарқлик ва сукут сақлаш кайфиятига barҳам бериш.

Иккинчидан, ҳар қандай ҳужумкор ва бузғунчи ғояга қарши ўз вақтида, мўлжални аниқ олиб муносабат билдириш ва бунда эҳтиросга берилмаслик, ортиқча шов-шувларга йўл қўймасдан вазминлик ва босиқлик, айни пайтда, уддабуронлик билан кучлик таъсир ўтказиш усулларини қўллаш.

Бинобарин, бугунги кунда, турли гуруҳ вакиллари миллатни йўқ қилиш, илдизини қирқиб ташлаш мақсадида ахборот тизимидан фойдаланишга зўр бермоқда. Мана шу жараёнда ёшлар ўзининг ақлий салоҳиятини ишга солиб, ўзини ўзи ҳимоя қилиш ва ҳар қандай тажовузларга қарши тура олиш иқтидорини шакллантириши лозим. Охирги пайтларда интернет тармоқларида ҳар хил асоссиз ахборотлар, ёшлар онгига салбий таъсир кўрсатадиган уйдирма маълумотлар жуда кўп тарқатилмоқдаки, буларнинг таъсирида ёшлар орасида бир-бирига нисбатан кескин адоватлар авж олиши кузатилмоқда. Унутмаслик лозимки, ахборот хуружлари – бирон шахсга, муайян ташкилот ёки давлатга қарши йўналтирилган ғоявий таъсир ҳисобланади. Унинг асл мақсади ўша шахс, ташкилот ва давлатнинг тинчлигини бузиш ҳамда қора ниятига етишдир. Ёшларнинг барчаси интернет тармоғидан фақат илм йўлида фойдаланмоқда десак, янглишамиз. Афсуски, интернетдан нотўғри, бузғунчилик ва беҳаёликка доир маълумотларни олишда ҳам фойдаланмоқда. Бу каби нохуш ҳолатлардан сўнг ёшлар келажакда қаҳри қаттиқ, меҳрсиз, ҳаёсиз бўлиб етишмайди, деб ҳеч ким кафолат беролмайди. Маълумки, кўплаб сайт ва тармоқлар катта маблағлар эвазига фильтирлаб қўйилган ва бу ҳолатни кўп давлатларда кузатиш мумкин.

Шундай экан, дунёнинг турли минтақа ва ҳудудларида рўй бераётган ижтимоий-сиёсий жараёнлар, зиддиятли тўқнашувларга теран қараш ҳиссини ошириш, ҳар қандай кўринишдаги таҳдидларга қарши маънавий-маърифий ишларни замон талаблари асосида ташкил этиш, айниқса бу борада келажагимиз ҳисобланган ёш авлодни, бир сўз билан айтганда, ҳар бир инсон учун муқаддас бўлган оиласини дин ниқоби остидаги ёт ғоялар таъсиридан, турли хил ножўя ахборот хуружларидан асраш учун бор куч ва имкониятларини сафарбар этиш, бунда «фикрга қарши фикр, ғояга қарши ғоя, жаҳолатга қарши маърифат билан курашиш» ҳар қачонгидан ҳам муҳим аҳамият касб этади.

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ХАРАКТЕРИСТИКА МЕСТНОГО СЫРЬЯ УЗБЕКИСТАНА ДЛЯ КЕРАМИЧЕСКИХ ФЛЮСОВ ДЛЯ СВАРКИ: ДЕТАЛЬНЫЙ АНАЛИЗ ФИЗИКО-ХИМИЧЕСКИХ СВОЙСТВ МЕСТНОГО СЫРЬЯ И ЕГО ПРИГОДНОСТИ ДЛЯ ИСПОЛЬЗОВАНИЯ В КЕРАМИЧЕСКИХ ФЛЮСАХ ДЛЯ СВАРКИ

Аннотация: *Керамическая промышленность играет значимую роль в экономике Узбекистана, удовлетворяя внутренний спрос на строительные материалы и способствуя развитию экспорта. Производство керамических изделий требует использования качественного сырья, в том числе керамических флюсов, которые являются неотъемлемой составляющей технологического процесса. Флюсы влияют на температурный режим обжига, физико-механические свойства и внешний вид готовой продукции.*
Ключевые слова: *керамические флюсы, Китай, минералы, месиорождения.*

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CHARACTERISTICS OF LOCAL RAW MATERIALS OF UZBEKISTAN FOR CERAMIC WELDING FLUXES: A DETAILED ANALYSIS OF THE PHYSICOCHEMICAL PROPERTIES OF LOCAL RAW MATERIALS AND THEIR SUITABILITY FOR USE IN CERAMIC WELDING FLUXES

Abstract:*The ceramic industry plays a significant role in the economy of Uzbekistan, satisfying domestic demand for building materials and promoting export development. The production of ceramic products requires the use of high-quality raw materials, including ceramic fluxes, which are an integral part of the technological process. Fluxes affect the firing temperature, physical and mechanical properties and appearance of finished products.*
Keywords: *ceramic fluxes, China, minerals, origins.*

Китай, являясь мировым лидером в производстве керамических изделий, демонстрирует успешный пример эффективного использования местного сырья для создания керамических флюсов. Богатые минеральные ресурсы страны, включая обширные месторождения каолина, полевых шпатов и кварцевых песков, позволяют китайским предприятиям снижать зависимость от импорта и оптимизировать производственные процессы[1].

Керамическая промышленность Китая активно использует местное сырье благодаря его доступности и разнообразию. Геологическое разнообразие регионов страны обеспечивает наличие различных типов глин и минералов, что дает возможность создавать флюсы с оптимальными свойствами для конкретных видов керамической продукции. Расположение производственных предприятий вблизи месторождений сырья снижает затраты на транспортировку и обеспечивает стабильность поставок, что является существенным экономическим преимуществом.

Технологические инновации играют ключевую роль в эффективном использовании местных ресурсов. Китайские исследовательские институты и предприятия разрабатывают методы обогащения и модификации местных минералов для улучшения их свойств. Например, для повышения качества каолина применяются процессы очистки от примесей, что позволяет улучшить его белизну и пластичность, необходимые для производства высококачественной керамики. Создание новых составов флюсов на основе местного сырья способствует снижению температуры обжига и повышению энергоэффективности производства[2].

Экологические аспекты также являются важной частью китайского опыта. Использование местного сырья позволяет снизить экологическую нагрузку за счет уменьшения транспортных выбросов и рационального использования природных ресурсов. Кроме того, интеграция в состав флюсов отходов других отраслей промышленности, таких как зола от сжигания угля или металлургические шлаки, способствует уменьшению объема промышленных отходов и продвижению принципов устойчивого развития.

Экономические преимущества применения местного сырья в Китае проявляются в снижении себестоимости продукции и повышении конкурентоспособности на мировом рынке. Возможность контролировать качество сырья на всех этапах производства обеспечивает стабильность характеристик керамических изделий и укрепляет доверие потребителей. Государственная поддержка исследований и разработок в области керамики также способствует развитию отрасли и внедрению передовых технологий.

Однако успешное использование местного сырья требует преодоления определенных вызовов. Вариабельность качества минералов в разных месторождениях требует тщательного контроля и стандартизации процессов добычи и переработки. Китайские предприятия решают эти задачи посредством инвестиций в научные исследования, внедрения современных технологий анализа и контроля качества, а также путем обучения персонала.

Керамические флюсы для сварки обычно содержат смесь различных минералов и оксидов, которые выполняют определенные функции в процессе сварки. Типичный состав керамического флюса может включать следующие компоненты (в массовых процентах) [3]:

- Кварц (SiO_2): 40–50%
- Флюорит (CaF_2): 10–20%
- Полевой шпат ($K_2O \cdot Al_2O_3 \cdot 6SiO_2$): 10–15%
- Магнезит ($MgCO_3$) или периклаз (MgO): 5–10%
- Рутил (TiO_2): 5–15%
- Кальцит ($CaCO_3$) или известняк: 5–10%
- Микроэлементы и легирующие добавки: 1–5%

Например, для изготовления флюсов, применяемых в процессе автоматической дуговой сварки под флюсом, китайские производители могут использовать следующие соотношения сырьевых компонентов [4]:

- Кварцевый песок: 45%
- Флюорит: 15%
- Полевой шпат: 12%
- Магнезит: 8%
- Рутил: 10%
- Известняк: 8%
- Марганцевая руда: 2%

Роль каждого компонента в составе флюса

- Кварц (SiO_2): Основной компонент флюса, обеспечивает формирование защитной шлаковой оболочки и влияет на вязкость шлака.
- Флюорит (CaF_2): снижает температуру плавления флюса, улучшает текучесть шлака, способствует удалению газов и неметаллических включений.
- Полевой шпат: служит источником щелочных оксидов (K_2O, Na_2O), которые снижают температуру плавления и улучшают стеклообразование шлака.
- Магнезит/Периклаз: повышает основность флюса, улучшает очистку металла от примесей, снижает содержание серы и фосфора.
- Рутил (TiO_2): стабилизирует дугу, улучшает формирование шва, способствует мелкозернистой структуре металла шва.
- Известняк ($CaCO_3$): при нагревании разлагается с выделением CO_2, что способствует защите расплавленного металла от окисления, также повышает основность шлака.
- Марганцевая руда: вводит марганец в сварочную ванну, что улучшает механические свойства шва.

Опыт Китая свидетельствует о том, что стратегическое использование местного сырья, подкрепленное научно-техническими инновациями и государственной поддержкой, может значительно повысить эффективность и устойчивость керамической промышленности. Этот пример показывает, что при наличии богатой минерально-сырьевой базы и целенаправленной политики развития отрасли возможно добиться значительных успехов в снижении зависимости от импорта и повышении экономической эффективности производства.

Для Узбекистана, обладающего значительными запасами минералов, применяемых в керамической промышленности, китайский опыт может служить ценным ориентиром. Инвестиции в исследования местного сырья, развитие технологий его переработки и адаптация лучших мировых практик могут способствовать росту национальной керамической индустрии и укреплению ее позиций на региональном и международном рынках[5].

Узбекистан обладает богатой минерально-сырьевой базой, пригодной для производства керамических флюсов. Основными видами местного сырья являются глинистые минералы, кварцевые пески, полевые шпаты и другие минералы, такие как известняк и доломит [6].

Таблица-1. Сводная таблица свойств местного сырья

Параметр	Глинистые материалы	Кварцевые пески	Полевые шпаты
Основные месторождения	Ферганская, Кашкадарьинская, Сурхандарьинская области	Бухарская, Навоийская области	Самаркандская, Ташкентская области
Размер частиц	1-5 мкм	0,1-0,5 мм	0,05-0,2 мм
SiO_2, %	45-55	95-98	65-73
Al_2O_3, %	30-40	0,5-2	18-20
Fe_2O_3, %	0,5-2	0,1-0,5	≤0,5
K_2O+Na_2O, %	1-3	-	13-17
Температура плавления, °C	1500-1750	1713	1100-1250

Таблица-2. Состав керамических флюсов для сварки с использованием местного сырья Узбекистана

Компонент	Функция в флюсе	Местное сырьё (Узбекистан)	Типичное содержание, %	Оптимальное содержание, %
Кремнезем (SIO_2)	Формирование шлака, контроль вязкости	Кварцевый песок	30-50	36
Алюминий оксид (Al_2O_3)	Повышение текучести шлака	Глинистые минералы (каолин)	10-20	15
Кальций оксид (CaO)	Деоксидатор, образование шлака	Известняк ($CaCO_3$)	10-20	15
Магний оксид (MgO)	Улучшение свойств шлака	Доломит, магнезит	5-10	8
Калий оксид (K_2O)	Стабилизация дуги	Полевой шпат калиевый	5-10	7
Натрий оксид (Na_2O)	Стабилизация дуги	Полевой шпат натриевый	2-5	3
Титан диоксид (TiO_2)	Стабилизация дуги, улучшение отделяемости шлака	Рутил	5-10	6
Марганец оксид (MnO)	Деоксидатор, улучшение свойств металла шва	Марганцевая руда	2-5	4
Флюорит (CaF_2)	Снижение температуры плавления, дегазация	Флюоритовые месторождения	5-10	6

Использование местного сырья в производстве керамических флюсов в Узбекистане открывает широкие перспективы с точки зрения технологических, экономических, экологических и социально-экономических аспектов.

Технологические аспекты включают возможности адаптации существующих технологий под особенности местных материалов. Богатая минеральная база Узбекистана позволяет использовать различные глинистые минералы, кварцевые пески, полевые шпаты и другие полезные ископаемые в составе керамических флюсов. Адаптация технологий может потребовать корректировки процессов смешивания и подготовки сырья с учетом гранулометрического состава и физико-химических свойств местных материалов. Например, изменение параметров помола и смешивания позволит достичь необходимой дисперсности и однородности компонентов. Температурные режимы обжига могут быть оптимизированы в соответствии с термическими характеристиками местных минералов, что приведет к снижению энергозатрат. Также может потребоваться разработка новых рецептур флюсов и модернизация оборудования для эффективной переработки сырья. Обучение персонала новым технологиям и методам работы с местным сырьем станет важным шагом в успешной реализации этих изменений.

Экономические преимущества использования местного сырья очевидны. Сокращение транспортных расходов за счет близости месторождений к производственным площадкам уменьшает себестоимость продукции. Стабильность цен на местное сырье и независимость от колебаний мирового рынка и валютных рисков обеспечивают прогнозируемость производственных затрат. В результате снижения себестоимости конечной продукции предприятия становятся более конкурентоспособными как на внутреннем, так и на внешнем рынках. Это повышает рентабельность производства и делает отрасль более привлекательной для инвестиций, стимулируя экономический рост и развитие промышленности в целом [7].

С точки зрения экологического аспекта, использование местных ресурсов способствует сокращению экологического следа производства. Уменьшение расстояний перевозки сырья снижает выбросы парниковых газов и других загрязняющих веществ, связанных с транспортом. Рациональное использование природных богатств страны и внедрение экологически чистых технологий переработки сырья соответствуют принципам устойчивого развития. Возможность использования отходов других отраслей промышленности в качестве компонентов флюсов способствует уменьшению объема промышленных отходов и снижает нагрузку на окружающую среду. Это не только улучшает экологическую ситуацию, но и повышает имидж продукции на международном рынке, открывая новые возможности для экспорта и сотрудничества.

Социально-экономическое значение внедрения местного сырья в производство керамических флюсов заключается в создании новых рабочих мест и развитии регионов. Развитие добычи и переработки местных материалов стимулирует экономический рост регионов, повышает уровень занятости и способствует повышению квалификации рабочей силы. Инвестиции в инфраструктуру, необходимые для разработки месторождений и создания перерабатывающих мощностей, улучшают общее состояние регионов, способствуя их социально-экономическому развитию. Это способствует снижению миграции населения в крупные города, обеспечивая более равномерное развитие страны и улучшение качества жизни в сельских районах [8].

Таким образом, перспективы использования местного сырья в производстве керамических флюсов в Узбекистане представляются весьма благоприятными. Комплексное рассмотрение технологических, экономических, экологических и социально-экономических аспектов свидетельствует о значительных преимуществах этого направления. Реализация потенциала местных ресурсов требует совместных усилий государства, научного сообщества и бизнеса для создания благоприятных условий и эффективных механизмов взаимодействия. Это позволит не только укрепить позиции Узбекистана в керамической промышленности, но и внести существенный вклад в устойчивое развитие экономики и общества в целом.

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ЭКОНОМИЧЕСКИЕ МЕХАНИЗМЫ И ВОЗМОЖНОСТИ ПОДДЕРЖКИ И УКРЕПЛЕНИЯ ПЛОДОВОДСТВА И ОВОЩЕВОДСТВА В УЗБЕКИСТАНЕ

Аннотация. *В статье рассматривается государственная поддержка плодоовощной отрасли в Узбекистане, создаваемые условия, экономические механизмы и возможности. В первую очередь освещаются вопросы повышения производительности труда, связи производства с наукой, обеспечения кадрами, внедрения новых современных технологий.*

Ключевые слова. *фрукты и овощи, производительность, качество, инновации, сельское хозяйство, национальный центр, технологии, услуги, продукты питания, переработка.*

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ECONOMIC MECHANISMS AND POSSIBILITIES OF SUPPORTING AND STRENGTHENING FRUIT AND VEGETABLE GROWING IN UZBEKISTAN

Abstract. *The article examines state support for the fruit and vegetable industry in Uzbekistan, the conditions created, economic mechanisms and opportunities. First of all, issues of increasing labor productivity, linking production with science, providing personnel, and introducing new modern technologies are covered.*

Key words: *fruits and vegetables, productivity, quality, innovation, agriculture, national center, technology, services, food products, processing.*

Введение. В условиях нарастающей продовольственной безопасности и устойчивого аграрного развития особое внимание уделяется эффективному функционированию таких ключевых секторов, как плодоводство и овощеводство. Узбекистан, обладая благоприятными климатическими условиями и богатыми аграрными традициями, располагает значительным потенциалом для наращивания объемов производства, повышения экспортного потенциала и обеспечения внутреннего рынка качественной плодоовощной продукцией.

Однако, несмотря на достигнутые успехи, в данной сфере сохраняются актуальные проблемы, связанные с недостаточной финансовой и институциональной поддержкой, ограниченным доступом к современным технологиям и рынкам сбыта, а также с неэффективностью отдельных элементов экономического механизма. В этих условиях особую значимость приобретает разработка действенных инструментов государственной поддержки, стимулирования инвестиций, совершенствования кредитно-налоговой и субсидийной политики, направленных на укрепление позиций отрасли.

Настоящая статья направлена на анализ существующих экономических механизмов, оценку их влияния на развитие плодоводства и овощеводства в республике, а также выработку практических рекомендаций по повышению эффективности поддержки и устойчивого роста отрасли.

Повышение урожайности плодоовощных культур, расширение ассортимента продукции, развитие интенсивного садоводства, контроль качества продукции, консультирование фермеров по современным технологиям, знаниям и навыкам в плодоовощной отрасли, необходимы такие приоритетные направления, как обеспечение семенами, саженцами, удобрениями и другими ресурсами, помощь в получении кредитов, организация услуг по аренде сельскохозяйственной техники. играющей важную роль в экспорте сельскохозяйственной продукции, Проводимые в стране аграрные реформы направлены на увеличение производства экспортоориентированной продукции в плодоовощном секторе и выпуск продукции в соответствии с Global GAP и другими международными стандартами. Внедрение системы сертификации, развитие методов органического земледелия, совершенствование инфраструктуры хранения, переработки и упаковки продукции, совершенствование системы логистики и снижение транспортных расходов, расширение использования платформ электронной коммерции будут способствовать дальнейшему развитию плодоовощной отрасли в Узбекистане.

Указ Президента Республики Узбекистан от 3 февраля 2021 года № УП-6159 «О дальнейшем развитии системы знаний и инноваций в сельском хозяйстве и оказании современных услуг» предусматривает «полную реализацию Стратегии развития сельского хозяйства Республики Узбекистан на 2020-2030 годы», также уделяется внимание вопросам обеспечения субъектов хозяйствования научно обоснованной информацией, оказания современных услуг, широкого внедрения научных достижений и инноваций в производство, обеспечения органичной интеграции образования, науки, производства и системы оказания агроуслуг.

- Национальный центр знаний и инноваций в сельском хозяйстве при Министерстве сельского хозяйства, который объединяет единую систему предоставления современных агроуслуг с образованием, наукой, производством и сельскохозяйственными организациями в аграрном секторе, и отвечает за следующие виды деятельности:

- обеспечение органической интеграции образования, науки и производства в сфере сельского хозяйства;
- обеспечение органической интеграции образования, науки и производства в сфере сельского хозяйства;
- налаживание взаимовыгодного научно-производственного сотрудничества с фермерскими хозяйствами, агрокластерами и кооперативами, а также передовыми зарубежными научно-исследовательскими институтами, внедрение новых научных разработок, инноваций и цифровых технологий;
- координация научно-исследовательской деятельности всех типов государственных научных и высших учебных заведений в области сельского хозяйства;
- обеспечение переподготовки кадров и повышения их квалификации с учетом текущих и перспективных потребностей отраслей сельского хозяйства в квалифицированных специалистах;
- реализация фундаментальных, прикладных и инновационных исследований в области сельского хозяйства, подготовка высококвалифицированных научных и научно-педагогических кадров, повышение их квалификации на основе передового опыта и современных технологий;
-развитие национальной сети информационно-консультационных служб, обеспечивающей эффективный обмен и передачу знаний, квалификаций и навыков с широким привлечением частного сектора в сельское хозяйство;
- включает такие вопросы, как содействие внедрению международных стандартов качества, создание площадки для сотрудничества производителей и агробизнеса.

Также, обеспечивая взаимодействие всех видов государственных научно-исследовательских и высших учебных заведений, осуществляющих научные исследования и подготовку кадров в агропромышленном комплексе и его отраслях, эффективно организуя переподготовку и повышение квалификации специалистов, указано, что с учетом потребностей отрасли и передового зарубежного опыта будет реализована задача по обеспечению системного совершенствования государственных образовательных стандартов, учебных планов и программ в учреждениях высшего и среднего специального, профессионального образования. Внедрение практики заключения соглашений между научно-исследовательскими учреждениями на местах и агрокластерами в целях коммерциализации результатов научных исследований в аграрной сфере, внедрения научных достижений в производство, поиска решений производственных проблем посредством науки еще больше расширяет возможности поддержки плодоовощного производства в Узбекистане.

Реализация задач, определенных в Постановление Министерства экономики и финансов Республики Узбекистан, Министерства инвестиций, промышленности и торговли и Министерства сельского хозяйства № 3212-1 от 12 ноября 2023 года «Об обучении членов сельскохозяйственных объединений экспортеров плодоовощной продукции новым технологиям производства плодоовощной продукции», «Постановление о внесении изменений в Положение о порядке предоставления субсидий на покрытие 50% затрат, связанных с проведением мониторинга агротехнических мероприятий на землях членов сельскохозяйственных объединений и проведением маркетинговых исследований внешних рынков плодоовощной продукции, производимой членами сельскохозяйственных объединений», Закон Республики Узбекистан «О сельскохозяйственной кооперации» от 8 ноября 2024 года, постановлении Кабинета Министров Республики Узбекистан от 29 февраля 2024 года № 107 «О мерах по регулированию экспорта плодоовощной продукции в республике», в определенной степени способствует совершенствованию экономических механизмов плодоовощного производства.

Реформы в аграрном секторе нашей республики тесно связаны с процессами формирования цифровой экономики и рыночных механизмов. Экономические отношения при организации плодоовощной кооперации позволяют обеспечить устойчивое обеспечение населения плодоовощной продукцией, решить проблемы, возникающие в процессах ее производства, транспортировки, переработки и реализации. Это создает конкуренцию в этой области и создает почву для выхода на мировые рынки в результате экономической борьбы. Одной из приоритетных задач в повышении потенциала сельского хозяйства является бесперебойное и надежное обеспечение потребностей населения страны в продуктах питания, увеличение экспорта за счет сокращения импорта, обеспечение внутреннего потребительского рынка плодоовощной продукцией, произведенной в Узбекистане. Потому что эта отрасль дает возможность бесперебойно удовлетворять потребности населения в качественных продуктах питания, а промышленных предприятий — в сырьевых ресурсах. Кроме того, Узбекистан является страной с высоким потенциалом и производственными мощностями по выращиванию плодоовощной продукции.

В соответствии с Постановлением Президента Республики Узбекистан от 20 марта 2019 года № ПП-4246 «О мерах по дальнейшему развитию садоводства и тепличного хозяйства в Республике Узбекистан» создано Агентство по развитию садоводства и тепличного хозяйства при Министерстве сельского хозяйства Республики Узбекистан. При изучении современного состояния тепличных хозяйств, достигнутых результатов, имеющихся проблем и мер по их устранению, внедрению инновационных технологий в тепличных хозяйствах, расширению систем водосбережения, определению важных задач по повышению качества продукции и объемов экспорта служат развитию отрасли. Агентство продолжает практическую работу по всесторонней поддержке тепличных хозяйств, широкому внедрению современных агротехнологий и созданию благоприятных условий для фермеров. Специалисты агентства оказывают предпринимателям необходимую методическую и техническую помощь, сопровождают новые проекты и помогают им эффективно использовать имеющиеся возможности. К задачам, решаемым для более эффективной организации тепличного хозяйства и рационального использования имеющихся ресурсов, можно отнести:

- налаживание взаимовыгодного научно-производственного сотрудничества с фермерскими хозяйствами, агрокластерами и кооперативами, а также передовыми зарубежными научно-исследовательскими институтами, внедрение новых научных разработок, инноваций и цифровых технологий;
- координация научно-исследовательской деятельности всех типов государственных научных и высших учебных заведений в области сельского хозяйства;
- обеспечение переподготовки кадров и повышения их квалификации с учетом текущих и перспективных потребностей отраслей сельского хозяйства в квалифицированных специалистах;
- реализация фундаментальных, прикладных и инновационных исследований в области сельского хозяйства, подготовка высококвалифицированных научных и научно-педагогических кадров, повышение их квалификации на основе передового опыта и современных технологий;
- развитие национальной сети информационно-консультационных служб, обеспечивающей эффективный обмен и передачу знаний, квалификаций и навыков с широким привлечением частного сектора в сельское хозяйство;
- содействие внедрению международных стандартов качества, создание площадки для взаимного сотрудничества производителей продукции и агробизнеса.

За последние годы проведена масштабная работа по реформированию сельского хозяйства и внедрению рыночных механизмов. Потому что у нашей страны большой потенциал в сельском хозяйстве. Стоит отметить, что на этот сектор приходится 25,1 процента валового внутреннего продукта страны. При этом в аграрном секторе занято почти 24,9 процента занятого населения республики, а это 3,5 миллиона человек. организует человека. Это свидетельствует о том, что роль аграрного сектора чрезвычайно важна не только в обеспечении стабильности экономики и повышении благосостояния населения, но и напрямую зависит от проводимых в отрасли реформ.

В последние годы из-за таких проблем, как усиление изменения климата, нехватка водных ресурсов и деградация земель, этот сектор в Узбекистане сталкивается с рядом проблем и угроз. Кроме того, отсутствие полноценных рыночных реформ в этом секторе на протяжении многих лет, т.е. тот факт, что этот сектор был наиболее зарегулирован государством, такие проблемы, как государственные закупки, ограниченные и незащищенные права землепользования, привели к снижению показателей эффективности и производительности в этом секторе. В этой связи в соответствии со Стратегией действий по дальнейшему развитию Республики Узбекистан на 2017-2021 годы в нашей стране осуществлен ряд аграрных реформ, направленных на модернизацию и ускоренное развитие сельского хозяйства.

В 2019 году была принята Стратегия развития сельского хозяйства на 2020–2030 годы. В нем отменяется государственная монополия путем введения с 2020 года рыночных принципов выращивания, купли-продажи хлопка и зерна. В 2021 году устанавливаются меры по обеспечению равенства и прозрачности земельных отношений, надежной защиты прав на землю и превращению ее в рыночный актив. Также в соответствии с Новой стратегией развития Узбекистана на 2022-2026 годы приоритетной целью определено увеличение доходов дехкан и фермеров не менее чем в 2 раза и увеличение ежегодных темпов роста сельского хозяйства не менее чем до 5% за счет интенсивного научного развития сельского хозяйства. В целом, в результате проводимой работы в этом направлении за последние 6 лет зафиксированы стабильные ежегодные темпы роста валовой продукции сельского хозяйства:

– в 2017 году – 1,0 процента;
- в 2018 году - 0,2 процента;
- 3,3 процента в 2019 году;
- в 2020 году - 2,7 процента;
- 3,9 процента в 2021 году;
- в 2022 году достигнут рост на 3,6%.

За истекший период был снят бойкот узбекского хлопка и текстильной продукции на международном рынке. «Узбекистан получил торговый статус GSP+, который предусматривает беспошлинный ввоз текстильной продукции в Евросоюз, в результате чего экспорт данной продукции увеличился с 1,2 млрд долларов в 2017 году до 3,2 млрд долларов в 2022 году. Также в связи с сокращением водных ресурсов в этой области реализуется ряд мер. В частности, утверждена концепция развития водного хозяйства на 2020-2030 годы. В 2017–2022 годах водосберегающие технологии внедрены на 1,4 млн га земель.”[220] Целью вышеуказанных мер является обеспечение продовольственной безопасности и повышение общественного благосостояния, а также достижение экономической выгоды.

Особенно в нашей стране оптимизация пахотных земель и политика районирования сельскохозяйственных культур, кластеризация, создание современных тепличных хозяйств, расширение приусадебных хозяйств позволили существенно повысить уровень жизни сельского населения.

[220] Указ Президента Республики Узбекистан от 23 октября 2019 года № УФ-5853 «Об утверждении Стратегии развития сельского хозяйства Республики Узбекистан на 2020-2030 годы»

Реализованные меры, достижения, предстоящие проблемы и угрозы, а также дальнейшие планы по их решению также обсуждались на мероприятии «Стратегия развития сельского хозяйства нового Узбекистана до 2030 года: возможности и перспективы», проведенном в рамках Международной недели партнерских инициатив «Новый Узбекистан: развитие, инновации и просвещение».

В частности, на мероприятии будет освещен ряд работ, которые в настоящее время проводятся в рамках Стратегии развития сельского хозяйства на 2020–2030 годы, и определены в ней следующие 9 приоритетных направлений:

- разработка и реализация национальной политики в области безопасности пищевых продуктов;
- создание благоприятной агропромышленной среды и цепочки добавленной стоимости;
- внедрение механизмов снижения государственного участия в отрасли и повышения инвестиционной привлекательности;
- рациональное использование природных ресурсов и совершенствование системы охраны окружающей среды;
- разработка современных систем управления;
- повышение эффективности государственных расходов и постепенное перераспределение за счет развития сетевых программ;
- развитие системы науки, образования, информации и консультационных услуг;
- реализация программ развития села;
- отмечено создание прозрачной системы сетевой статистики.

В заключение следует отметить, что для того, чтобы ожидаемые результаты деятельности были более позитивными, следует также отметить привлечение международных экспертов по реализации трансформации государственного управления в сельском хозяйстве и углублению реформ на основе мирового опыта. В регионах проживает около 50 процентов населения страны, на долю которых приходится 4 четверти экономики и около 3,5 млн человек. ускорить соответствующие реформы в этой сфере, где трудоустроены люди, повысить благосостояние населения нашей страны в будущем, обеспечить стабильное экономическое развитие и обеспечивает полное использование экономических механизмов и возможностей для поддержки выращивания фруктов и овощей.

Использованные источники:

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2. Постановление Президента Республики Узбекистан от 11 декабря 2019 года № УФ-4549 «О дополнительных мерах по дальнейшему развитию плодоовощной и винодельческой отрасли и созданию интегрированной цепочки поставок в отрасли».

3. Постановление Президента Республики Узбекистан от 14 марта 2019 года № УФ-4239 «О мерах по развитию сельскохозяйственной кооперации в области плодоовощеводства».
4. Указ Президента Республики Узбекистан от 23 октября 2019 года № УФ-5853 «Об утверждении Стратегии развития сельского хозяйства Республики Узбекистан на 2020-2030 годы»
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ПРИМЕНЕНИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В СОВРЕМЕННОМ МЕНЕДЖМЕНТЕ: МЕЖДУНАРОДНЫЙ И МЕСТНЫЙ ОПЫТ

Аннотация*: Данная статья рассматривает применение искусственного интеллекта (ИИ) в различных областях, в том числе в современном менеджменте, как в мировом масштабе, так и на примере Узбекистана. В статье описываются ключевые области применения ИИ и его виды, рассматривается опыт внедрения и использования ИИ в Узбекистане.*

Ключевые слова*: искусственный интеллект (ИИ), современный менеджмент, технологический прогресс, цифровая экономика, бизнес.*

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APPLICATION OF ARTIFICIAL INTELLIGENCE IN MODERN MANAGEMENT: INTERNATIONAL AND LOCAL EXPERIENCE

Abstract: *This article examines the application of artificial intelligence (AI) in various fields, including modern management, both globally and in Uzbekistan. The paper outlines key areas of AI application, its types, and explores the experience of implementing and using AI in Uzbekistan.*

Key words*: artificial intelligence (AI), modern management, technological progress, digital economy, business.*

Введение. Развитие технического прогресса привело к возникновению искусственного интеллекта, способного имитировать человеческие навыки, такие как планирование, решение задач, информирование, а также обучение и улучшение собственной производительности. Архитектура мышления искусственного интеллекта базируется на нейронных сетях, аналогичных нейронам человеческого мозга, что позволяет системам развивать новые навыки аналогично человеку [6].

Таким образом, искусственный интеллект становится важным инструментом для достижения стратегических целей бизнеса и государства, обеспечивая инновационное развитие и повышение эффективности.

Обзор литературы. Первые упоминания о концепции ИИ принадлежат Марвину Минскому, который рассматривал ИИ как науку о выполнении машиной интеллектуальных задач. Идея создания машин, способных выполнять интеллектуальные задачи, обсуждается с середины XX века. В 1956 году был проведен первый семинар по искусственному интеллекту в Дартмуте, который стал точкой отсчета развития этой технологии. Современные исследования демонстрируют широкий спектр возможностей ИИ, начиная от анализа больших данных и заканчивая автоматизацией сложных процессов.

Международный опыт внедрения ИИ показывает, что крупнейшие компании, такие как Google и Amazon, активно используют технологии для повышения своей конкурентоспособности. Google применяет ИИ для улучшения алгоритмов поиска, разработки автономных транспортных средств и обработки данных в облачных сервисах. Amazon, в свою очередь, оптимизирует процессы логистики и персонализации покупательского опыта с помощью машинного обучения [16].

Компания Shell успешно использует ИИ в нефтегазовом секторе для повышения эффективности добычи ресурсов. Применение машинного обучения позволяет компании на 30% улучшить точность прогнозирования производительности скважин и сократить энергопотребление на 20% [16, 17].

В Узбекистане национальная стратегия «Цифровой Узбекистан-2030» включает меры по развитию ИИ. В рамках этой программы разрабатываются пилотные проекты в сельском хозяйстве, здравоохранении и финансовом секторе, что свидетельствует о значительных усилиях, направленных на цифровую трансформацию экономики [16, 17].

Методы исследования. Анализ литературы и источников, описательный метод для обобщения теоретических основ, сравнительный анализ опыта внедрения искусственного интеллекта в различных сферах и странах, а также метод наблюдения для изучения практических примеров использования ИИ в Узбекистане. Кроме того, применялся метод систематизации данных для структурирования информации и выявления ключевых тенденций в развитии искусственного интеллекта.

Анализ и результаты. Анализ международного и локального опыта показывает, что искусственный интеллект (ИИ) становится ключевым инструментом для повышения эффективности управления и конкурентоспособности бизнеса. Крупные IT-компании, такие как Google и Amazon, активно используют ИИ для оптимизации своих процессов. Google применяет технологии ИИ в поисковых алгоритмах, разработке автономных транспортных средств и обработке данных в облачных сервисах. Amazon фокусируется на автоматизации логистики, персонализации покупательского опыта и улучшении взаимодействия с клиентами. Менее известные компании, например BotsCrew, InData Labs и Nexocode, разрабатывают специализированные решения, такие как чат-боты и аналитические программы для обработки данных [6]. В исследовании, проведенном компанией Dentons и опубликованном 11 января 2021 года [8], отражается текущее состояние использования и применения искусственного интеллекта (ИИ) в корпоративном мире.

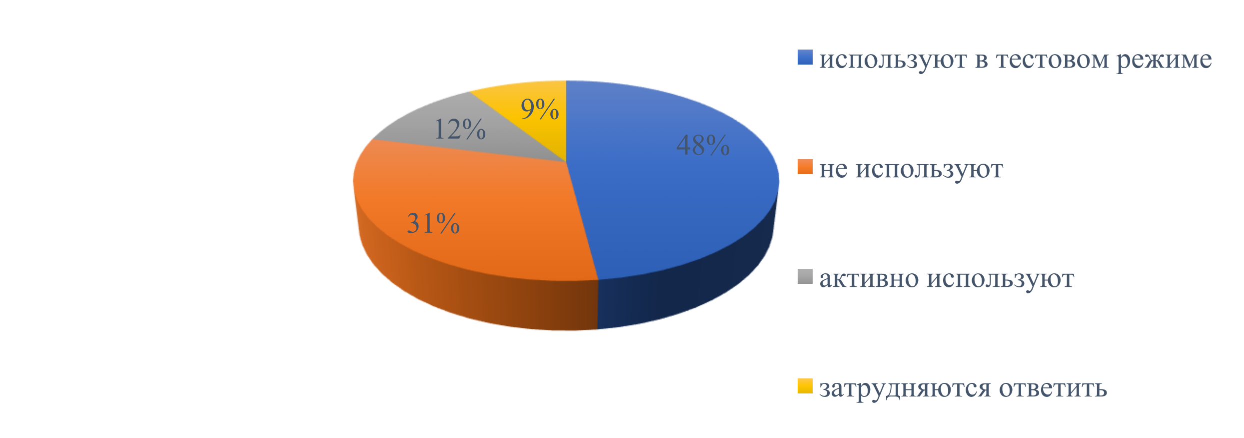

График 1 – Использование и применения искусственного интеллекта в корпоративном мире, %

Источник: Составлено авторами на основе [8]

ИИ оказывает значительное влияние на трансформацию современных подходов к управлению. По сравнению с менеджментом XX века цифровизация и внедрение высоких технологий изменили характер управления. Исследование компании Dentons, опубликованное в 2021 году, показало, что 12% крупных и средних компаний уже активно используют ИИ, а 48% находятся на стадии тестирования технологий. Это подтверждает актуальность внедрения ИИ в различные бизнес-процессы [8]. В маркетинге ИИ способствует росту рентабельности инвестиций (ROI) и позволяет автоматизировать рутинные задачи. Например, технологии нейросетей позволяют сотрудникам экономить до 2,5 часов рабочего времени в день и сосредоточиться на креативных и инновационных задачах [7].

Компания Shell демонстрирует успешный опыт использования ИИ в нефтегазовой отрасли. Алгоритмы машинного обучения применяются для прогнозирования производительности скважин, что повышает точность прогнозов на 30% и снижает риски аварийных ситуаций. Оптимизация логистических процессов с помощью ИИ позволила Shell сократить транспортные расходы на 10-15%. Кроме того, системы управления энергопотреблением снизили расходы на энергию на 20%, что способствует экологической устойчивости [13]. Подобные подходы иллюстрируют, как ИИ может быть использован для повышения эффективности и снижения затрат в традиционных отраслях экономики.

В Узбекистане развитие технологий ИИ находится на стадии активного внедрения. Национальная стратегия «Цифровой Узбекистан-2030» направлена на цифровизацию ключевых отраслей, таких как сельское хозяйство, здравоохранение и финансовый сектор [12]. В нефтегазовой отрасли компании внедряют системы аналитики для мониторинга состояния оборудования, что позволяет минимизировать простои и повышать производительность. Например, «Лукойл Узбекистан» использует систему ERP для оптимизации бизнес-процессов [15], а Бухарский НПЗ внедряет технологии машинного обучения для анализа данных с ключевых объектов производства [14]. Эти инициативы демонстрируют значительный потенциал ИИ в модернизации экономики.

Для успешного развития ИИ в Узбекистане требуется комплексный подход. Необходимо расширять образовательные программы, поддерживать стартапы через гранты и налоговые льготы, а также развивать инфраструктуру для анализа данных. Успешная интеграция технологий ИИ позволит ускорить цифровую трансформацию страны, повысить ее конкурентоспособность на международной арене и обеспечить устойчивый экономический рост. Внедрение ИИ становится важным шагом к модернизации традиционных отраслей и созданию цифровой экономики, способной отвечать вызовам современного мира.

Заключение. Важно отметить, что искусственный интеллект развивается с невероятной скоростью и его все чаще применяют в различных сферах, а самое главное, что это касается не только западных стран, но и Узбекистана. Его внедрение открывает возможности для автоматизации, повышения производительности и конкурентоспособности. Правительство Узбекистана также поддерживает тенденцию развития ИИ в стране.

Однако успех внедрения технологий требует баланса: ИИ способен облегчить рутину, но не заменить человеческую интуицию и креативность. Компании, которые используют ИИ разумно, получают преимущество, сохраняя при этом человеческий фактор как основу для стратегического роста. Узбекистану важно продолжить инвестиции в ИИ, чтобы укрепить позиции на глобальной арене и обеспечить устойчивое развитие.

Также важно отметить, что несмотря на прогресс в области ИИ, человеческий фактор остается ключевым элементом организации. ИИ может повышать эффективность и автоматизировать рутинные задачи, но он не может полностью заменить человеческую эмпатию, интуицию и творческий подход. Обычно сотрудникам открываются новые перспективы для роста и развития. Они могут перейти на позиции, где требуются креативные навыки и экспертное знание, которые ИИ пока не в состоянии полностью заменить. Для тех, кто способен адаптироваться к новым условиям и обладает обширной экспертизой, нет угрозы быть вытесненным ИИ. Напротив, этот инструмент следует рассматривать как возможность повысить эффективность производства и творческий потенциал специалистов различных областей.

Таким образом, внедрение ИИ должно осуществляться с учетом сохранения баланса между технологическими инновациями и сохранением человеческого взаимодействия. Это позволит обеспечить оптимальное качество услуг и удовлетворенность клиентов в различных сферах деятельности.

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МОРФЕМНАЯ СТРУКТУРА В УЗБЕКСКОМ ЯЗЫКЕ: ЕДИНСТВО ФОРМЫ И ЗНАЧЕНИЯ

Аннотация: *В данной статье рассматриваются Основные типы морфем в узбекском языке, роль аффиксации в словообразовании и словоизменении, взаимосвязь формы и значения в морфемной структуре и особенности агглютинативного строя узбекского языка.*
Ключевые слова: *узбекский язык, морфемная структура, агглютинация, аффиксы, гармония гласных, словообразование.*

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MORPHEME STRUCTURE IN THE UZBEK LANGUAGE: UNITY OF FORM AND MEANING

Abstract: *This article discusses the main types of morphemes in the Uzbek language, the role of affixation in word formation and inflection, the relationship between form and meaning in the morphemic structure and the features of the agglutinative system of the Uzbek language.*
Keywords: *Uzbek language, morphemic structure, agglutination, affixes, vowel harmony, word formation.*

Введение

Узбекский язык, являющийся государственным языком Республики Узбекистан и одним из крупнейших тюркских языков по числу носителей (более 35 миллионов человек), представляет собой уникальный лингвистический феномен, сохранивший характерные черты агглютинативного строя при значительном влиянии персидского, арабского и русского языков. Изучение его морфемной структуры имеет особую актуальность в современных условиях, когда вопросы языковой идентичности и сохранения грамматических традиций приобретают новое значение.

Узбекский язык, относящийся к тюркской языковой семье, обладает богатой и сложной морфемной структурой, где форма и значение тесно взаимосвязаны. Морфемный анализ позволяет глубже понять грамматические и словообразовательные механизмы языка, выявить закономерности построения слов и их семантические особенности.

Типы морфем в узбекском языке

Корневые морфемы

Корень — это минимальная значимая часть слова, несущая его основное лексическое значение. В узбекском языке корни чаще всего односложные или двусложные:

- кўл (рука)
- китоб (книга)
- йўл (дорога)

В узбекском языке аффиксы играют важную роль в образовании различных частей речи и изменении их значений. Узбекский язык относится к агглютинативным языкам, где грамматические значения выражаются путем последовательного присоединения аффиксов. Основные типы:

- Префиксы (редки, встречаются в заимствованиях, например, бе- → бепул "бесплатный")
- Суффиксы (основной способ словообразования и словоизменения)
- Постфиксы (например, -дир в бордир "он/она идет")

Словообразовательные аффиксы

Узбекский язык активно использует суффиксы для создания новых слов:

- -чи: профессии (автобусчи – "водитель автобуса")
- -лик: абстрактные понятия (дўстлик – "дружба")
- -сиз: отрицание (пулсиз – "без денег")

Грамматические аффиксы

Словоизменение происходит за счет добавления суффиксов, которые последовательно присоединяются к корню:

- Падежные окончания:
  - кўл + им + да → кўлимда ("в моей руке")
- Число:
  - китоб + лар → китоблар ("книги")
- Притяжательность:
  - уй + инг → уйинг ("твой дом")

Единство формы и значения однозначность аффиксов

В отличие от флективных языков, где окончания могут быть многозначными, в узбекском каждый аффикс обычно имеет одно четкое значение:

- -да – локатив ("где?")
- -ни – винительный падеж ("кого? что?")
- -ган – прошедшее время

Предсказуемость морфемной структуры

Благодаря агглютинативности порядок аффиксов строго фиксирован: корень + словообразовательный аффикс + показатель числа + падеж Пример:
иш + чи + лар + да → ишчиларда ("у рабочих")

ОСОБЕННОСТИ АГГЛЮТИНАТИВНОСТИ В УЗБЕКСКОМ ЯЗЫКЕ

Агглютинативная природа узбекского языка проявляется прежде всего в его фонетической организации:

Закон сингармонизма гласных

- Строгое соблюдение гармонии по ряду (передние/задние гласные)
  - **олма + лар → олмалар** (яблоки)
  - **уй + им → уйим** (мой дом)
- Гармония по огубленности в некоторых диалектах
- Исключения в заимствованных словах (например, **китоб** "книга")

Отсутствие фузии

Морфемы не сливаются друг с другом, сохраняя четкие границы:

- йўл + лар + им + да → йўлларимда ("на моих дорогах")

Гармония гласных

Гласные в аффиксах подчиняются закону сингармонизма, согласуясь с корнем:

- китоб + лар + им → китобларим ("мои книги")
- кул + лар + им → кулларим ("мои руки")

Консонантные чередования

- Регрессивная ассимиляция согласных:
  - **кет + ди → кетти** (он ушел)
- Озвончение/оглушение на стыках морфем:
  - **йўл + да → йўлда** (на дороге)

Типология аффиксов

- Продуктивные суффиксы (более 200 основных)
- Ограниченное число префиксов (в основном в заимствованиях)
- Клитики и частицы как пограничные явления

СИНТАКСИЧЕСКИЕ КОРРЕЛЯТЫ

Влияние на порядок слов

- Жёсткий порядок "подлежащее-дополнение-сказуемое"
- Согласование в группе "определение-определяемое"
  - **янгли китоблар** (новые книги)

Парцелляция и эллипсис

- Возможность опущения повторяющихся морфем:
  - **менинг китим ва (менинг) дафтарим**

Заключение

Морфемная структура узбекского языка демонстрирует стройную систему, в которой форма и значение находятся в тесной взаимосвязи. Агглютинативный характер языка обеспечивает логичность и прозрачность словообразования, а гармония гласных придает ему фонетическое единство. Изучение морфемики узбекского языка важно не только для лингвистики, но и для преподавания языка, машинного перевода и сохранения языковой идентичности.

Подводя итоги, изучение морфемного состава слов и связанных с ним решений требований проблем с современным их функционированием, играет важную роль при определении исторического генезиса частей речи, при изучении истинного лексического значения.

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РОЛЬ И ЗНАЧЕНИЕ АКАДЕМИЧЕСКОЙ МОБИЛЬНОСТИ В РАЗВИТИИ СОВРЕМЕННОЙ СИСТЕМЫ ВЫСШЕГО ОБРАЗОВАНИЯ

Аннотация: *В эпоху глобализации и стремительного технологического прогресса система высшего образования сталкивается с необходимостью постоянного обновления и адаптации к мировым стандартам. Одним из ключевых направлений в этом процессе является развитие академической мобильности, которая способствует повышению качества образования, расширению научного потенциала и укреплению международных связей*

Ключевые слова: *академическая мобильность, Erasmus+, Mevlana, DAAD, международное сотрудничество, инновации в образовании, тенденции развития, цифровая трансформация, образовательная политика.*

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THE ROLE AND IMPORTANCE OF ACADEMIC MOBILITY IN THE DEVELOPMENT OF THE MODERN HIGHER EDUCATION SYSTEM

Abstract: *In the era of globalization and rapid technological progress, the higher education system is faced with the need for constant updating and adaptation to world standards. One of the key areas in this process is the development of academic mobility, which contributes to improving the quality of education, expanding scientific potential and strengthening international ties*

Keywords: *academic mobility, Erasmus+, Mevlana, DAAD, international cooperation, innovations in education, development trends, digital transformation, educational policy.*

Академическая мобильность представляет собой временное обучение, преподавание или исследовательскую деятельность студентов, преподавателей и научных сотрудников в других высших учебных заведениях как внутри страны, так и за рубежом. Это важный инструмент интернационализации образования и формирования конкурентоспособных специалистов.

Виды академической мобильности

Академическая мобильность реализуется в двух основных формах: - Внутренняя мобильность — обмен между университетами одной страны. Это позволяет студентам получать новые знания и опыт, обучаясь в других регионах, адаптируясь к различным образовательным средам. - Международная мобильность — включает обучение и стажировки в зарубежных университетах по различным программам: Erasmus+, Mevlana, DAAD, GKS (Южная Корея), Chevening (Великобритания) и другие. Эти программы предоставляют студентам и преподавателям уникальные возможности профессионального и личностного роста.

Преимущества академической мобильности

Развитие академической мобильности открывает широкий спектр возможностей: - Получение современных знаний и опыта; - Улучшение языковых навыков; - Формирование лидерских качеств и самостоятельности; - Расширение профессиональных и научных связей; - Межкультурный диалог и развитие глобального мышления.

Развитие академической мобильности в Узбекистане

В последние годы в Узбекистане реализуется целенаправленная политика по модернизации системы образования и интеграции ее в мировое образовательное пространство. В рамках реформ: - Заключаются соглашения с зарубежными университетами; - Создаются совместные факультеты и образовательные программы; - Студентам предоставляются государственные стипендии (Президентская стипендия, 'Эл-юрт умиди' и др.); - Внедряется система зачетных единиц (ECTS), что облегчает академическую мобильность и признание образовательных результатов.

Проблемы и пути их решения

Существуют определённые барьеры: - Недостаточный уровень владения иностранными языками; - Финансовые ограничения; - Бюрократические сложности; - Адаптационные трудности. Для преодоления этих проблем необходимы следующие меры: 1. Организация языковых курсов; 2. Расширение числа грантов и стипендий; 3. Внедрение цифровых систем подачи и обработки заявок; 4. Создание консультационных центров в вузах.

Заключение

Академическая мобильность — это не просто возможность обучения в другом вузе, а важный шаг к формированию современной, конкурентоспособной, открытой к инновациям личности. Это путь к углублению профессиональных знаний, расширению мировоззрения и развитию системы образования в целом. Поддержка академической мобильности в Узбекистане способствует подготовке кадров, способных успешно интегрироваться в глобальное сообщество.

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ФИЗИКО-ХИМИЧЕСКИЕ И МАКРОМОЛЕКУЛЯРНЫЕ ХАРАКТЕРИСТИКИ НОВЫХ СТАБИЛИЗАТОРОВ БУРОВЫХ РАСТВОРОВ

Аннотация: *В статье рассмотрены вопросы исследования строения и структуры новых стабилизаторов-сополимеров для буровых растворов, полученных на основе отходов промышленности. Показано, что используемая буровая промывочная жидкость должна обладать определенными реологическими, физико-химическими и технологическими свойствами в зависимости от геологического строения разреза скважины и минерализации вскрываемых ею пластовых вод, стойкими к воздействиям агрессивных флюидов. На прикладные свойства буровых растворов огромное влияние оказывает природа, физико-химические и макромолекулярные характеристики применяемых полимеров. Определены молекулярные массы и молекулярно-массового распределения сополимеров. Исследование разбавленных растворов позволили выяснить размеры, строение и свойства индивидуальных макромолекул.*

Ключевые слова: *буровой раствор, стабилизатор, сополимер, отход, вязкость, молекулярная масса, плотность, термостойкость, макромолекула, тиксотропность.*

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PHYSICOCHEMICAL AND MACROMOLECULAR CHARACTERISTICS OF NEW DRILLING FLUID STABILIZERS

Abstract: *In article are considered questions of the study of the construction and structures new stabilizer-copolymers for bore solution, got on base departure to industry. It is shown that used bore washing liquid must possess certain rheological, physic-chemical and technological characteristic depending on geological construction of the cut of the bore hole and mineralization opened by her ground of water steadfast to influence aggressive fluids. On applied characteristic bore solution enormous influence renders the nature, physic-chemical and macromoleculing of the feature applicable polymer. They are determined molecular masses and molecular-mass distribution copolymers. The study diluted solution has allowed realizing the sizes, construction and characteristic individual macromoleculing.*

Key words*: bore solution, stabilizer, copolymer, departure, viscosity, molecular mass, density, thermo stabilizer, macromolecule, tixotroping.*

Поиск и разведка месторождений нефти и газа в Республике Узбекистан на новых площадях и рост глубин бурения предопределили объективную необходимость в совершенствовании составов буровых растворов. При этом используемая буровая промывочная жидкость должна обладать определенными реологическими, физико-химическими и технологическими свойствами в зависимости от геологического строения разреза скважины и минерализации вскрываемых ею пластовых вод, стойкими к воздействиям агрессивных флюидов [1]. На прикладные свойства буровых растворов огромное влияние оказывает природа применяемых полимеров.

Как известно [2], среди огромного количества известных природных и синтетических полимеров лишь немногие обладают способностью растворятся в воде. Для водорастворимых полимеров характерно наличие в цепи макромолекул гидрофильных функциональных групп (гидроксильных, карбоксильных, амидных, сульфо и др.). Степень диссоциации водных растворов полиэлектролитов связана с ионной силой раствора. С изменением последней изменяется форма макромолекул полиэлектролитов. Следовательно, должны меняться и их эксплуатационные, например, коагулирующие, флокулирующие свойства и набухание. Увеличение числа кинетических единиц в растворе в результате диссоциации и изменения формы макромолекулы полимера приводит к изменению его гидродинамических свойств. Следовательно, вязкость и плотность бурового раствора должны быть такими, чтобы совместно с другими технологическими факторами и приемами можно было обеспечить достаточное противодавление на проходимые пласты, но в то же время она не должна заметно ухудшать условия работы долота и эксплуатационные характеристики продуктивных горизонтов. Иными словами, в каждом конкретном случае должно выбираться оптимальные значения физико-химические и макромолекулярные характеристики полимеров, применяемых для стабилизации бурового раствора.

Синтезу и исследованию водорастворимых полимеров, в частности, содержащих в своей структуре функциональные группы, привлечено внимание многих исследователей вследствие их большого практического применения в различных отраслях народного хозяйства в качестве флокулянтов, коагулянтов, структуро-образователей почв, бактерицидных препаратов и т.д. [3-6]. Однако в литературе большое внимание уделено изучению растворов и молекулярно-массовых характеристик полимеров, применяемых в секторе экономики, а полимеров, необходимых для стабилизации буровых растворов, остались как бы без внимания. Фактически эти полимеры, обладая почти аналогичными свойствами, что и крупномасштабные, были исследованы в меньшей степени чем последние.

В этом аспекте для нас представляло интерес исследование молекулярной массы (ММ) и молекулярно-массового распределения (ММР) сополимеров, полученных на основе взаимодействия отхода делинтации хлопковых семян (ОДХС) с ГИПАН и лигносульфоната (ЛС) с акрилонитрилом (АН) [7]. Поскольку изучение полидисперсности этих сополимеров имеет принципиальное значение, так как возможность практического применения их для различных целей требует определения молекулярной массы, кроме того, интересно изучение влияния способа и условий синтеза на ММ и ММР полученных сополимеров.

Сополимеры ОДХС:ГИПАН ($T_{пл.}$=172°С) и ЛС:АН ($T_{пл.}$=158°С), представляют собой порошки светло - коричневого цвета, устойчивые при длительном хранении. Плотности, определенные методом пикнометрии, равны соответственно: 1, 288 и 1,244, растворимые в воде, диметилформамиде, диметилсульфооксиде, этаноле и в других полярных растворителях.

Наличие в структуре сополимеров фунциональных групп является характерным признаком растворимых сополимеров. Исследование разбавленных растворов позволяет выяснить размеры, строение и свойства индивидуальных макромолекул.

Для оценки структурных изменений макромолекул изучены вязкости растворов синтезированных полимеров. Зависимость приведенной вязкости водных растворов полимеров от концентрации имеет слегка вогнутый характер (рис. 1). Здесь сказывается одна из специфических особенностей полиэлектролитов - так называемое полиэлектролитное набухание, причина которого заключается в электростатическом отталкивании одноименно заряженных звеньев полимерной цепи, содержащих ионогенные группы. В результате происходят разворачивание клубков макромолекул и увеличение их линейных размеров.

Действительно, зависимость η/с от √с для вышеуказанных растворов синтезированных сополимеров носит линейный характер, который свидетельствует о том, что поведение водных, водно-спиртовых и спиртовых растворов синтезированных сополиэлектролитов описывается уравнением Фуосса-Штрауса (рис.1) [8]. Зависимость приведенной вязкости раствора сополимера от концентрации синтезированных сополимеров в присутствии сильного электролита - 0,25 н раствора хлористого калия носит прямолинейный характер (рис.1), обусловленный созданием экранирующей "шубы" противоионов вокруг ионов макромолекул. Характеристические вязкости полимеров измеряли 0,25 н водном растворе КС1 при 25° С в визкозиметре типа Убеллоде, которые оказались равными [η]=0,31 и 0,23 дл/г.

По данным визкозиметрических и пикнометрических, а также термогравиметрических исследований, сополимеры, полученные на основе ДХС:ГИПАН и ЛС:АН, характеризуются высокой молекулярной массой и повышенной термостабильностью. Термостойкость синтезированных сополимеров выше как по температуре начала разложения, так и по потере массы сополимера при нагревании. Сополимеры, полученные при низкой температуре, более однородны по молекулярной массе и, следовательно, имеют более низкую степень полидисперности (рис. 2).

При проведении реакции сополимеризации при высокой температуре (Т=60°С) и в этаноле, установлено, что сополимеры имеют более широкое распределение, чем сополимеры, полученные при низкой температуре (Т=30°С). Коэффициент полидисперности Mw/Mn имеет для первых значение - 2,0, а для вторых - ниже 1,5 (рис. 3).

Полимеры, полученные в различных условиях, отличаются и теплостойкостью. Теплостойкость по Вика сополимеров на основе ОДХС:ГИПАН и ЛС:АН, синтезированных в этаноле при Т=30° С равна 190°С и 212°С, а тех же полимеров и при Т=60°С соответственно - 154°С и 174°С. Температура текучести у последних сополимеров также высокая - 225°С и 216°С, в то время, когда у сополимеров, синтезированных при Т=60°С, соответственно равны 196°С и 179°С. Повышение термо- и теплостойкости полимера связано с образованием высоко упорядоченных структур в условиях сополимеризации при относительно низкой температуре.

Молекулярную массу и ММР сополимеров, полученных на основе взаимодействия ОДХС:ГИПАН и ЛС:АН, определяли методом скоростной седиментации и вискозиметрии, поскольку скоростная седиментация - наиболее простой и доступный метод седиментационного анализа полимеров, представляющий практический интерес. Определение молекулярной массы по скорости седиментации основано на использовании достаточно больших ускорений, обеспечивающих такую скорость седиментации молекул, которую можно измерить. Преимуществом этого метода является высокая чувствительность получаемых в опыте параметров к степени неоднородности препарата по молекулярным массам, при этом можно получить представление о его чистоте и количественные данные о степени Полидисперсности, рассчитать константу седиментации и молекулярную массу полимеров, выяснить возможность различных превращений макромолекул, связанных с конформационными изменениями формы. Коэффициент седиментации, так же как и характеристическая вязкость, при определенной молекулярной массе зависит только от размеров и формы макромолекул. Следовательно, изучая зависимость характеристической константы седиментации от температуры и состава растворителя, можно получить информацию о конформационных превращениях макромолекул в растворах. Индекс полидисперсности Mw/Mn рассчитывали непосредственно из седиментационных диаграмм с помощью приближенной методики [9] на основании установленного соотношения, связывающего коэффициент седиментации S_{01} с ММ фракции. Экстраполяция коэффициента седиментации к бесконечному разбавлению показывает, что при низких концентрациях растворенного полимера постоянную $К_s$ для довольно широкого интервала молекулярных масс можно с достаточной точностью представить в виде произведения $К_s$ S_0. Кроме того, в большинстве случаев величина $К_s$, в соотношении $S=S_0(1\text{-}К_sC)$ положительна, т.е. при разбавлении S возрастает. Это положение неудивительно, т.к. для многих линейных полимеров показано, что величина $К_s$ пропорционально характеристической вязкости полимера, а в идеальных условиях [η] пропорциональна константе седиментации.

В ходе опытов было обнаружено сильное влияние диффузии для обоих исследованных нефракционированных образцов, что, вероятно, связано с довольно низкими значениями коэффициентов седиментации.

Путем построения зависимости LgSo от LgM нашли константы в уравнении Флори-Манделькерна для сополимеров в этаноле при 25°С. (табл. 1).

Как видно из данных, приведенных в таблице 1, с повышением температуры сополимеризации при прочих постоянных условиях падает значение молекулярных масс сополимеров, увеличивается Mw/Mn и ухудшается растворимость. Снижение выхода сополимеров, по-видимому, связано с уменьшением концентрации эффективных активных центров и вызванное повышением температуры увеличение скорости роста молекулярных цепей на этих центрах должно способствовать возрастанию доли молекул с высокой молекулярной массой. Кроме того, при повышении температуры полимеризации возрастает роль реакций ограничения цепи, температурный коэффициент которых выше, чем у реакций роста цепи. Вследствие этого, по всей вероятности, увеличивается в сополимерах доля низкомолекулярных фракций.

Между вязкостью и формой макромолекулы в растворе существует прямая связь. Поэтому особый интерес представляет изучение вязкости в смешанных растворителях. Установлено, что при увеличении содержания этанола и диметилформамида в смеси уменьшается вязкость, однако при этом наблюдается характерная для полиэлектролитов аномалия зависимости. Согласно результатам опытов, диметилформамид эффективнее понижает вязкость водных растворов сополимеров, чем этанол, т.е. полимерные макромолекулы в диметилформамиде сворачиваются больше, чем в этаноле. Определение вязкости в смешанных растворителях позволяет предполагать, что при изменении состава растворителя структурированные образования из макромолекул сополимеров разрушаются.

Таблица 1.

Влияние условий сополимеризации на молекулярно-массовые характеристики сополимеров в этаноле (*) и ДМФА(').

№ п/п	Полимеры, полученные при эквимоль. соотн. компонентов	Темпе-ратура, К	Выход, %	ηпр. дл/г	$V\ 10^6$ мол/л с	$Mn{*}10^{-3}$	Mw/Mn
1.	ОДХС:ГИПАН *	30	63,0	0,25	1,42	52	1,7
2.	ОДХС:ГИПАН *	40	61,3	0,24	2,73	51	1,8
3.	ОДХС:ГИПАН *	50	52,4	0,20	6,72	41	2,5
4.	ОДХС:ГИПАН *	60	48,2	0,19	15,15	36	2.6
5.	ЛС:АН [1]	30	69	0,2	2,42	24	1,9
6.	ЛС:АН [1]	40	64	0,18	12,41	20	1,6
7.	ЛС:АН [1]	50	67,2	0,21	22,6	30	2,1
8.	ЛС:АН [1]	60	59,3	0,192	129,1	23	1,6

*Примечание: * - данные, полученные в этаноле, [1] - полученные в ДМФА.*

Наибольшее влияние на конформацию макромолекул в растворах оказывает изменение концентрации водородных ионов, что связано с изменением заряда и гидратации макромолекул. Вследствие этого зависимость вязкости синтезированных сополимеров от рН имеет сложный характер.

Вязкость 0,1%-ных водных растворов сополимеров на основе ОДХС:ГИПАН и ЛС:АН при увеличении рН среды проходит через максимум (рис. 4). До рН 5,5 происходит медленное нарастание вязкости, а затем начинается крутой подъем зависимости $\eta_{уд}/C$ от рН. Максимум достигается обычно при полной нейтрализации функциональных групп. Наиболее четко он проявляется в случае сополимеров на основе ОДХС:ГИПАН, имеющих большую вязкость. При полной нейтрализации, а также при избытке щелочи зависимость $\eta_{уд.}/C$ от рН ослабевает. В нейтральной области рН размеры макромолекул фосфониевых полимеров сильно увеличиваются. Картина изменения зависимости η/C от рН отражает состояние полимера в растворе:

для низких значений pH характерны максимально свернутые типы структур, образованные в результате взаимодействия макромолекул сополимеров и вследствие полной экранизации зарядов при добавлении электролита. Эти структуры по мере уменьшения экранизации зарядов на макромолекуле и гидратации набухают и разворачиваются, что сопровождается резким увеличением вязкости.

Это фиксируется максимальным значением на кривой вязкости, которое понижается при меньшей степени ионизации, что свидетельствует о начале распада агрегатов макромолекул. При дальнейшем введении щелочи, по-видимому, вновь возникает эффект экранизации заряда макромолекулы сополимера, и ее диссоциация подавляется, что, естественно, приводит к уменьшению вязкости.

Таким образом, нами выявлены зависимости макромолекулярных характеристик сополимеров, применяемых для стабилизации буровых растворов, на прикладные свойства и на эффективность работы буровых установок.

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ПРОБЛЕМЫ В ИЗУЧЕНИИ ЛЕКСИКИ РУССКОГО ЯЗЫКА У СТУДЕНТОВ В НЕЯЗЫКОВОЙ СРЕДЕ

Аннотация: *проблемы в изучении русского языка могут начаться на самом раннем этапе при изучении алфавита. В данном случае трудности носят фонетический характер. Студентам необходимо запомнить, как произносится каждая буква, а также и каждый звук. Важно разъяснить им особенности твердого и мягкого знаков: они не имеют звука, а являются знаками разделительными и указывают на твердость или мягкость впереди стоящей согласной соответственно.*

Ключевые слова: *изучение, порядок слов, фонетика, грамматическая категория, лексика, преподаватель, студент.*

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PROBLEMS IN LEARNING RUSSIAN VOCABULARY BY STUDENTS IN A NON-LINGUISTIC ENVIRONMENT

Abstract: *problems in learning Russian can begin at the earliest stage when learning the alphabet. In this case, the difficulties are phonetic. Students need to remember how to pronounce each letter, as well as each sound. It is important to explain to them the features of hard and soft signs: they do not have a sound, but are dividing signs and indicate the hardness or softness of the consonant in front, respectively.*

Keywords: *learning, word order, phonetics, grammatical category, vocabulary, teacher, student.*

У иностранных студентов часто возникают различные проблемы при изучении русского языка, обусловленные сложностью изучаемого материала. Однако данный вопрос также становится проблемой преподавателя, поскольку ему необходимо найти наилучший способ объяснения сложных языковых явлений. Рассмотрим наиболее часто встречающиеся трудности, возникающие в процессе обучения русскому языку как иностранному.

Фонетический аспект. Фонетика представляет собой большую трудность для иностранных студентов, поэтому преподаватели должны уделять особое внимание данному аспекту и регулярно проводить фонетические зарядки и различные упражнения, включая фонетические диктанты, для тренировки звуков. В данном аспекте особое внимание стоит уделить склонению, т.е. изменению слова по грамматическим категориям рода, числа и падежа. Особые трудности у иностранных студентов вызывает система падежей русского языка. Также большую сложность в изучении русского языка представляет для иностранцев синтаксис, а именно порядок слов. В предложении нет строго закрепленного места за тем или иным его членом. Такой порядок слов называется свободным или не фиксированным.

Следовательно, слова могут идти в различных последовательностях. Однако расположение слов в предложении зависит от цели высказывания, его коммуникативного задания. Поэтому важно научить иностранных студентов составлять предложение так, чтобы оно в полной мере соответствовало коммуникативной цели, а также, чтобы не менялся смысл и логика сказанного.

Лексический аспект. При изучении лексики русского языка у иностранных студентов могут возникнуть трудности, связанные с интерпретацией значения слова.

Данные проблемы чаще всего связаны с явлениями омонимии или многозначности. Поэтому данному аспекту следует уделить особое внимание и разъяснить студентам случаи употребления тех или иных омонимичных слов. Необходимо также отметить существенную проблему преподавания русского языка как иностранного - содержание и организация учебной деятельности. Преподаватель должен использовать актуальные для учащихся материалы (например, говоря о взрослой аудитории, важно подбирать учебные материалы, соответствующие профессиональной направленности учащихся).

Для того, чтобы обеспечить большую заинтересованность студентов в русском языке, необходимо использовать учебные материалы, содержащие в себе следующую информацию: сведения о языке, истории, культуре, образе жизни, а также сведения, имеющие отношение к профессиональной области учащихся и их интересам. Русский язык является одним из самых сложных языков в мире, поэтому при его изучении у студентов возникают некоторые трудности. Однако столкнуться с проблемами в процессе обучения могут не только студенты, но и преподаватели. Для того чтобы обучение иностранцев

русскому языку было эффективным, преподаватель должен грамотно организовать учебный процесс, учитывая типичные сложности, возникающие в ходе образовательного процесса.

Студентам необходимо научиться различать звуки на слух, т.е. важно поставить фонематический слух, поскольку существуют определенные трудности в распознании слова по звучанию (например, слова «глаз» и «глас» для иностранных студентов звучат одинаково).

Грамматический аспект. Русский язык является флективным языком, т.е. в выражении грамматических значений доминирует словоизменение при помощи флексий.

Таким образом, в изучении лексики русского языка у студентов в неязыковой среде встречаются проблемы, которые следует решать педагогу вместе с обучающимися.

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ТРУДНОСТИ ИЗУЧЕНИЯ РУССКОГО ЯЗЫКА В НАЦИОНАЛЬНЫХ ГРУППАХ И ПУТИ ИХ ПРЕОДОЛЕНИЯ

Аннотация: *В статье рассматривается о методах средства обучения, организации, уровня и характера студенческого коллектива. Каждое занятие сегодня должен быть одновременно обучающим, воспитывающим и развивающим. Думается, что прежде, чем зайти в аудиторию к студентам, каждому преподавателю нужно задуматься, как их сделать своими. Современный преподаватель обязан владеть искусством общения, искусством разговаривать со студентами, искусством завоёвывать внимание. Для студента каждое занятие должно быть открытием, поиском. Не опекать студента, а побуждать к мысли, к действию.*

Ключевые слова: *интерес молодёжи, сокращение русскоязычных, навыков говорения, чтения и аудирования, грамотности студентов, глубокому изучению языка.*

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DIFFICULTIES IN LEARNING RUSSIAN IN NATIONAL GROUPS AND WAYS TO OVERCOME THEM

Abstract: *The article discusses the methods of teaching, organization, level and character of the student body. Every lesson today should be educational, educative and developing at the same time. It seems that before entering the classroom to students, each teacher needs to think about how to make them their own. A modern teacher must master the art of communication, the art of talking with students, the art of winning attention. For a student, every lesson should be a discovery, a search. Not to patronize the student, but to encourage thought, action.*

Keywords: *interest of young people, reduction of Russian-speaking, speaking, reading and listening skills, literacy of students, deep study of the language.*

В последние годы в республике Узбекистан в высшие учебные заведения нефилологического направления поступают учиться студенты со слабыми знаниями русского языка. Причиной наблюдаемой ситуации можно назвать несколько факторов: уменьшение количества часов по предмету, отток русскоязычного населения и сужение круга общения на данном языке, сокращение русскоязычных средств массовой информации и т. д. Однако интерес молодёжи к изучению русского языка остаётся высоким.

При обучении русскому языку студентов неязыковых факультетов вузов основная задача заключается в выработке у студентов речевых умений, необходимых им в будущей работе по специальности, и в первую очередь, навыков говорения, чтения и аудирования. В развитии этих навыков и умений немаловажную роль играет обучение правильному интонированию русской речи, ибо интонационные ошибки искажают смысл высказывания. Нами был проведён эксперимент с целью выявления интонационной грамотности студентов. Анализ чтения вслух и пересказа заученных текстов позволил выделить следующие наиболее типичные интонационные ошибки: Немотивированное повышение голоса в конце русского повествовательного предложения, что противоречит звуковым нормам русского языка. Эта ошибка особенно заметна при репродуцировании безличных, назывных предложений. 1. Например: *Тишина. Вечер. Светает. Холодно.* Повышение голоса в конце повествовательного предложения искажает его интонационную организацию, придаёт ему оттенок незаконченности, нарушает естественность звучания. 2. Пауза в той части предложения, где она по смыслу не должна быть. Например: *Болельщики оказывают... большую помощь любимой команде. Два мальчика прыгнули... в воду и старались обогнать друг друга.* Подобные паузы нарушают интонационную структуру, а в отдельных случаях и смысловое содержание предложения. 3. Нарушение интонационной организации предложения в результате раздельного произношения предлогов и существительных. Например, предложения типа: *Мы с трудом сели в автобус, некоторые студенты произнесли: Ми сы трудом сели в автобус.* Эта ошибка объясняется интерферирующим влиянием узбекского языка, в котором отсутствует стечение согласных. 4. Неумение ставить логическое ударение. 5. Нарушение вопросительной интонации в предложениях без вопросительного слова, отсутствие которого определяет своеобразную интонацию вопросительного предложения. 6. Неверное интонирование восклицательных предложений, где вместо интонации радости, восхищения, негодовании и т. д. высказываемая мысль звучала лишь несколько громче, чем в повествовательных. 7. Отклонение от интонационных закономерностей русской речи в предложении с однородными членами, точнее отсутствие интонации перечисления, где каждый последующий однородный член произносится с повышением тона и с паузой. 8. Несоблюдение интонации при обращении. Особенно большую трудность представляют распространённые обращения, стоящие в начале предложения. Например: *Дорогие наши гости, мы очень рады вашему приезду.* 9. Неправильное интонирование причастных и деепричастных оборотов как синтагм, не допускающих какого - либо членения. Например: *Спортсмены, хорошо отдохнув в санатории, снова приступили к тренировкам.* Студенты, допуская паузы внутри причастных и деепричастных оборотов, не выделяют их соответствующей интонацией, что приводит к искажению смысла предложения: *Спортсмены, хорошо отдохнув...в санатори, снова приступили к тренировкам.*

Учителя русского языка должны воспитать у детей любовь и уважение к языку дружбы и единения народов мира, желание овладеть им так, чтобы он стал вторым родным языком для каждого. Создав на уроке речевые ситуации, учителя должны привлекать такой материал, чтобы у учащихся появилось желание рассказать о языке, о чём-то важном, что волнует их. Каждый урок в школе должен быть призван воспитать учащихся не только содержанием учебного материала, но и самой обстановкой. Ученику на всех уроках необходимо проявлять максимальную психологическую активность в усвоении содержания изучаемого материала. В этом заключается подлинная суть самостоятельности. Выполнения требований к уроку необходимо для совершенствования процесса обучения при условии творческого отношения учителя к своему труду, внимательному отношению к культуре речи учащихся. Важнейшим условием совершенствования урока, придания ему современного характера является осмысления образования и, в частности, знаний. Важны в обучении такие виды знаний, как факты, законы, теории. Стремление вооружить учащихся прикладными знаниями, т. е. знаниями о практическом знании изучаемого. Тем самым осуществляется одна из форм связи обучения с жизнью. Урок, как и весь учебный процесс не только обучает, но воспитывает всеми своими компонентами — содержанием.

Каждое занятие должен отличиться чёткой мировоззренческой направленностью. Цель школы — подготовка грамотного выпускника, сформировать сознательного гражданина с прочными нравственными качествами и убеждениями. На это должны работать все элементы учебно-воспитательного процесса.

Поэтому школам нужно готовить активного участника трудовой и общественной жизни страны, будущего предпринимателя. Важный фактор — формирование предметных компетенций, привитие любви к труду и уважение к людям труда, экономическое воспитание средствами русского языка. Задача эта не одного дня, и только за счет уроков труда и производственной практики ее не решить. Такая задача посильна только всему учебно-воспитательному процессу.

Глубокому изучению языка и языковых ситуаций помогает технология развития критического мышления через чтение и письмо. Разбор текста, поиск проблем и путей их решения, определение идеи автора и высказывание собственных, развивают не только кругозор учащихся, но и их речь, умение чётко и ясно выражать свои позиции. Связь с наукой должна проявляться в постоянном творческом поиске нового, необычного, наиболее действенного.

У каждого учителя свои методы обучения, методы преподавания. «Надо идти по принципу, от более простого к более сложному, от частного к общему».

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ПЕРЕСТРОЙКА ВЕНОЗНОГО РУСЛА ТАЗОВЫХ КОНЕЧНОСТЕЙ КРОЛИКА ПРИ СОЗДАНИИ РЕДУЦИРОВАННОГО КРОВООБРАЩЕНИЯ

Резюме: *В статье изучены перестройка венозного русла тазовых конечностей кролика при создании редуцированного кровообращения. При создании редуцированного кровообращения происходит значительная перестройка венозного русла оперированной конечности, выражающаяся в формировании как окольных мышечных путей, так и в развитии прямых анастомозов.*

Ключевые слова: *кролик, венозный сосуд, артериальное русло, венозное русло, бедро, венаграфия, анатомического препарирования.*

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RECONSTRUCTION OF THE VENOUS BED OF THE RABBIT'S PELVIC LIMBS WHEN CREATING REDUCED CIRCULATION

Abstract: *The article studies the reorganization of the venous bed of the rabbit's pelvic limbs when creating reduced circulation. When creating reduced circulation, there is a significant reorganization of the venous bed of the operated limb, expressed in the formation of both bypass muscle pathways and the development of direct anastomoses.*

Key words: *rabbit, venous vessel, arterial bed, venous bed, thigh, venography, anatomical preparation.*

Введение. Трудами многочисленных отечественных и зарубежных исследователей изучена динамика перестройки артериального русла при данном оперативном вмешательстве, изучение перестройки венозного русла при этом мало привлекало ученых [1.2]. В литературе имеется ряд указаний на существенные различия в физиологических реакциях кровеносных сосудов малого и большого круга кровообращения [5.6]. Прочность подкожной вены обеспечивает сопротивление венозной стенки к возрастающему внутрипросветному давлению, ее устойчивость к интрамуральному повреждению [3,4]. Упруго-эластические свойства венозной стенки характеризуют возможность подкожной вены восстанавливаться после деформации, а именно сохранять свою структуру даже в новых гемодинамических условиях [7]. В связи с этим, нами изучалось состояние венозного русла при создании редуцированного кровообращения.

Цель исследования. Изучить в эксперименте перестройка венозного русла тазовых конечностей кролика при создании редуцированного кровообращения.

Материалы и методы исследования. Эксперимент проведен на 32 кроликах обоего пола весом 2—2,5 кг., которым на правой конечности производилась резекция фрагментов бедренной, седалищной, и глубокой вены бедра, а также бедренной артерии над местом отхождения глубокой артерии бедра. Срок наблюдения от 1 до 90 дней. Изучение венозной системы проводилось методами внутри-пяточной венаграфии и анатомического препарирования.

Результаты исследования. Анализ полученных данных показал, что в течение первой недели выявляется густая сеть мелких венозных сосудов во всех органах оперированной конечности. Расширяется передняя вена бедра и увеличивается количество ее притоков. Мелкие венозные сосуды связывают дистальные концы резецированных вен с наружной, окружающей бедро, веной, хвостовой и дистальным отрезком глубокой вены бедра. Увеличивается количество мелких сосудов кожи и фасции и расширяются основные сосуды их. Через 15—30 дней количество мелких вен несколько уменьшается, расширяются отдельные вены, связывающие дистальные отрезки бедренной и седалищной вены с дистальным отрезком глубокой вены бедра, седалищной вены с хвостовой; бедренной вены с внутренней подвздошной; дистальный отрезок глубокой вены с наружной, окружающей, бедро, веной, с проксимальным отрезком седалищной и с внутренней подвздошный веной. Вены кожи и фасции по-прежнему расширены.

В последующем (45-60 дней) на фоне уменьшающегося количества мелких вен видны отдельные расширенные венозные сосуды, направление и топография которых соответствует таковым, описанным в предыдущем сроке. Выявляются анастомозы между резецированными отрезками седалищной и глубокой вены бедра. Одновременно наблюдаются расширенные вены кожи.

Через 75-90 дней мы наблюдали развитие коллатералей и анастомозов, топографию которых можно представить следующим образом: окольные пути, связывающие дистальный отрезок бедренной с глубокой веной бедра и с внутренней подвздошной веной проходят в передней и приводящей группах мышц.

Таким образом, при создании редуцированного кровообращения происходит значительная перестройка венозного русла оперированной конечности, выражающаяся в формировании как окольных мышечных путей, так и в развитии прямых анастомозов. Дистальный отрезок седалищной вены связан коллатералями, проходящими в задней и медиальной группах мышц, с глубокой веной бедра, с хвостовой веной и с внутренней подвздошной веной. Отток из дистального отрезка глубокой вены бедра происходит по сосудам, проходящим в передней и задней группах мышц. Первые связывают ее с наружной, окружающей бедро, веной, а вторые - с проксимальным отрезком седалищной и с внутренней подвздошной веной. Кроме того, выявляется анастомоз, связывающий дистальный и проксимальный отрезки седалищной вены.

Вывод: Развитие указанных сосудов происходит в течение 2-3 месяцев после операции. Компенсаторная перестройка сосудистого русла при редуцированном кровообращении, по-видимому, обеспечивает нормальную гемо циркуляцию, так как никаких патологических явлений в оперированной конечности мы не наблюдали.

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РАЗВИТИЕ КОММУНИКАТИВНЫХ НАВЫКОВ У ДЕТЕЙ

Аннотация: *Коммуникативные навыки – основа успешной социализации ребенка, его взаимодействия с окружающим миром. Развитие речи, способность выражать эмоции, вести диалог, понимать собеседника – все это формируется с раннего возраста и играет ключевую роль в дальнейшей жизни. В статье рассматриваются этапы развития коммуникации у детей, возможные трудности и эффективные методы их преодоления.*

Ключевые слова: *коммуникативные навыки, развитие речи, дошкольное воспитание, социализация, детская психология.*

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DEVELOPMENT OF COMMUNICATION SKILLS IN CHILDREN

Abstract: *Communication skills are the basis for successful socialization of a child, his interaction with the outside world. Speech development, the ability to express emotions, conduct a dialogue, understand the interlocutor - all this is formed from an early age and plays a key role in later life. The article discusses the stages of communication development in children, possible difficulties and effective methods for overcoming them.*

Keywords: *communication skills, speech development, preschool education, socialization, child psychology.*

Введение

Общение – один из главных инструментов взаимодействия человека с окружающим миром. Уже с первых дней жизни младенец учится выражать свои потребности с помощью мимики, жестов, звуков. По мере взросления его коммуникативные способности расширяются, и к 3-4 годам он начинает активно использовать речь для взаимодействия с окружающими.

Коммуникативные навыки необходимы ребенку не только для выражения своих потребностей, но и для выстраивания социальных связей, развития эмпатии, успешного взаимодействия со сверстниками и взрослыми. Они влияют на уровень самооценки, уверенность в себе, адаптацию в обществе.

Развитие общения у детей проходит поэтапно и зависит от множества факторов:

Семейного окружения (родительского общения, количества разговоров в семье).

Стиля воспитания (поощрение или подавление инициативы ребенка).

Индивидуальных особенностей психики (темперамент, врожденные склонности).

Социальной среды (наличие сверстников, участие в коллективных играх, посещение детского сада).

Недостаточное развитие коммуникативных навыков может привести к трудностям в адаптации в детском коллективе, возникновению конфликтов, замкнутости или агрессивному поведению. Именно поэтому родителям и педагогам важно понимать механизмы формирования этих навыков, а также уметь вовремя замечать и устранять возможные проблемы.

В данной статье будут рассмотрены этапы развития коммуникативных способностей у детей, основные трудности, с которыми они сталкиваются, и эффективные методы их развития.

1. Этапы развития коммуникативных навыков у детей

Развитие коммуникативных навыков у ребенка проходит постепенно, начиная с первых дней жизни и до школьного возраста. Коммуникация включает в себя не только речь, но и невербальные способы выражения мыслей: мимику, жесты, интонацию. Формирование этих навыков происходит под влиянием среды, в которой растет ребенок, а также его индивидуальных особенностей.

Развитие общения у детей можно разделить на несколько ключевых этапов, каждый из которых характеризуется определенными навыками и потребностями.

1.1. Дошкольный возраст (от рождения до 6 лет)

Младенческий период (0–1 год)

На этом этапе ребенок активно взаимодействует с окружающим миром, используя звуки, мимику, жесты. Он улыбается в ответ на внимание взрослых, начинает различать интонации, реагирует на голос матери.

Основные этапы формирования коммуникации:

0–3 месяца – плач как основной способ выражения потребностей.

3–6 месяцев – появление первых звуков («агу», гуление), реакция на голос взрослого.

6–9 месяцев – активное использование мимики, жестов (тянет руки к родителям, улыбается, хмурится).

9–12 месяцев – появление первых осмысленных слов («мама», «папа»), имитация звуков.

Как развивать:

Разговаривать с младенцем, использовать ласковые интонации.

Поддерживать зрительный контакт, улыбаться, повторять его звуки.

Отвечать на лепет, показывая, что общение двустороннее.

Ранний возраст (1–3 года)

Этот период характеризуется стремительным развитием речи. Ребенок начинает осваивать слова, накапливает словарный запас, учится строить фразы.

Основные особенности:

12–18 месяцев – появление первых коротких слов («дай», «кот», «баба»).

2 года – активное освоение новых слов, формирование первых предложений.

3 года – ребенок уже может строить связные фразы, участвовать в диалоге, понимать простые инструкции.

Поощрять самостоятельную речь, не перебивать ребенка.

Дошкольный возраст (3–6 лет)

На этом этапе ребенок активно взаимодействует с окружающими, осваивает ролевые игры, учится выражать эмоции словами. Он начинает понимать, что слова могут влиять на других людей, учится вести беседу, задавать вопросы.

Как развивать:

Игры на развитие речи: «Кто как говорит?», «Закончи предложение».

Ролевые игры («магазин», «больница»), моделирование диалогов.

Обсуждение эмоций: «Как ты себя чувствуешь?», «Что тебя обрадовало?».

1.2. Младший школьный возраст (6–10 лет)

К 6–10 годам коммуникативные навыки ребенка значительно усложняются. Если в дошкольном возрасте общение носило преимущественно ситуативный характер (в игре, на прогулке, в быту), то теперь оно становится более осознанным, направленным на выражение мыслей, аргументацию своей точки зрения и взаимодействие в коллективе.

На этом этапе дети осваивают правила вежливости, учатся слушать собеседника, выражать свое мнение, вести конструктивный диалог и разрешать конфликты. Они начинают понимать, что слова могут не только передавать информацию, но и оказывать влияние на окружающих – мотивировать, обижать, радовать, вызывать доверие.

1.2.1. Основные изменения в коммуникативном развитии

Расширение словарного запаса и усложнение речи

Дети начинают использовать более сложные грамматические конструкции.

Формируются навыки построения логически выверенных предложений.

Возникает потребность в точных формулировках, способности объяснять понятия, рассказывать истории.

Развитие письменной речи

Школьники осваивают не только устное, но и письменное общение (записки, сочинения, сообщения в чате).

Учатся выражать мысли не только голосом, но и через текст.

Формирование логического мышления в речи

Появляется способность рассуждать, анализировать ситуации.

Дети начинают осознанно использовать речь для убеждения, аргументации.

Развитие навыков слушания

Дети учатся внимательно слушать собеседника, не перебивать.

Развивается способность воспринимать длинные монологи (на уроках, в беседах со взрослыми).

2. Трудности в развитии коммуникативных навыков

Развитие коммуникативных навыков у ребенка происходит неравномерно и может сопровождаться различными трудностями. Одни дети легко осваивают речь и находят общий язык с окружающими, другие сталкиваются с проблемами в общении, что может привести к изоляции, замкнутости или конфликтам со сверстниками.

Трудности могут носить временный характер, обусловленный возрастными особенностями, или быть связаны с глубинными причинами – физиологическими, психологическими или социальными факторами. Важно своевременно выявлять проблемы и находить пути их решения, чтобы предотвратить их негативное влияние на развитие ребенка.

2.1. Физиологические и психологические факторы

Некоторые дети испытывают трудности в коммуникации из-за особенностей своего организма или нервной системы. Эти проблемы могут быть врожденными или приобретенными в процессе развития.

1. Нарушения слуха и речи

Одной из частых физиологических причин проблем с общением являются нарушения слуха. Если ребенок плохо слышит, ему сложно воспринимать речь окружающих и учиться говорить.

Признаки:

Ребенок не откликается на обращение.

Часто переспрашивает или не понимает с первого раза.

Искажает звуки и слова, путает схожие по звучанию слова.

Как помочь?

При подозрении на проблемы со слухом обратиться к сурдологу.

Развивать артикуляцию с помощью логопедических упражнений.

Использовать визуальные материалы, жесты, мимику для обучения речи.

Заключение

Развитие коммуникативных навыков у детей – это сложный и многоэтапный процесс, который играет ключевую роль в их социализации, когнитивном и эмоциональном развитии. Формирование способности к эффективному общению начинается с первых месяцев жизни и продолжается на протяжении всего детства, приобретая новые формы и углубляясь по мере взросления.

Коммуникативные навыки обеспечивают ребенку успешную адаптацию в обществе, формирование межличностных связей, развитие когнитивных функций и эмоционального интеллекта. Дети, обладающие развитой речью и способностью к взаимодействию с окружающими, легче адаптируются к школьному обучению, успешно налаживают дружеские отношения и справляются с возникающими конфликтами.

В статье были рассмотрены этапы развития коммуникации у детей, возможные трудности и их причины, а также эффективные методики, позволяющие развивать эти навыки. Важно понимать, что задержка в развитии речи, замкнутость, трудности в адаптации к коллективу – это не просто временные особенности, а сигналы, требующие внимания родителей и педагогов.

Научные исследования подтверждают, что оптимальной стратегией развития коммуникативных навыков является комплексный подход, включающий:

Игровые методы, способствующие естественному развитию речи и навыков диалога.

Сказкотерапию, развивающую способность к сочувствию и анализу социальных ситуаций.

Развитие эмоционального интеллекта, позволяющее ребенку осознавать и контролировать свои эмоции, а также понимать чувства окружающих.

Таким образом, процесс формирования коммуникативных навыков у детей требует системного и целенаправленного подхода со стороны семьи, образовательных учреждений и общества в целом. Родители должны активно вовлекать ребенка в общение, создавать среду, способствующую развитию речи и социальных взаимодействий. Педагоги – использовать современные методики обучения, направленные на развитие речевой активности, диалогического общения и эмоционального интеллекта.

В условиях стремительно развивающихся технологий важно не только развивать традиционные формы общения, но и учитывать влияние цифровых технологий, минимизируя их негативное воздействие. Живое общение, ролевые игры, чтение и обсуждение книг, совместная деятельность – всё это создает благоприятные условия для формирования полноценной личности, способной к эффективному взаимодействию в современном обществе.

В дальнейшем требуется продолжение научных исследований, направленных на изучение влияния цифровой среды на развитие речевой деятельности у детей, а также разработка новых педагогических методик, учитывающих современные реалии.

Развитие коммуникативных навыков – это не просто обучение речи, а формирование основ успешного взаимодействия ребенка с окружающим миром, что в будущем окажет влияние на его профессиональные и личные достижения.

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ҚЎЛ КАФТ ОЛДИ ВА КАФТ СУЯКЛАРИ СИНИШЛАРИНИНГ ТИББИЙ - ИЖТИМОИЙ ТАМОЙИЛЛАРИ, ДАВОЛАШ ВА РЕАБИЛИТАЦИЯ САМАРАДОРЛИГИ

Резюме: *Мақолада тиббий ва ижтимоий жиҳатларни ўрганиш ва қўл суяги синишларини даволашнинг энг самарали усулларини аниқлаш бўйича тадқиқотлар олиб борилган. 2020-2021-йилларда қўл панжа суяклари жароҳати билан амбулатор даволанган 18 ёшдан 74 ёшгача бўлган 242 нафар беморлар текширув ва даволаш натижалари ташкил этади.Қайиқсимон суяк синишида келиб чиқадиган асоратларида умумий меҳнат қобилиятининг 1/3 қисмидан ортиқ миқдорда йўқотишига олиб келади. Қайиқсимон суяк синишида энг самарали усул очиқ металлостеосинтез булган булса, кафт суяклари синишида эндопротезлаш яхши натижа беради.*

Калит сўзлар: *кафт олди суяклари, кафт суяклари, синишлар, оқибатлар, даволаш усули.*

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MEDICAL AND SOCIAL PRINCIPLES, EFFECTIVENESS OF TREATMENT AND REHABILITATION OF FOREARM AND PALM BONE FRACTURES

Abstract: *The article presents studies aimed at studying the medical and social aspects and identifying the most effective methods for treating hand fractures.*

The article presents the results of examination and treatment of 242 patients aged 18 to 74 years who were treated as outpatients with hand and wrist injuries in 2020-2021. Complications resulting from scaphoid fractures lead to the loss of more than 1/3 of the total working capacity. While open metal osteosynthesis is the most effective method for treating scaphoid fractures, endoprosthetics provides good results for metacarpal fractures.

Keywords: *metacarpal bones, palmar bones, fractures, consequences, treatment method.*

Ҳозирги вақтда бутун дунё мамлакатларида механик фактлари таъсири билан боғлиқ жарохатланишлар травматизм таркибида доимий равишда етакчи ўринни эгаллаб келмоқда, улар орасида таянч-ҳаракат тузилмалари жарохатлари 22% дан 43 %гачани ташкил этган бўлса, қўл панжа суякларининг зарарланиши умумий жарохатланишларнинг 25,4-28,4% ни ташкил қилади ва шундан 55% дан ортиғи очиқ жарохатларга тўғри келади. қўл панжа суяклари жарохатлари полиморфлиги ва суяк тузилмаларининг турли хилли деформацияси билан тавсифланиши, ушбу тузилмаларнинг анатомик ва функционал хусусиятларига бевосита боғлиқлиги билан изоҳланади. Қўл панжа соҳада силжувчан тузилмалар мавжудлиги ва бу соха суяклари хамда нейроваскуляр тузилмаларининг ўта мураккаб анатомо-топографик ўзаро боғлиқлиги, бундай жароҳатланишларга доир юқори технологияли, қулай, зарарлари кам бўлган ва жароҳатлар битгунга қадар тузилмаларни маҳкам ушлаб туришни таъминлайдиган ҳамда имкон қадар қисқароқ вақтда қўл панжа ҳаракатини тиклайдиган методларни ишлаб чиқишни тақоза этади [1; 8].

Қўл панда тузилмаларига етказилган жарохатлар жуда хилма-хил бўлиб, бу травма ҳажмига боғлиқ бўлади. МКБ-10 (10-чи қайта кўриб чиқилган касалликларнинг халқаро таснифи, 1995) " очиқ жароҳатлардан кафт олди ва қўл-панжа жароҳати (С60-С69) очиқ яра (тишланган, кесилган, йиртилган, тешилган), очиқ синиш (кафт олди, кафт, бармоқларнинг фалангалари), ўқ отар қуролдан синиши, эзиш (езиш), травматик ампутатсия (тўлиқ, қисман) [2].

Штутин О. А. (1999) очиқ қўл жароҳатлари таснифларини ишлаб чиқишда анатомик тузилмалар (I–VI), локализатсия (T1–T4) шикастланишларини, шунингдек қон айланишининг бузилиш даражасини (компенсатсияланган, субкомпенсатсияланган ва декомпенсатсияланган) ва терининг шикастланиш хусусиятини аниқлайди. Шикастланишнинг анатомик вариантларига қуйидагилар киради: I. уч фаланг бармоқларидан бирининг шикастланиши; II. 1-бармоқ жароҳатлари; III. Метакарпал суякларнинг шикастланиши; IV. Бармоқларнинг бир нечта шикастланиши; V. Кафт олди суякларининг шикастланиши, битта ёки иккала қўл ичидаги умумий (субтотал) жароҳатлар; VИ. Юмшоқ тўқималарнинг шикастланиши (нервлар, томирлар, юмшоқ тўқималарнинг нуқсонлари).

Замонавий шароитда қўл панжа суякларининг хилма хил синишлари ва жарохатдан кейинги асоратлар бўлган беморлар юқори технологик усулларда даволаш ҳамда реабилитация усулларини ишлаб чиқишга қаратилган илмий тадқиқотлар олиб борилмоқда [3; 7]. Шунга қарамсдан қўл панжа суяклари синган беморларни даволаш ва реабилитация қилиш замонавий травматология-ортопедия фанининг жуда долзарб муаммоси бўлиб қолмоқда, бу эса жарохатланганларнинг иш қобилиятига таъсир қилиб, травмадан кейинги асоратлари ривожланиш хавфи ортиб бормоқда [4].

Ишнинг мақсади: тиббий ва ижтимоий жиҳатларни ўрганиш ва қўл суяги синишларини даволашнинг энг самарали усулларини аниқлаш бўйича тадқиқотлар.

Тадқиқот материаллари ва муҳокамаси

Республика ихтисослаштирилган травматология ва ортопедия илмий-амалий тиббиёт маркази Самарқанд филиалида 2020-2021-йилларда қўл панжа суяклари жароҳати билан амбулатор даволанган 18 ёшдан 74 ёшгача бўлган 242 нафар беморлар текширув ва даволаш натижалари ташкил этди, шулардан 117 та ҳолат шахсий кузатувлар хисобланади. Текшириш ва даволаш амалдаги стандартга мувофиқ ўтказилди. Текширувдан ўтказилган ва даволанган беморларнинг 232 нафари эркак (95,9%) ва 10 нафари аёллар хисобланади (4,1%). Энг кўп жароҳатланишлар 18 ёшдан 40 ёшгача бўлганларда (83.9%) қайд этилган – 1- жадвал.

1-жадвал

Кафт оли ва кафт суяклари синиши бўлган беморларнинг жинси ва ёши бўйича тақсимоти

№	Ёш гурухи (ёш)	Пол			
		мужской	женский	Всего	
				Абс	%
1.	18-24	101	5	106	43,8%
2.	25-40	95	2	97	40,1%
3.	41-60	30	0	30	12,4%
4.	60-74	6	3	9	3,7%
	Всего	232	10	242	100,0%

Таъкидлаш лозимки, клиник материалда барча жабрланган беморларда қўл панжа суякларининг алоҳида синишлари кузатилди, чунки тадқиқотга фақат амбулатор шароитда даволанганлар киритилган. Маълумки, қўшма жарохатланишлар асосан стационар шароитда даволанади.

Қўл панжа суяклари синишларининг асосий қисмини 3 соатгачалик муддат (44,1%) ва 1-3 суткалик (35,5%), шунингдек 4-8 соатлик (10,1%) ташкил этади. Қолган холатларда 4-суткадан 22 ва ундан кўп муддатли синишлар 0,6 дан 5,0% гача ташкил этади. Кўриниб турибдики, беморларнинг аксарияти травманинг дастлабки соат ва кунларда тиббий ёрдамга мурожаат қилишган.

Кафт олди тузилмаларида кўпинча қайиқсимон суякнинг синишлари (79,1%) кузатилди, қолган суякларнинг синишлари 20,9% ҳолларда қайд этилди. 19 та ҳолатда жароҳатланган шахсларда кафт олди суяклари алоҳида синишлари, қолган 5 нафарида кафт жароҳатлари тананинг бошқа қисмлар жароҳати билан бирга кузатилган: билак суяклари синиши (2), бош мия травмаси (2), елка, сон ва болдир суяклари синишлари (1). Қайиқсимон суяк синишларини (20) тип ва турларга ажратишда, ушбу тузилмалар синиши таснифи асосида тақсимланди (Herbert, Russe) – 2 жадвал.

2-жадвал

Қайиқсимон суяк синишларининг типлари ва турлари

№ н	Синиқ типлари	Синиқ типости турлари	Миқдори
1.	А типи –стабил янги синишлар	А 1 – думбоқ синиши	0
		А 2 – танасининг тугалланмаган синиши (горизонтал, яримойсимон, вертикал)	14±0,006
2.	Б типи – ностабил янги синишлар	В 1 – дистал қийшиқ синиш	0
		В 2 – танасининг тўлиқ синиши	4±0,003
		В 3 – проксимал қисмнинг тугалланган синиши	0
		В 4 – қайиқсимон – перилунар синиш ва кафт олдининг чиқиши	2±0,001
3.	С типи –секин консолидация		0
4.	Д типи – исботланган битмаслик	Д -1 – фиброз битмаган	0
		Д – 2 – псевдоартроз	0
Жами 20			20±0,005

Жадвалдан кўриниб турибдики, қайиқсимон суякда А2 типидаги синишлар (танасининг тугалланмаган синиши) энг кўп кузатилган (расм 1) ва В2 типидаги (танасининг тўлиқ синиши) 2-расм ва В4 – типи (қайиқсимон суякнинг синиши қўл панжасининг перилунар чиқиши) билан нисбатан кам бўлди. (п≤0,005). Бошқа суякларда – яримойсимон ва илмоқсимон суяклар таналарининг синиши, нўхатсимон суякнинг асоратсиз синиши ва учқиррали суякнинг қирраси синиши қайд этилган.

Кафт олди суяклари синиши билан ўз вақтида тиббий ёрдамга мурожаат қилган 18 нафар беморлар 8 - 12 ҳафтагача вақт давомида консерватив усулда, гипс боғламада даволанди, натижалари ижобий бўлди, яъни қўл панжа ва билак-кафт бўғимининг функциялари 2-3 ой давомида тўлалигича тикланди ва уларда жароҳат оқибатида умумий меҳнат қобилиятининг турғун йўқотилиши қайд этилмади. Жароҳатдан сўнг бир неча ҳафта ва ой ўтгач тиббий ёрдамга мурожаат қилган 6 нафар беморларда жарроҳлик муолажаси қўлланилди, улардан 2 нафарида қўл панжа функцияси тикланди, 4 нафарида эса асоратлар кузатилиб, шунлардан 3 нафарида сохта бўғим ҳосил бўлган булса, 1 нафарида асептик некроз қайд этилди.

1-расм Рентгенография ўнг қўл панжаси, тўғри ва ён кўринишлари, қўлига таяниб йиқилган. Муддати -15 кун. Узоқ оқибат-тузалди.

2-расм. Рентгенография ўнг қўл панжаси, тўғри ва ён кўриншлари. Муддати - 22 к ун. Узоқ оқибат-билак-кафт бўғими контрактураси.

Натижалар шуни кўрсатадики, кафт олди суяги жароҳатлари таркибида қайиқсимон суяк синишлари устунлик қилади (79,1%). Қайд этилдики, ушбу тузилмада синишлар келиб чиқиши асосан, билвосита таъсирот, яъни қўл панжанинг букилиши билан боғлиқ бўлган, чунки бу ердаги сесамасимон суяклар силжувчанлик хусусиятга эга. Таъкидлаш керакки, кафт олди суякларининг синишларида беморлар одатда оғриқни сезмайдилар ёки оғриқ ва шиш аҳамиятсиз бўлиб, беморлар бунга эътибор бермайдилар. Бу ҳолат, уларда суяк усти пардасининг йўқлиги билан боғлиқ бўлиб, шунга кўра ҳатто ўз вақтида бажарилган операциядан сўнг ҳам, синишдан сунг салбий натижа кузатилиши мумкин ва асоратлар орасида сохта бўғим юзага келиши устунлик қилади [10].

Кафт олди суяклари синишлари оқибатида асоратлар кузатилмаган ҳолларда қўлни иммобилизация қилиш ўртача 8-12 ҳафта бўлиб, уларнинг оғирлик даражаси соғлиқнинг бузилиш давомийлиги асосида баҳоланди, яъни оқибат умумий меҳнат қобилиятининг турғун йўқотилишига олиб келмади. Сохта бўғим ва асептик некроз билан асоратланган қайиқсимон суякнинг синиқлари бўлган 4 беморда билак-кафт бўғимининг функциясини жиддий бузилишига олиб келган ва функционал мажбурий холат юзага келиши, жароҳат оғирлик даражасини аниқлашда инобатга олинмай қолиши ҳам мумкин. Ваҳоланки, бундай ҳолатларда, умумий меҳнат қобилиятининг турғун йўқотилиш миқдори чапда-35, ўнгда-40%и ташкил этади. Кафт суяклари анатомик тузилмаларини инобатга олиб, синиш ўрни бўйича қуйидаги гуруҳларга бўлинди (3-жадвал).

3-жадвал

Кафт суякларнинг анатомик тузилмалари бўйича синиш турлари

Суякларнинг анатомик қисмлари	Кафт суякларнинг анатомик қисмларидаги синиқлар сони					Абс.	%
	I	II	III	IV	V		
Дистал эпифиз (бўғим ичи)	1	0	1	2±0,001	1	5±0,001	2,3%
Бўйинчаси (бўғим олди)	6±0,003	14±0,004	9±0,004	21±0,007	57±0,02	107±0,007	49,1%
Тананинг дистал эпифизи (диафиз)	2±0,001	7±0,003	9±0,004	15±0,006	12±0,005	45±0,004	20,6%
Проксимал эпифиз (бўғим ичи)	14±0,004	5±0,002	8±0,003	12±0,005	19±0,006	58±0,004	26,6%
Комбинациялашган	0	1*		2**		3	1,4%
Жами	23±0,003	27±0,004	27±0,004	52±0,003	89±0,01	218±0,005	100%

3-жадвал маълумоти шуни кўрсатадики, аксарият ҳолларда кафт суяклари бўйинчасида бўғим олди (49,1%), бўғим ичи (расм 3), суякларнинг базал (26,6%) ва бўғим олди диафиз (20,6%) синиқлари кузатилди. Бошчанинг синиқлари ва комбинациялашган синиқлар сезиларли даражада кам учради (2,3 ва 1,4%).

3-расм. Рентгенограмма, туғри проекция, чап қўл панжаси, Бўй бараваридан йиқилиш. Муддати 3 с. Узоқ оқибати-қониқарли.

Кузатувларнинг ҳар бир кафт суякдаги синиқлар табиати бўйича тақсимланиши 4-жадвалда келтирилган

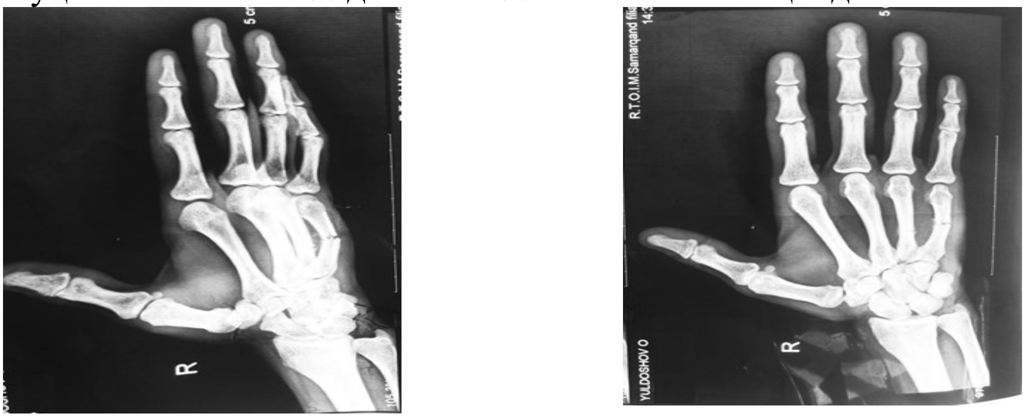
4-жадвал

Кафт суяклардаги синишларнинг табиати бўйича тақсимланиши

№	Синиқларнинг характери	Ҳар бир кафт суякдаги синиқлар сони ва %						
		I	II	III	IV	V	VI	Жами
1.	Субкапитал (дистал эпифизнинг бўғим юзаси соҳасидан ташқарида)	1	4±0,002	13±0,005	8±0,004	20±0,01	57±0,03	103±0,01 (47,2%)
2.	Парчаланган силжишсиз (барча қисмларда)	4±0,002	5±0,002	1	10±0,005	8±0,004	8±0,004	34±0,003 (15,6 %)
3.	Қийшиқ (диафиз соҳасида, асосида)	7±0,003	0	4±0,002	2±0,001	9±0,004	9±0,004	31±0,003 (14,2%)
4.	Кўндаланг (бошчасидан ташқари барча қисмларида)	1	1	4±0,002	5±0,002	9±0,004	6±0,003	26±0,003 (11,9%)
5.	Парчаланиб силжиган (барча қисмларда)	0	2±0,001	5±0,003	2±0,001	6±0,003	9±0,004	24±0,002 (11,0%)
Жами		13±0,003 (6,0%)	10±0,002 (4,6%)	27±0,005 (12,4%)	27±0,005 (12,4%)	52±0,01 (23,9%)	89±0,02 (40,8%)	218±0,004 (100%)

4-жадвал маълумоти шуни кўрсатадики, синиқлар: В-чи (40,8%) ва ИВ-чи (23,9%) кафт суякларда кўп кузатилган. Бошқа кафт суякларнинг синиши 4,6 дан 12,4% гачани ташкил этди. Кафт суякларнинг турли қисмларида қуйидаги синиш турлари фарқланди: қийшиқ (31), кўндаланг (26), силжимасдан парчаланган (34) ва парчаланиб силжишли (24). Қолган ҳолатларда (103) суякларнинг бўйинчасида субкапитал синиқлари қайд этилган ($p \leq 0,001$).

4-жадвалда кўрсатилган маълумотларга кўра, қийшиқ синиқлар асосан IV-V кафт суякларида кузатилган. Таъкидлаш кераккки, кафт суякларининг қийшиқ синишларига синиқ бўлакларининг силжиши хос бўлиб, даволаш жарроҳлик усулида амалга оширилади. Бунда синиқ юзалари катталиги сабабли, уларда битиш жараёни нисбатан тез ва асоратсиз кечади. Шунга кўра, мазкур ҳолатларда иммобилизация муддати 5-6 дан 6-8 ҳафтагачани ташкил этди, Кўндаланг синиқларда синиқ бўлаклари кўпинча орасига юмшоқ тўқималарнинг интерпозицияси кузатилади ва шунинг учун бу турдаги синишлар одатда жарроҳлик усулда даволанишни талаб қилади (расм 4). Бироқ, синишлар юзалари майдони кичик бўлганлиги туфайли, улардаги битиш жараёни секинлашади ва шунинг учун иммобилизация қилиш муддати ўртача 6-8 дан 8-10 ҳафтагача бўлди. Ушбу турдаги синишларда II, IV-V бармоқларда контрактуралар асосан консерватив даво натижасида 22 нафардан 8 нафар беморда кузатилган. Бармоқлар бўғимлари ҳаракатининг яққол ва жиддий чекланиши ҳолатларида умумий меҳнат қобилиятининг турғун йўқотилиши 10-15% дан 20-25%гачани ташкил қилди.



4-расм. Рентгенография ўнг қўл панжаси, тўғри ва ён кўринишда, Қўлини қаттиқ жисмга урилиши. Муддати 3-соат. Узоқ оқибат- қониқарли.

Парчаланиб силжиб синишлар барча кафт суякларда мавжуд бўлиб, кўпинча улар V ва II суякларда қайд этилган. Ушбу турдаги синиш одатда жарроҳлик даволанишни талаб қилади, чунки суяк бўлаклари ёпиқ репозиция усулига тусқинлик қилади. Шунга қарамай, 22 нафар бемор ёпиқ репозиция усулида консерватив даволанган. Натижада, улардан 8 нафарида 6-8 ҳафталик (2 ой) иммобилизациядан сўнг реабилитация даврида, яни икки ойга қадар II ва V бармоқларнинг оғир контрактуралари кузатилди ва ушбу ҳолат умумий меҳнат қобилиятини 20-25% га турғун йўқотилишига олиб келди. Парчаланган синишлар кўпинча III - IV ва V - кафт суякларда кузатилди. Ушбу турдаги синишларда одатда силжишлар йўқлиги сабабли консерватив даво амалга оширилади. Ушбу синиқларда битиш жараёни ижобий ва асоратсиз кечди ҳамда сезиларли бўлмаган қадоқ шаклланиши кузатилди. Шу муносабат билан иммобилизация қилиш муддати ўртача 4-6 ҳафта давом этади, умумий меҳнат қобилиятининг турғун йўқотилиш қайд этилмади. Субкапитал синишлар натижалари ўрганилганда 103 та холатдан 19 тасида В-бармоқ ёзилган контрактураси (букиш бурчаси 5°) ривожланганлиги кузатилди. Ушбу синишларда иммобилизация муддати 5-6 дан 6-8 ҳафтагача бўлди. Реабилитация даврида 19 та V-чи бармоқ контрактурасидан 15 тасида бартараф этилди, 4 та ҳолатда 2 ойлик реабилитациядан сунг, яна 1,5 ой ойларга қадар асорат сақланиб қолди, бунда умумий меҳнат қобилиятининг турғун турғун йўқотилиши миқдори 5-10%ни ташкил этди.

Юқоридаги маълумотларга асосан, кафт суяклари алохида қийшиқ ва силжишсиз синишларда оқибатни кутмасдан оғирлик даражасини ўрта

даража этиб белгилаш мумкин, чунки улар оқибати одатда контрактураларга олиб келмайди [5].
Кафт суяклари синишлари аксарият ҳолларда тумтоқ воситаларнинг бевосита зарба таъсир механизми натижасида келиб чиқиши, баъзи ҳолларда-синишлар билвосита механизм билан ҳам боғлиқ бўлиши ва уларда қисилиш натижасида ҳам синишлар намоён бўлиши қайд этилди. Бу ҳолатлари кафт суяклари синиш турларида ўз аксини топди.

Ҳозирги вақтда кафт олди синишларни даволашда консерватив ва жарроҳлик даволаш усуллари кенг қўлланилади [8;1;9]. Тадқиқотчиларнинг кўпчилигининг фикрига кўра, даволашда бир лахзали репозиция ва иммобилизация қилинади. Концерватив усулда даволаш кўп ҳолларда самарасиз бўлиб, 22-31,3% ҳолларда кафт суякларнинг деформацияси ва суяк бўлакларининг иккиламчи силжиши ва бармоқларда ҳаракатларнинг чеклаш каби асоратларга олиб келади. Хозирги кунда замонавий даволаш усулларидан бири жарроҳлик усулидир, яъни интрамедулляр ва компрессион-дистракцион остеосинтез, кафт суякларнинг синишини даволашнинг енг самарали усули бўлган комбинациялашган остеосинтез усули ҳисобланади.
Кафт суяклари ва фалангаларининг асоратланмаган силжишсиз синиши билан консерватив даволаш усуллари кўпинча (62,6-71,4%) гипсли лангета билан ташқи иммобилизация билан амалга оширилади. Шу билан бирга, синиқ бўлаклари репозиция қилингандан кейин ҳам (15,2-17,0% ҳолларда) синиқ юзасига юмшоқ тўқима (интерпозиция) кириб қолиши, бўғимлар контрактураси ривожланиши ҳамда синиқнинг иккиламчи силжишига олиб келади. Шу муносабат билан беморларни реабилитация қилиш муддати 4-7 ойдан ошади [6].
Кафт суяклари ва бармоқларнинг фалангаларининг асоратланмаган синиши бўлган 470 беморни реабилитация қилиш натижаларини таҳлил қилганда, гипсли лангет билан иммобилизация ва остеосинтез қилинганда ҳам иккиламчи силжиши эҳтимолини тўлиқ олди олмаслиги аниқланди. Муаллифларнинг фикрига кўра, кафт суяклар ва бармоқларнинг фалангаларининг бўғим ичи синиқларида суяк бўлакларининг иккиламчи силжишини олдини олиш учун синиқ бўлакларини остеосинтездан кейин ҳам компрессион-дистракцион остеосинтез фиксаторлари билан қўшимча маҳкамлаш самарали бўлади.
Кафт олди суягининг қайиқсион суягининг синиши силжишиз синиши концерватив усулда яъний гипсли боғламада даволанади. Гипснинг положенияси билак кафт бўғимини ёзилган (разгибанея) ҳолатда даволанади. Синиб силжиган бўлса очиқ металлостеосинтез операцияси қилинади.
Кафт ва бармоқ суякларида эса қийшиқ ва парчаланган синишлар асосан оператив усулда даволанади, кундаланг синишларда синиқ орасига юмшоқ тўқималар тушиб қолмаса (интерпозиция) конқерватив даволанади, қолган синиқлар одатда концерватив яъни бир лахзали репозиция қилиниб гипсли боғламада даволанади. Кўндаланг синиқлар иммобилизация муддати

одатдаги кечувдан бироз чўзилганлиги учун бармоқларда контрактуралар кузатилади. Буғим ичи синиқларида ҳам кўп ҳолларда бармоқларда контрактуралар кузатилади.

Қайиқсимон суяк синишида гипсли боғламада даволанганларининг ҳам кўпчилигида битмай қолиш ҳолатлари кузатилади. Битмаган синиқлар оператив усулда даволанади. Операция қилингандан кейин ҳам битмай қолиш ҳолатлари кузатилади. Ундан сунг аутосуяк киритилиб очиқметаллостеосинтез қилинади.

Хулоса:

Қайиқсимон суяк синишида келиб чиқадиган асоратларида умумий меҳнат қобилиятининг 1/3 қисмидан ортиқ миқдорда йўқотишига олиб келади. Бу асоратлар асосан билак-кафт бўғимида ҳаракатларнинг кескин чегараланиши ва мажбурий ҳолатига олиб келиши билан намоён бўлади. Кафт олди суякнинг бошқа асоратланмаган синишида соғлиқнинг тикланиш давомийлиги 8-12 ҳафта (3 ойгача)ни ташкил этди. Бармоқ фалангаларининг контрактура кўринишидага асоратлари умумий меҳнат қобилиятининг турғун йуқолиши 10% дан 25% гача ташкил этди, бу асоратлар асосан кафт суякларининг субкатипал, парчаланган ва кўндаланг синишларида кузатилди. Бундай ҳолларда, соғлиқни тикланиш муддати 3-3,5 ойни ташкил этди, асоратланмаган синишларда эса 4-6 ҳафта давом этди. Қайиқсимон суяк синишида энг самарали усул очиқ металлостеосинтез булган булса, кафт суяклари синишида эндопротезлаш яхши натижа беради.

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ОСОБЕННОСТИ ПОВРЕЖДЕНИЙ ПОЗВОНОЧНИКА И СПИННОГО МОЗГА

Резюме: *В статье проанализироване научно-учебная литература последных лет, посвященной к медико-социальным и судебно-медицинским аспектам травм позвоночника и спинного мозга от воздействия тупых механических факторов. Отмечена необходимость проведения целенаправленных исследований по наиболее актуальным и недостаточно изученным аспектам судебно-медицинских экспертиз спинномозговых повреждений по летальным и нелетальным исходам травмы, а также по совершенствованию реабилитации больных с отдаленными осложнениями повреждений этих структур. Подчеркивается, что для решения судебно-медицинских задач требуется разработка рекомендаций по установлениию механизма, давности и степени тяжести травм различных структур позвоночника и спинного мозга, а также по обоснованию танотогенеза травматической болезни спинного мозга. Также указано, что учитывая высокую степень инвалидности при отдаленных осложнениях позвоночно-спинномозговых повреждений, необходимо и разработка рекомендаций по реабилитации больных с определением оптимального её сроке.*

Ключевые слова: *повреждения, позвоночник, особенности, спиной мозг*

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FEATURES OF SPINE AND SPINAL CORD INJURIES

Abstract: *The article analyzes the scientific and educational literature of recent years devoted to the medical, social and forensic aspects of spinal cord and spinal cord injuries from the effects of blunt mechanical factors. The need for targeted research on the most relevant and insufficiently studied aspects of forensic medical examinations of spinal cord injuries for fatal and non-fatal outcomes of injury, as well as to improve the rehabilitation of patients with long-term complications of damage to these structures, is noted. It is emphasized that in order to solve forensic medical problems, it is necessary to develop recommendations on the establishment of the mechanism, prescription and severity of injuries to various structures of the spine and spinal cord, as well as on the justification of the tanotogenesis of traumatic spinal cord disease. It is also indicated that, given the high degree of disability in case of long-term complications of spinal cord injuries, it is necessary to develop recommendations for the rehabilitation of patients with the determination of its optimal duration.*

Key words: *injuries, spine, features, spinal cord*

Введение. Спинальная травма – механическое повреждение только невральных структур позвоночного канала (ПК): спинного мозга (СМ), его оболочек и сосудов, спинномозговых нервов. Травма позвоночного столба (ПС) – механическое изолированное повреждение позвонков, межпозвонковых дисков (МПД) и связочного аппарата.

Травма структур позвоночного столба и спинного мозга является одной из наиболее актуальных проблем в современной нейрохирургии, травматологии и нейрореабилитации, что вызвано осложнениями, сопровождающимися повреждениями как спинного мозга, так и его корешков, приводящие к грубым функциональным нарушением, ограничивающим самообслуживание, передвижение, нарушению тазовых функций, высокому уровню инвалидизации, а также социальной и психологической дезадаптации пациентов [5].

Цель исследования – анализ медико-социалных и судебно-медицинских аспектов повреждений структуры позвоночника и спинно мозга у лиц, пострадавщих (больных) от воздействия тупых предметов.

Материалы исследования. Изучена научно-учебная литература последных лет, посвященной к медико-социальным и судебно-медицинским аспектам травм позвоночника и спинного мозга от воздействия тупых механических факторов.

Результаты и обсуждение. По всему миру на сегодняшний день в условиях увеличения количества транспортных средств, строительства высотных зданий и сооружений и роста других факторов интенсификации темпов и ритма жизни, отмечается неуклонная тенденция к увеличению числа и тяжести сочетанных и множественных политравм, среди которых одними из наиболее тяжёлых являются позвоночно-спинномозговые повреждения в связи с чем травмы различных структур позвоночника и спинного мозга до сегодняшнего дня остаются наиболее актуальной медико-социальной, демографической и экономической проблемой для всех стран [11;13; 26].

Позвоночно-спинномозговая травма (ПСМТ) мирного времени в составе повреждений опорно-двигательного аппарата достигает до 7,8% [15], а при сочетанной травме поражения этих структур значительно возрастает и составляет до 14-20% [14], которые чаще всего (от 23 до 60%) сочетаются с травмой структуры груди [6]. ПСМТ также могут сочетаться с ЧМТ (24,6%), а также с травмой груди, конечностей (21,2%) и травмой груди и живота (9,3%) [2]. Сочетание ПСМТ с травмой других структур вызывает грубые нарушения функций различных систем, и они сами по себе, либо осложняясь полиорганной недостаточностью, могут стать причиной смерти пострадавших [7].

Комплексные клинико-лабораторные обследования больных с позвоночно-спинномозговыми повреждениями с применениями современных высокочувствительных способов позволили достаточно полно представить характер, объем и тяжесть повреждений в различных отделах и сегментах позвоночника, возникающих при определенных механизмах травмы. Полученные данные позволили систематизировать травмы различных структур позвоночника и спинного мозга, в зависимости от топографии, механогенеза, патоморфологии, а также от анатомо-механических особенностей поврежденного отдела или структуры [8; 11].

В последние годы совершенствованы методы, позволяющие своевременно определить конкретный характер повреждений структуры позвоночника, а также их локализаций и осложнений, позволяющий своевременно определить тактики и выбрать наиболее эффективный метод лечения, обеспечивающий благоприятный исход травмы [4; 9]. Несмотря на это, летальность и инвалидность в результате позвоночно-спинномозговых травм до сегодняшнего дня остается довольно высокой, особенно при поражениях шейного отдела, при котором у 25% пострадавших смерть наступает на местах травмы, а инвалидность достигает до 87-90% [1; 6; 8].

Повреждение морфологических структур СМ при травме ПС могут быть различной степени – ушибы, очаги размозжений и анатомический перерыв. Отёк СМ может развиться до такой степени, что невральные структуры могут заполнить весь просвет ПК с ущемлением СМ. После закрытых повреждений позвоночника с клиническими проявлениями поражения СМ обнаруживаются: поражение нейронов, очаги некроза и размягчения, набухание аксонов, дегенерация миелиновых оболочек; мелкоточечные, центральные гематомиелии, иногда интра- и экстрадуральные гематомы; отёк СМ; повреждение корешков [3].

Травмы шейного отдела позвоночника (ШОП) в структуре повреждений позвоночника составляет около 46%. Частота поражения этого отдела позвоночника объясняется высокой подвижностью и слабостью связочного аппарата её. Наиболее опасными являются шейно-затылочная травма (ШЗТ) и хлыстовая травма шеи, при которых чрезмерное растяжение или повреждения мышечно-связочных структур, даже в условиях отсутствия переломов позвонков, приводит к поражению спинного мозга [10]. В условиях хлыстовой травмы нижнешейный отдел позвоночника подвергается чрезмерному разгибанию, что приводит к ранней дегенерации дисков. При ПСМТ имеется высокий риск развития таких осложнений как пролежни (47-905), пневмонии (57%), урологические осложнение и сепсис (77%). В связи с чем в отдаленном периоде травмы могут наблюдаться смертельный исход до 27,9% случаев. Кроме того, при повреждениях спинного мозга чаще всего наблюдается инвалидность пострадавших. Развитию инвалидизации больных могут способствовать и ошибки, допущенные в процессе хирургического лечения ПСМТ [5]. Этих данных необходимо учесть в процессе СМЭ трупов с СТ и ПСМТ.

В соответствии с классификацией АО [7] в грудно - поясничном отделе позвоночника различают нижеследующие виды повреждений: перелом тела позвонка с раскалыванием (А2); взрывной перелом тела позвонка (А3); повреждение задних связок со смещением (В1); повреждение задних костных структур со смещением (В2); повреждение диска со смещением (В3); тип А + ротация (С1); тип В + ротация (С2) и ротация-сдвиг (С3). По данным Усикова В.Д. с соавт (2014), в условиях ДТП и падении чаще всего формируются взрывные переломы тела позвонка (28,9%) и тип А + ротация (18,45%), затем-повреждения задних костных структур со смещением (15,8%) и тип В + ротация (11,6%). При анализе 190 больных с повреждениями грудно-поясничного отдела позвоночника и спинного мозга, установлено что у 50,5% пострадавших имело место сочетанная, у 49,5% изолированная ПСМТ. В период до 24 часов после травмы было прооперировано 56,8% больных, остальным пострадавшим оперативное вмешательство проведено в раннем и промежуточном периодах травматической болезни. Для операций применялись дорсальные (вентральные) доступы на позвоночник и позвоночного канала. В поврежденный позвонок были введены транспедикулярные короткие винты. При этом, наряду с эффективной декомпрессией спинного мозга и его корешков, у 24,7% пациентов наблюдалось расправление тела пораженного позвонка с дефектом между телами репонированных позвонков. Таким образом, эффективность оперативных вмешательств имела зависимость от срока проведенных операций.

Основными обстоятельствами травмы в происхождениях позвоночно-спинномозговых повреждений от воздействия тупых предметов являются дорожно-транспортный травматизм, а также падения с высоты и различные другие противоправные действия (избиения, хулиганская травма и прочие). При этих обстоятельствах травмы, как правило, возникает необходимость проведения судебно-медицинской экспертизы для установления характера, давности, механизма, степени тяжести повреждений у лиц пострадавших, а при смертельном исходе травмы – установления основной и непосредственной причины смерти и обоснования танатогенеза травматической болезни спинного мозга в случаях смерти пострадавших в отдаленном периоде травмы.

Эти и другие судебно-медицинские аспекты позвоночно-спинномозговых повреждений до настоящего времени не систематизированы. В литературе относительно достаточно представлены данные о поражениях структуры позвонков при некоторых видах автомобильной травмы и при падениях. Однако в литературе не содержатся или недостаточно освящены сведения касаемо повреждений структур спинного мозга [12; 7; 5; 4].

Кроме того, в литературе весьма фрагментированы данные о судебно-медицинской квалификации степени тяжести (тяжесть вреда здоровью) при осложненных и неосложненных видах повреждений различных структур и сегментов позвоночника и спинного мозга. Остается недостаточно обоснованным механизм формирования повреждений определенных структур позвонков и спинного мозга, возникающих при различных видах и условиях воздействия тупых твердых предметов. Практически не разработаны критерии по установлению давности травм этих структур, а также по определению непосредственных причин смерти лиц пострадавших и обоснованию танатогенеза травматической болезни спинного мозга в случаях смерти пострадавших на разных периодах травматической болезни.

Выводы. Вышеизложенные данные указывают на необходимость проведения целенаправленных исследований по наиболее актуальным аспектам судебно-медицинских экспертиз спинномозговых повреждений по летальным и нелетальным исходам травмы, а также по совершенствованию реабилитации больных с отдаленными осложнениями повреждений этих структур. Для решения судебно-медицинских задач требуется разработки дополнительных рекомендаций по установлениию механизма, давности и степени тяжести травм различных структур позвоночника и спинного мозга. Также необходимо обоснования танотогенеза травматической болезни спинного мозга. Учитывая высокую степень инвалидности при отдаленных осложнениях ПСМП, необходимо разработка рекомендаций по реабилитации больных с определением оптимального её сроке.

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АТИПИЧНОЕ ТЕЧЕНИЕ ИНФАРКТА МИОКАРДА: КОМПЛЕКСНЫЙ ОБЗОР

***Аннотация**: Атипичное течение инфаркта миокарда часто наблюдается у женщин, пожилых пациентов и лиц с сахарным диабетом, что затрудняет диагностику и ведёт к задержке лечения. В статье представлен обзор клинических признаков, диагностических трудностей и исходов при нетипичных проявлениях инфаркта. Показано, что такие пациенты имеют более высокий риск осложнений и смертности из-за несвоевременного выявления. Отмечается важность клинической настороженности и применения расширенных диагностических стратегий для своевременной помощи.*

***Ключевые слова:** инфаркт миокарда, атипичное течение, нетипичные симптомы, диагностика, одышка, диабет, пожилые пациенты, женское здоровье, сердечно-сосудистые заболевания, острый коронарный синдром.*

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ATYPICAL COURSE OF MYOCARDIAL INFARCTION: A COMPREHENSIVE REVIEW

***Abstract:** An atypical course of myocardial infarction is often observed in women, elderly patients, and people with diabetes, which makes diagnosis difficult and leads to delayed treatment. The article provides an overview of the clinical signs, diagnostic difficulties, and outcomes of atypical heart attacks. It has been shown that such patients have a higher risk of complications and mortality due to late detection. The importance of clinical alertness and the use of advanced diagnostic strategies for timely care is noted.*

***Keywords:** myocardial infarction, atypical course, atypical symptoms, diagnosis, dyspnea, diabetes, elderly patients, women's health, cardiovascular diseases, acute coronary syndrome.*

Введение

Инфаркт миокарда (ИМ), широко известный как сердечный приступ, традиционно ассоциируется с болями в груди. Однако значительное число пациентов сталкиваются с атипичными симптомами, что затрудняет диагностику и приводит к задержке в лечении. Эти нетипичные проявления чаще встречаются у женщин, пожилых людей и больных сахарным диабетом. Понимание всего спектра атипичных симптомов инфаркта критически важно для своевременного оказания медицинской помощи и снижения летальности [1].

Методы

Был проведён систематический обзор научной литературы, посвящённой случаям атипичного проявления инфаркта миокарда. Источниками информации послужили базы данных PubMed, клинические регистры (в частности, FAST-MI 2010), тематические статьи и клинические отчёты за последние десять лет. Основное внимание уделялось работам, раскрывающим клинические характеристики, диагностические сложности и исходы у пациентов с нетипичным течением ИМ [2].

Результаты

Распространённость и демографические особенности

Согласно многочисленным клиническим исследованиям, атипичное течение инфаркта миокарда встречается в среднем у 11,6% пациентов, однако в некоторых когортах эта цифра может достигать 33,6%. В первую очередь к группе риска относятся женщины, пожилые пациенты и лица, страдающие сахарным диабетом. Например, в регистре FAST-MI 2010 было выявлено, что среди пациентов с атипичной симптоматикой значительное число составляли именно женщины и лица старше 75 лет.

Женщины, в силу гормональных и анатомо-физиологических особенностей, чаще сталкиваются с нестандартной клинической картиной ишемии миокарда. Кроме того, они склонны недооценивать симптомы, приписывая их стрессу или усталости. У пожилых людей, в свою очередь, нередко наблюдается снижение болевого порога, что приводит к «немому» течению инфаркта, без типичной ретростернальной боли. Пациенты с сахарным диабетом, особенно длительно болеющие, имеют высокий риск развития нейропатии, что также снижает чувствительность к боли и смещает клинические проявления в сторону неспецифических жалоб [3].

Клинические проявления

Наиболее частые симптомы атипичного инфаркта миокарда включают:

- **Одышку**, часто внезапного характера, без видимой связи с физической нагрузкой. Она может быть воспринята как обострение бронхолёгочной патологии, что затрудняет постановку диагноза [4].
- **Желудочно-кишечные симптомы** — тошнота, рвота, боли в верхней части живота, метеоризм и диспепсия. У части пациентов наблюдается клиническая картина, напоминающая острый гастрит или панкреатит.
- **Головокружение, обмороки и слабость** — особенно у пожилых, что может быть ошибочно интерпретировано как последствия нарушений мозгового кровообращения [5].

- **Боль вне грудной клетки**, например, в нижней челюсти, шее, спине, плечах или даже в области живота. Часто такая боль описывается пациентами как «тянущая», «ноющая», не связанная с дыханием или движением.

Кроме того, у ряда пациентов наблюдаются эмоциональные симптомы — беспокойство, панические атаки, ощущение «страха смерти» без какой-либо локальной боли. Эти проявления также могут быть приняты за психосоматические расстройства, особенно в условиях перегруженных приёмных отделений [6].

Диагностические трудности

Атипичное течение инфаркта часто становится причиной ошибочной или запоздалой диагностики. В одном клиническом случае 74-летняя женщина обратилась в приёмное отделение с жалобами на ощущение кома в горле и дискомфорт в области шеи, без болей в груди. Первоначально ей был поставлен диагноз фарингита. Только при ухудшении состояния и появлении изменений на ЭКГ удалось выявить обширный передний инфаркт миокарда. Подобные случаи подчёркивают необходимость не полагаться исключительно на «классическую» клиническую картину при оценке сердечно-сосудистого риска.

Ключевой проблемой является то, что пациенты с атипичной симптоматикой чаще всего поступают позже, реже получают своевременную тромболитическую терапию или чрезкожные коронарные вмешательства. Это напрямую влияет на клинические исходы [7].

Исходы и прогностическое значение

Анализ клинических исходов показывает, что пациенты с атипичным инфарктом миокарда имеют более высокий риск летального исхода, осложнений и повторных госпитализаций. По данным ряда исследований, внутрибольничная смертность среди пациентов с атипичным течением достигает 19,5%, по сравнению с 3,3% при типичных проявлениях. Также выше риск развития осложнений, таких как острая сердечная недостаточность, кардиогенный шок и аритмии.

Важно отметить, что при своевременном диагностировании атипичных форм инфаркта и правильной тактике лечения возможно достичь благоприятных результатов, сопоставимых с классическими случаями. Это подчёркивает необходимость формирования у врачей культуры клинического мышления, ориентированного не только на классические, но и на малозаметные, косвенные признаки инфаркта миокарда [8].

Обсуждение

Разнообразие клинических проявлений инфаркта требует комплексного подхода к диагностике. Медицинские работники должны сохранять высокую степень настороженности при наличии неспецифических жалоб, особенно у женщин, пожилых и диабетиков. Раннее применение ЭКГ, анализов тропонина и других диагностических методов существенно повышает вероятность своевременного выявления инфаркта и начала терапии [9].

Заключение

Атипичные формы инфаркта миокарда представляют собой серьёзную диагностическую проблему и сопровождаются повышенным риском летальных исходов. Повышение осведомлённости медицинского персонала, внимательное отношение к жалобам пациентов и быстрое проведение диагностических процедур имеют решающее значение для улучшения клинических результатов и спасения жизней [10].

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ИЗМЕНЕНИЕ ВНУТРИОРГАННЫХ КРОВЕНОСНЫХ СОСУДОВ ЖЕЛУДКА ПРИ ЗЛОКАЧЕСТВЕННЫХ ОПУХОЛЯХ И ЯЗВЕННОЙ БОЛЕЗНИ

Резюме: *В статье изучены изменение внутриорганных кровеносных сосудов желудка при злокачественных опухолях и язвенной болезни. В серозной оболочке выявлялась густая сеть капилляров четкими контурами. При язвенной болезни капилляры и мелкие сосуды часто были извиты, расширены и наполнены кровью, а сосуды среднего калибра - несколько сужены. При опухолях на венах встречались пальцевидные выпячивания, а у венул на границе с подслизистым слоем - шаровидные расширения.*

Ключевые слова: *кровеносные сосуды, стена, опухоль, желудка, язвенная болезнь, капилляры, сосудистая сеть, контуры сосудов, вены.*

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CHANGES IN THE INTRAORGAN BLOOD VESSELS OF THE STOMACH IN MALIGNANT TUMORS AND PEPTIC ULCER

Abstract: *The article studies changes in the intraorgan blood vessels of the stomach in malignant tumors and peptic ulcer disease. A dense network of capillaries with clear contours was revealed in the serous membrane. In peptic ulcer disease, the capillaries and small vessels were often tortuous, dilated and filled with blood, and medium-sized vessels were somewhat narrowed. In tumors, finger-shaped protrusions were found on the veins, and spherical expansions were found on the venules at the border with the submucosal layer.*

Keywords: *blood vessels, wall, tumor, stomach, peptic ulcer disease, capillaries, vascular network, vessel contours, veins.*

Введение. Проблема изучения язвенной болезни в настоящее время остается актуальной как в теоретическом, так и в практическом отношении. Несмотря на большое количество отечественных и зарубежных работ по данной теме, многие ключевые вопросы патогенеза, клиники и лечения остаются спорными и не до конца выясненными [1,6,7]. Последние десятилетия характеризуются значительными успехами в изучении различных аспектов патогенеза, клинического течения, диагностики и лечения язвенной болезни. В частности, нашли свое отражение результаты комплексных исследований, посвященных анализу патогенетического значения сосудистых изменений [4,5], клинических проявлений язвенной болезни при различной локализации процесса и сочетании ее с заболеваниями сердечно-сосудистой системы. До последнего времени изучение последовательности фаз заболевания, глубины поражения стенки желудка и двенадцатиперстной кишки, изменений гемодинамики и микроциркуляторного статуса при язвенной болезни, проводилось, как правило, обособленно; не изучалась динамика диагностируемых нарушений, а, следовательно, не предлагались пути адекватной патофизиологически обоснованной их коррекции [2,3].

Цель исследования. Задачей настоящей работы является изучение внутриорганных кровеносных сосудов желудка при злокачественных опухолях и язвенной болезни.

Материалы и методы исследования. Материалом исследования служили лица в возрасте от 28 до 61 года. На 25 желудках, резецированных по поводу язвенной болезни (11) и злокачественных опухолей (14) у лиц в возрасте от 28 до 61 года сосуды наливались окрашенными массами; желудок просветлялся в водных растворах глицерина. стенка его разделялась на слои, в которых и изучались сосуды под бинокулярным микроскопом МБС-2.

Результаты исследования. При опухолях сети капилляров в одних участках были гуще, в других - беднее. Некоторые мелкие сосуды отличались резкой извитостью и неровными, словно изъеденными, контурами; другие шли прямолинейно. Встречались и неизмененные сосуды. Артерии извивались меньше, чем вены. При опухолях на венах встречались пальцевидные выпячивания, а у венул на границе с подслизистым слоем - шаровидные расширения. В мышечной оболочке капиллярные сети были густы.

Мелкие и средние сосуды -главным образом, вены - имели извилистый ход. На протяжении одного и того же сосуда нередко отмечались чередования сужений и расширений. В целом, изменения вен в мышечной оболочке выражены ярче, чем артерий. У мелких в местах изгибов отмечались значительные расширения с уплотненными стенками. Многие сосуды имели неравномерный калибр, нечеткие, иногда изъеденные контуры, что чаще наблюдалось при раке. В глубоких слоях мышечной оболочки многие вены были расширены. От сосудистой сети вокруг опухоли к последней направлялись тонкие, с неравномерным калибром, сосуды; затем они как бы обрывались и дальше не выявлялись. Сосуды подслизистого сплетения в отдельных случаях были резко извиты и расширены. Мелкие четкообразные вены подслизистого слоя, давали богатые сети (обычно при опухолях) или были немногочисленными. Наряду с ними встречались тонкие прямые артериолы и венулы. Очень изменялись сосуды слизистой оболочки. На границе с опухолью капилляры не наливались вовсе или выявлялись островками, были извиты, местами слегка расширены или, наоборот, сужены на всем протяжении или частично. Зона опухоли ограничивалась густой сетью сосудов. На периферии опухоли выявлялись разорванные петли сосудистых сетей и как бы обломанные артериолы и венулы. Мелкие и средние сосуды извиты в виде клубков, спиралей, петель. Встречались участки слизистой, бедные сосудами. Контуры сосудов всех калибров были нередко нечеткими, изъеденными. Часто встречались вены, резко расширенные на всем протяжении или, наоборот, отдельными участками. Можно думать, что в одних случаях сосуды подвергаются патологическим изменениям тотально, а в других - фрагментарно.

Нередко наблюдались значительно суженные или, наоборот, расширенные вены. Сопровождаемые ими артерии изменены меньше.

Вывод. Изменений сосудов, характерных для язвенной болезни или злокачественных опухолей, за исключением наличия густой сосудистой сети вокруг опухоли, богатых сетей мелких подслизистых вен с множественными шаровидными и веретенообразными расширениями, неравномерного выявления тончайших сетей в серозной оболочке и частого переполнения их кровью с наличием многочисленных экстравазатов, - пока выявить не удалось. Можно полагать, что различные этиологические факторы вызывают одинаковые изменения в сосудах.

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ҲОМИЛАДОРЛИКДА АРТЕРИАЛ ГИПЕРТЕНЗИЯЛАРНИНГ КЕЧИШИ

Аннотация. Ҳомиладорлик давридаги артериал гипертензиялар – бу перинатал ва модирлик хавфини оширадиган жиддий ҳолатлардан биридир. Ушбу мақолада гипертензив ҳолатларнинг турлари, патогенези, хавф омиллари ва клиник кечишининг хусусиятлари таҳлил қилинди. Шунингдек, сўнгги йилларда қўлланилаётган диагностик ва даволаш ёндашувлари ҳам кўриб чиқилди. Мақола ҳомиладор аёлларда юзага келадиган преэклампсия, гестацион гипертензия ва улар билан боғлиқ асоратларни аниқлаш ва бартараф этишга бағишланган.

Калит сўзлар. Ҳомиладорлик, артериал гипертензия, преэклампсия, гестацион гипертензия, диагностика, патогенез.

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THE COURSE OF ARTERIAL HYPERTENSION DURING PREGNANCY

Abstract:*Arterial hypertension during pregnancy is one of the serious conditions that increase both perinatal and maternal risks. This article analyzes the types of hypertensive disorders, their pathogenesis, risk factors, and clinical characteristics. It also reviews recent diagnostic and therapeutic approaches. The focus is on identifying and managing preeclampsia, gestational hypertension, and related complications in pregnant women.*

Keywords:*Pregnancy, arterial hypertension, preeclampsia, gestational hypertension, diagnosis, pathogenesis.*

КИРИШ. Артериал гипертензия ҳомиладорликда энг кўп учрайдиган патологик ҳолатлардан бири бўлиб, у тахминан 5–10% аёлларда рўй беради. Бу ҳолат модирлик ва перинатал ўлимнинг асосий сабабларидан биридир [1]. Гипертензив ҳолатлар – гестацион гипертензия, преэклампсия, хроник гипертензия ва хроник гипертензия билан уйғунлашган преэклампсия кўринишида намоён бўлади [2].

Ҳомиладорликдаги гипертензия турлари. Гипертензив ҳолатлар турли клиник шаклларда намоён бўлади:

- Гестацион гипертензия – 20 ҳафтадан кейин пайдо бўлиб, белги- юкори қон босим;
- Преэклампсия – гипертензия + протеинурия ёки бошқа орган функцияси бузилиши;
- Эклампсия – преэклампсияга қўшилган тиришишлар;
- Хроник гипертензия – ҳомиладорликдан олдин мавжуд бўлган АГ.

Преэклампсия юрак-қон томир, буйрак ва марказий асаб тизимида функционал бузилишларга олиб келиши мумкин [3].

Патогенезнинг замонавий тушунчаси . Ҳомиладорликдаги гипертензив ҳолатлар, айниқса преэклампсия, патогенези ҳали тўлиқ аниқ эмас, бироқ сўнгги тадқиқотлар бир неча асосий механизмларни очиб бермоқда.

Плацентар инвазиянинг етарли эмаслиги. Преэклампсиядаги илк патогенез босқичи трофобластик инвазиянинг бузилиши билан боғлиқ. Нормал ҳомиладорликда трофобластик ҳужайралар спирал артерияларга кириб, уларни кенгайтиради ва қон айланишини оширади. Аммо преэклампсияда бу жараён тўлиқ рўй бермайди. Натижада, плацентар гипоперфузия ва гипоксия юзага келади [4].

Ангиогенетик дисбаланс. Сўнгги тадқиқотларда, sFlt-1 (soluble fms-like tyrosine kinase 1) ва PlGF (placental growth factor) ўртасидаги мувозанат муҳим деб топилган. Преэклампсияда sFlt-1 даражаси ортиб, PlGF камаяди, бу эса эндотелиал дисфункция ва яллиғланишни кучайтиради [5].

Эндотелиал дисфункция ва яллиғланиш. Плацентар гипоксия эндотелиал ҳужайраларда оксидатив стресс ва яллиғланишни келтириб чиқаради. Бу, ўз навбатида, вазоконстрикцияга ва тромбоцитлар фаоллашувига олиб келади, бу эса HELLP-синдромга ва DIC (диссеминацияланган интраваскуляр коагуляция) каби асоратларга сабаб бўлади [3].

Иммунологик омиллар. Ота томонидан мерос бўлган HLA-антигенларига она организмининг иммунологик жавоби ҳам патогенезда роль ўйнайди. Иммунологик носоғлом жавоб трофобластик инвазияга тўсқинлик қилиши мумкин [9].

Клиник белгилари ва асоратлар .Ïðåýêëàìïñèÿ áåëãèëàðèíèíã ðèâîæëàíèøè îäàòäà ҳîìèëàäîðëèêíèíã èêêèí÷è ÿðìèäà, 20 ҳàôòàäàí êåéèí êóçàòèëàäè. Ýíã êўï ó÷ðàéäèãàí áåëãèëàðè:

- Юкори артериал босим (>140/90 мм.рт.ст.);
- Протеинурия (>300 мг/сутка ёки ≥1+ тест-сиёракда);
- Башарий симптомлар: бош оғриғи, кўриш бузилиши (мисол учун: «чақноқлар»), кўнгил айниши, қоронғулашиш;
- Ўткир оғриқ – эпигастрийда ёки ўнг қорин соҳасида оғриқ HELLP-синдром аломати бўлиши мумкин [6].

ДИАГНОСТИКА ВА МОНИТОРИНГ: АРТЕРИАЛ БОСИМ НАЗОРАТИ – ТОНОМЕТРИЯ;

Лаборатор ва инструментал белгилари: Тромбоцитопения (<100×10⁹/л); Креатининнинг ортиши (>1.1 мг/дл); АСТ, АЛТ кўтарилиши (>2 маротаба юқори); LDH кўтарилиши – гемолиз аломати; Протеинуриянинг ўлчаниши – сийдикда протеин/креатинин нисбати >0.3 [7]. Плацентар функция биомаркерлари: PlGF, sFlt-1 (замонавий усуллар) [8]; УЗИ – ҳомиланинг ўсиш динамикаси ва допперография.

Асоратлар. Она томонидан: Эклампсия (тиришишлар, кома ҳолати); HELLP-синдром (гемолиз, жигар энзимлари ошиши, тромбоцитопения); буйрак етишмовчилиги; ўпка шиши;интракраниал қон кетиш.

Ҳомила томонида: Бачадон ичида ўсишдан ортда қолиш (IUGR);мцддатдан олдин туғрук;плацентанинг эрта ажралиши; антенатал ўлим [2].

Замонавий даволаш усуллари. **Ôàðìàêîòåðàïèÿ**:Метилдопа, лабеталол, нифедипин – АГни барқарорлаштиришда; Магний сульфати – эклампсияни олдини олишда [9].

Акушерлик стратегияси: 37 ҳафталикда туғруқни режалаштириш; Агрессив ҳолларда 34 ҳафтада кесарча билан туғрук.

Профилактика: Аспирин (81–150 мг/кун) хавф гуруҳига кирувчи аёлларга; Калций қўшимчалари (кислород этишмовчилиги юксак ҳудудларда) [10].

ХУЛОСА. Ҳомиладорликдаги гипертензив ҳолатлар – бу модир ва бола саломатлигига жиддий таҳдид солувчи клиник муаммодир. Своевременная диагностика, мониторинг ва тўғри терапия модирлик ва перинатал асоратларни олдини олади.

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СУРУНКАЛИ БУЙРАК ЕТИШМОВЧИЛИГИ: ПАТОГЕНЕЗИ, ДИАГНОСТИКАСИ ВА ДАВОЛАШ УСУЛЛАРИ

Аннотация. *Сурункали буйрак етишмовчилиги (СБЕ) — бу буйрак фаолиятининг аста-секинлик билан пасайишига олиб келадиган, турли этиологик омиллар таъсирида ривожланадиган синдром ҳисобланади. Ушбу мақолада СБЕнинг патофизиологияси, клиник белгилари, замонавий диагностика усуллари ва даволаш стратегиялари батафсил ёритилган. Шунингдек, ривожланган ва ривожланаётган мамлакатларда қўлланилаётган гемодиализ ва трансплантация усулларининг натижаларига баҳо берилган. Илмий манбаларга асосланган ҳолда, соғлиқни сақлаш тизимида СБЕга қарши курашиш бўйича профилактик чоралар ҳам кўриб чиқилган.*

Калит сўзлар: *Сурункали буйрак етишмовчилиги, нефропатия, гемодиализ, гломерулосклероз, креатинин, эритропоэтин, ренопротекция.*

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CHRONIC KIDNEY DISEASE: PATHOGENESIS, DIAGNOSIS, AND TREATMENT METHODS

Abstract: *Chronic kidney disease (CKD) is a syndrome characterized by the gradual decline of renal function due to various etiological factors. This article provides a detailed overview of the pathophysiology, clinical manifestations, modern diagnostic methods, and therapeutic strategies for CKD. It also evaluates the outcomes of hemodialysis and kidney transplantation practices in both developed and developing countries. Based on scientific sources, preventive measures within healthcare systems to combat CKD are also discussed.*

Keywords: *Chronic kidney disease, nephropathy, hemodialysis, glomerulosclerosis, creatinine, erythropoietin, renoprotection.*

Кириш. Сурункали буйрак етишмовчилиги (СБЕ) — бу 3 ой ёки ундан кўп давом этадиган, буйрак тузилмаси ва функциясининг бузилиши билан кечадиган ҳолат бўлиб, эпидемиологик жиҳатдан глобал аҳамият касб этади.

Жаҳон соғлиқни сақлаш ташкилоти маълумотларига кўра, дунё бўйича ҳар 10 кишидан бири турли даражадаги СБЕ билан яшаётгани қайд этилган [1]. Умумбашар муаммолар қаторида турган бу касалликнинг аниқ сабаблари, эрта ташхис ва самарали даволаш усулларини ўрганиш долзарб масаладир.

Патогенез ва этиология. Сўнгги тадқиқотлар шуни кўрсатмоқдаки, СБЕ фақат нефрон йўқотилиши натижасидагина эмас, балки иммунологик, эндотелиал ва микробиотага боғлиқ механизмлар орқали ҳам ривожланади.

Иммунитет ва яллиғланиш ролининг ошиши. СБЕда илтиҳобий цитокинлар (IL-6, TNF-α, CRP) даражаси юқори бўлиб, улар буйрак тўқималарига заҳарли таъсир кўрсатади. Бу ҳолат "subclinical inflammation" деб аталади ва касалликнинг прогрессиясига олиб келади [3,10].

Фибрознинг молекуляр асослари. Transforming Growth Factor β (TGF-β1) ҳаддан ташқари фаоллашиши интерстициал фибрознинг асосий сабабларидан бири ҳисобланади. Буни нафақат биопсия, балки суюқ биомаркерлар орқали ҳам баҳолаш имкони пайдо бўлди [2].

Эндотелий дисфункцияси. СБЕда эндотелиал ҳужайралар ҳам зарарланиб, оксидатив стресс орқали капиллярлар атрофида фиброзни кучайтиради. Бу процесс эндотелийга хос маркерлар (sVCAM-1, ADMA) орқали баҳоланади [1].

Микробиота ва “уремик токсинлар”. Сўнгги йиллардаги маълумотларга кўра, СБЕ беморларида ичак микробиомаси ўзгаради ва инденилсульфат, п-крезол сульфат каби уремик токсинлар пайдо бўлади. Улар буйракни янада заҳарлайди ва яллиғланишни кучайтиради [9,10].

Диагностика усулларидаги сўнгги ютуқлар. Цифрлаштирилган GFR баҳолаш усуллари. СБЕ даражасини баҳолашда янги CKD-EPI 2021 формуласи қўлланила бошланди. Бу формула креатинин билан бир қаторда цистатин-С маркерини ҳам ҳисобга олади, шу орқали GFR аниқлиги ошади [6].

Цистатин C ва β2-микроглобулин. Цистатин C — буларнинг барчасидан мустақил GFR кўрсаткичи бўлиб, сўнгги йилларда ёш, жинс, ирқ омилларидан кам таъсирланиши туфайли афзал деб топилган [4,11].

Жонли биомаркерлар асосида скрининг.

Суюқ биопсия технологиялари орқали TGF-β1, KIM-1, NGAL каби уремик фиброз ва илтиҳоб биомаркерларини аниқлаш орқали СБЕнинг эрта босқичдаги ташхисига эришиш мумкин бўлди [2].

МРТ ва УЗИ–эластография. Интерстициал фиброзни баҳолашда эластография (сўнгги УЗИ технологияси) ва контрастсиз МРТ усуллари клиник амалиётга киритилмоқда. Булар инвазив биопсияга муқобил ҳисобланади [8].

Даволаш ва ренопротектив ёндашувлар. СБЕни даволашнинг асосий мақсади — касалликнинг суринкали кечишини секинлаштириш ва асоратларни олдини олишдир. Даволаш усуллари қуйидагиларни ўз ичига олади:Этиотроп терапия: асосий касалликни назорат қилиш (масалан, диабет ёки гипертония) [7]. Ренопротекция: АПФ ингибиторлари ва АРА II қўллаш — нефропатиянинг ривожланишини секинлаштиради.

Гемодиализ ва перитонеал диализ: буйрак функцияси 15 мл/мин/1.73 м²дан паст бўлганда кўрсатилади.

Буйрак трансплантацияси: СБЕнинг охирги босқичида энг самарали даво усули ҳисобланади [8].

Хулоса. СБЕ — жамиятда ногиронлик ва ўлим ҳолатларининг асосий сабабларидан бири бўлиб, уни эрта аниқлаш, мақсадли даволаш ва самарали профилактика чоралари орқали касалликнинг кечишини назорат қилиш мумкин. Замонавий диагностика ва ренопротектив усуллар СБЕ билан курашишда муҳим аҳамият касб этади.

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ИНСТРУМЕНТЫ ОПТИМИЗАЦИИ ФИНАНСОВОЙ СТРАТЕГИИ КРУПНЫХ КОРПОРАЦИЙ В КИТАЕ (НА ПРИМЕРЕ «PETROCHINA»)

Аннотация: *В статье исследуются инструменты оптимизации финансовой стратегии крупных китайских корпораций на примере компании «PetroChina». Автор анализирует уникальные механизмы управления капиталом, инвестиционной политики и риск-менеджмента, характерные для китайской модели корпоративного управления, сочетающей рыночные подходы с государственным регулированием. Особое внимание уделяется адаптации финансовых инструментов к специфике нефтегазового сектора, включая использование цифровых технологий и международных финансовых практик. Исследование демонстрирует, как «PetroChina» достигает финансовой устойчивости через диверсификацию источников финансирования, стратегические инвестиции и интеграцию с национальными программами развития. Результаты работы имеют практическую ценность для корпораций других стран, особенно в условиях глобальной экономической нестабильности.*

Ключевые слова: *Финансовая Стратегия, Китайские Корпорации, Управление Капиталом, Инвестиционная Политика, Государственное Регулирование.*

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TOOLS FOR OPTIMIZING THE FINANCIAL STRATEGY OF LARGE CORPORATIONS IN CHINA (USING PETROCHINA AS AN EXAMPLE)

Abstract: *This article examines the tools used to optimize the financial strategy of large Chinese corporations, using PetroChina as an example. The author analyzes the unique mechanisms of capital management, investment policy, and risk management characteristic of the Chinese model of corporate governance, which combines market approaches with state regulation. Particular attention is paid to the adaptation of financial instruments to the specifics of the oil and gas sector, including the use of digital technologies and international financial practices. The study demonstrates how PetroChina achieves financial stability*

through diversification of funding sources, strategic investments, and integration with national development programs. The results of the study are of practical value to corporations in other countries, especially in the context of global economic instability.
Keywords: *Financial Strategy, Chinese Corporations, Capital Management, Investment Policy, Government Regulation.*

Введение

В условиях глобализации экономических процессов и усиления конкуренции на международных рынках финансовые стратегии корпораций приобретают ключевое значение для обеспечения устойчивого развития. Особый интерес представляет опыт Китая, где крупные компании успешно сочетают рыночные механизмы с государственным регулированием, демонстрируя высокие темпы роста даже в условиях нестабильности мировых финансовых систем.[1] Финансовая стратегия становится не просто инструментом управления ресурсами, а важнейшим элементом корпоративной политики, определяющим долгосрочную конкурентоспособность.

Целью данного исследования является анализ инструментов оптимизации финансовой стратегии китайских корпораций, позволяющих им адаптироваться к динамичным изменениям глобальной экономики. Акцент делается на методы, обеспечивающие баланс между прибыльностью, ликвидностью и минимизацией рисков. В отличие от западных моделей, китайские компании активно используют специфические механизмы, такие как тесное взаимодействие с государственными финансовыми институтами, стратегическое планирование с учетом пятилетних планов развития экономики, а также гибкое управление заемным капиталом.

Научная новизна работы заключается в систематизации подходов к оптимизации финансовой стратегии именно в контексте китайской корпоративной модели, где сочетаются рыночные и административные методы управления. Внимание уделяется не только классическим финансовым инструментам, но и особенностям их применения в условиях высокой роли государственного сектора и специфики национального рынка капитала. Это позволяет выявить уникальные механизмы, которые могут быть полезны для изучения в других странах с переходной или смешанной экономикой.

Актуальность темы подтверждается растущим влиянием китайских корпораций на мировую экономику, а также необходимостью поиска новых эффективных решений в области корпоративных финансов. Данное исследование вносит вклад в понимание того, как крупные компании в Китае достигают финансовой устойчивости, и какие уроки могут быть извлечены для применения в других регионах, включая Россию.

Теоретические основы финансовой стратегии корпораций.

Финансовая стратегия корпорации представляет собой системный подход к управлению финансовыми ресурсами, направленный на достижение долгосрочных целей компании в условиях изменяющейся внешней среды. В научной литературе под финансовой стратегией принято понимать совокупность методов и инструментов, обеспечивающих устойчивое развитие предприятия через оптимизацию структуры капитала, инвестиционной деятельности и управления рисками. Оптимизация финансовой стратегии предполагает не только максимизацию прибыли, но и баланс между доходностью, ликвидностью и финансовой стабильностью, что особенно важно для крупных корпораций, функционирующих в условиях высокой волатильности рынков.

Ключевые инструменты финансовой стратегии могут быть классифицированы по нескольким направлениям. Инвестиционная политика включает выбор проектов, оценку их эффективности и распределение капитала с учетом стратегических приоритетов компании.[2] Управление структурой капитала предполагает определение оптимального соотношения собственных и заемных средств, минимизацию стоимости финансирования и поддержание финансовой гибкости. Риск-менеджмент охватывает методы хеджирования валютных, кредитных и рыночных рисков, а также разработку стратегий, позволяющих компании адаптироваться к кризисным ситуациям. В современных условиях особую значимость приобретают цифровые технологии, такие как использование больших данных и искусственного интеллекта для прогнозирования финансовых показателей и автоматизации принятия решений.

Финансовые стратегии китайских корпораций обладают рядом особенностей, обусловленных спецификой национальной экономики. Важнейшим фактором является активное участие государства, которое не только регулирует ключевые отрасли, но и выступает стратегическим инвестором для многих крупных компаний. Это приводит к формированию гибридных моделей управления, сочетающих рыночные механизмы с элементами централизованного планирования. Еще одной отличительной чертой является ориентация на долгосрочное развитие, что проявляется в приоритете стратегических проектов над краткосрочной прибыльностью, а также в высокой степени диверсификации бизнеса. Кроме того, китайские корпорации активно используют механизмы государственно-частного партнерства и специальные финансовые инструменты, такие как целевые кредиты под национальные проекты, что усиливает их конкурентоспособность на международной арене.

Методология исследования

В рамках настоящего исследования применяется комплексный методологический подход, позволяющий осуществить всесторонний анализ инструментов оптимизации финансовой стратегии китайских корпораций. Основу методологической базы составляет качественный анализ, предполагающий глубокое изучение теоретических концепций и практических механизмов финансового управления. Этот метод был выбран ввиду его способности раскрывать содержательные аспекты финансовых стратегий, выходящие за рамки количественных измерений. Качественный подход дополняется сравнительным анализом, который дает возможность сопоставить применяемые инструменты с международными практиками корпоративного управления.

Важным элементом методологии выступает разработка системы критериев оценки эффективности финансовых инструментов. В качестве ключевых показателей рассматриваются ликвидность, отражающая способность компании выполнять краткосрочные обязательства; рентабельность, демонстрирующая эффективность использования капитала; а также финансовая устойчивость, характеризующая долгосрочную стабильность корпорации.[3] Особое внимание уделяется показателям, учитывающим специфику китайских компаний, таким как степень интеграции с государственными программами развития и уровень адаптации к регулирующим требованиям.Применяемая методология учитывает необходимость комплексной оценки взаимосвязей между различными элементами финансовой стратегии. Это достигается через анализ корреляционных зависимостей между инвестиционной политикой, структурой капитала и системами риск-менеджмента. Методика исследования включает также изучение нормативно-правовой базы Китая, регулирующей деятельность корпораций, что позволяет понять институциональные ограничения и возможности при формировании финансовых стратегий.

Следует отметить существенные ограничения, влияющие на проведение исследования. Основное затруднение связано с ограниченной доступностью данных о финансовой деятельности китайских корпораций, что обусловлено как коммерческой тайной, так и особенностями национальной системы отчетности.[4] Динамичный характер китайской экономики создает дополнительные методологические сложности, поскольку инструменты финансового управления постоянно адаптируются к изменяющимся условиям. Эти факторы требуют особой осторожности при интерпретации результатов и формулировании выводов.

Ключевые инструменты оптимизации финансовой стратегии

Анализ финансовой стратегии компании «PetroChina» позволяет выявить комплекс инструментов, обеспечивающих ее устойчивое развитие в условиях глобальной энергетической трансформации. Деятельность данной корпорации представляет особый интерес с точки зрения сочетания традиционных подходов к управлению финансами с инновационными методами, адаптированными к специфике нефтегазового сектора.

Управление структурой капитала в «PetroChina» характеризуется сбалансированным подходом к соотношению собственных и заемных средств. Компания демонстрирует консервативную политику в области заимствований, поддерживая показатель долговой нагрузки на уровне ниже среднего по отрасли. Особенностью является активное использование возможностей китайского финансового рынка, включая специальные кредитные линии государственных банков для стратегических проектов.[5] Одновременно «PetroChina» привлекает международное финансирование через выпуск облигаций на азиатских рынках капитала, что позволяет диверсифицировать источники заемных средств.Инвестиционная политика корпорации отражает стратегические приоритеты энергетического сектора Китая. Значительная часть капитальных вложений направляется на проекты по увеличению добычи нефти и газа, при этом наблюдается постепенное увеличение инвестиций в возобновляемую энергетику и низкоуглеродные технологии. «PetroChina» реализует принцип диверсификации не только по видам деятельности, но и географически, распределяя инвестиции между внутренним рынком и международными проектами. Особого внимания заслуживает практика создания стратегических альянсов с национальными нефтесервисными компаниями, позволяющая оптимизировать капитальные затраты.

Цифровые технологии занимают важное место в финансовом управлении «PetroChina». Корпорация активно внедряет системы предиктивной аналитики для оптимизации денежных потоков и управления затратами. В области расчетов с контрагентами применяются технологии распределенного реестра, что особенно важно для международных операций. Финансовое планирование осуществляется с использованием специализированных платформ, интегрирующих данные о производственной деятельности, рыночных ценах и макроэкономических показателях.Международная финансовая деятельность «PetroChina» строится на сочетании различных инструментов хеджирования валютных и товарных рисков.[6] Компания регулярно размещает долговые инструменты на международных рынках, включая еврооблигации в различных валютах. Особенностью является синхронизация таких размещений с циклами развития бизнеса и стратегическими инвестиционными программами. Управление валютными рисками осуществляется через комплексные программы, учитывающие географическую диверсификацию операционной деятельности.

Опыт «PetroChina» демонстрирует эффективность адаптации финансовых инструментов к специфике нефтегазового бизнеса в условиях энергетического перехода. Компания успешно сочетает традиционные подходы к управлению капиталом с инновационными методами, что позволяет поддерживать финансовую устойчивость при реализации масштабных инвестиционных программ. Особенностью является тесная интеграция финансовой стратегии с общегосударственными приоритетами развития энергетического сектора, что характерно для китайской модели корпоративного управления.Финансовая стратегия «PetroChina» представляет значительный интерес для анализа, так как отражает эволюцию подходов к управлению финансами в условиях глобализации и энергетической трансформации. Изучение применяемых компанией инструментов позволяет выявить закономерности формирования финансовой политики крупных корпораций в регулируемых отраслях экономики. Полученные выводы могут быть полезны для совершенствования подходов к управлению финансами в аналогичных компаниях других стран.

Заключение

Проведенное исследование позволяет сделать ряд значимых выводов относительно эффективности инструментов оптимизации финансовой стратегии китайских корпораций. Анализ показал, что сочетание рыночных механизмов с элементами государственного регулирования создает уникальную модель корпоративного управления, демонстрирующую высокую адаптивность в условиях глобальной экономической нестабильности. Особую эффективность доказали комплексные подходы, объединяющие традиционные методы финансового менеджмента с инновационными технологиями и стратегическим планированием.

Для российских корпораций китайский опыт представляет существенный практический интерес, особенно в аспектах управления структурой капитала и разработки долгосрочных инвестиционных стратегий. Возможность адаптации отдельных элементов этого опыта требует тщательного учета национальных экономических особенностей и институциональной среды. Наиболее перспективными представляются механизмы государственно-частного партнерства и методы цифровизации финансовых процессов, доказавшие свою эффективность в китайской практике.

Перспективным направлением дальнейших исследований может стать углубленный анализ влияния геополитических факторов на формирование корпоративных финансовых стратегий. Особого внимания заслуживает изучение взаимосвязи между изменениями в международной политике и трансформацией подходов к управлению финансовыми рисками. Разработка этой проблематики будет способствовать развитию теории корпоративных финансов и созданию более совершенных моделей адаптации бизнеса к условиям глобальной турбулентности.

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ФИНАНСОВАЯ СТРАТЕГИЯ КОРПОРАТИВНОЙ СТРУКТУРЫ КОМПАНИИ «PETROCHINA»

Аннотация: *В данной статье рассматривается финансовая стратегия корпоративной структуры Китайской национальной нефтегазовой корпорации (PetroChina). PetroChina, являясь крупнейшим производителем нефти и природного газа в Китае, демонстрирует, что её финансовая стратегия напрямую влияет на конкурентоспособность компании как на внутреннем, так и на международном рынках. В статье анализируются оптимизация структуры капитала, стратегии управления инвестициями, механизмы контроля рисков и международное финансирование. Рассматривается, как финансовая стратегия поддерживает рост бизнеса и глобальную экспансию компании. Также подчеркиваются возможности и вызовы, с которыми сталкивается PetroChina на мировом энергетическом рынке, и предлагаются конкретные рекомендации по улучшению финансового управления.*

Ключевые слова: *PetroChina, финансовая стратегия, структура капитала, управление рисками, международное финансирование.*

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THE FINANCIAL STRATEGY OF THE CORPORATE STRUCTURE OF PETROCHINA

Abstract: *This article examines the financial strategy of the corporate structure of China National Petroleum Corporation (PetroChina). As the largest producer of oil and natural gas in China, PetroChina demonstrates that its financial strategy directly influences the company's competitiveness both in domestic and international markets. The article analyzes the optimization of capital structure, investment management strategies, risk control mechanisms, and international financing. It explores how the financial strategy supports the company's business growth and global expansion. Additionally, the opportunities and challenges faced by PetroChina in the global energy market are highlighted, and specific recommendations for improving financial management are proposed.*

Keywords: *PetroChina, financial strategy, capital structure, risk management, international financing.*

Введение

PetroChina является одной из ведущих компаний энергетического сектора Китая, а также одним из крупнейших производителей нефти и газа в мире. В условиях усиливающейся конкуренции на международном энергетическом рынке грамотная финансовая стратегия играет ключевую роль в долгосрочном развитии компании. Настоящая статья направлена на изучение ключевых аспектов и направлений оптимизации финансовой стратегии PetroChina.

Оптимизация структуры капитала

Структура капитала является основой финансовой стратегии и оказывает прямое влияние на финансовую устойчивость компании и доверие инвесторов. PetroChina стремится поддерживать умеренный уровень долговой нагрузки, что позволяет снижать стоимость капитала и увеличивать доходность акционерного капитала. Согласно годовому отчёту компании за 2023 год, соотношение долга к собственному капиталу находится на оптимальном уровне, что подтверждает эффективное управление финансами.

Кроме того, компания активно привлекает международный капитал через выпуск облигаций и использование диверсифицированных финансовых инструментов. Например, в последние годы PetroChina успешно выпустила так называемые «панда-облигации», привлекая зарубежных инвесторов для финансирования разведки нефтегазовых месторождений и разработки проектов в области чистой энергии.

Стратегия управления инвестициями

Инвестиционная стратегия PetroChina основывается на принципах «стабильности и инноваций», акцентируя внимание как на традиционном нефтегазовом секторе, так и на переходе к чистым источникам энергии. С одной стороны, компания продолжает усиливать разведку и добычу нефти и газа в стране, внедряя точное управление для снижения затрат и повышения эффективности добычи. С другой стороны, PetroChina активно инвестирует в развитие новых энергетических технологий, включая строительство объектов для хранения и транспортировки природного газа, а также разработку технологий «зелёного» водорода.

Такая двухуровневая инвестиционная стратегия позволяет PetroChina успешно адаптироваться к глобальным изменениям на энергетическом рынке и создавать устойчивые возможности для дальнейшего роста.

Механизмы контроля рисков

Энергетический сектор характеризуется высокой степенью риска, и PetroChina внедрила комплексные механизмы управления рисками для противодействия колебаниям на рынке и изменениям в политике. Во-первых, компания использует строгую политику управления валютными рисками, применяя форвардные контракты и опционы для минимизации воздействия колебаний валютных курсов на международный бизнес. Во-вторых, PetroChina разработала всёобъемлющую внутреннюю систему контроля, обеспечивающую прозрачность финансовых операций и соответствие нормативным требованиям в условиях сложной международной среды.

Для борьбы с колебаниями цен на нефть компания применяет стратегию хеджирования, что позволяет фиксировать будущий уровень доходов и снижать влияние ценовых изменений на финансовые результаты. Этот подход укрепляет устойчивость компании к рыночным рискам.

Международное финансирование

Как глобальная энергетическая компания, PetroChina активно развивает международные финансовые стратегии. Компания использует свой высокий рейтинг на международных рынках капитала для привлечения средств через трансграничные финансовые операции. Например, в рамках сотрудничества со странами, участвующими в инициативе «Один пояс, один путь», PetroChina получила значительные низкопроцентные займы для поддержки инфраструктурных проектов.

Кроме того, компания укрепила связи с ведущими мировыми финансовыми институтами, что позволило ей диверсифицировать источники финансирования, снизить его стоимость и повысить конкурентоспособность на глобальном рынке.

Заключение и рекомендации

Финансовая стратегия PetroChina обеспечивает прочную основу для её долгосрочного развития в энергетическом секторе. Однако в условиях энергетического перехода и усиления международной конкуренции компании необходимо продолжать оптимизировать структуру капитала, усиливать инвестиции в области новых видов энергии и внедрять инновационные инструменты управления рисками. Также рекомендуется активнее использовать «зелёные» финансовые инструменты для повышения лидерства компании в глобальной энергетической трансформации.

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ОЦЕНКА ЭФФЕКТИВНОСТИ ИНВЕСТИЦИОННЫХ ПРОЕКТОВ В СФЕРЕ ВОЗОБНОВЛЯЕМОЙ ЭНЕРГЕТИКИ И НИЗКОУГЛЕРОДНЫХ ТЕХНОЛОГИЙ В ФИНАНСОВОЙ СТРАТЕГИИ PETROCHINA

Аннотация: *В условиях энергетического перехода и ужесточения экологических требований оценка эффективности проектов в возобновляемой энергетике становится ключевой для финансовой стратегии крупных корпораций. PetroChina активно трансформирует инвестиционную политику в соответствии с трендами устойчивого развития. В статье анализируются подходы компании к оценке проектов в возобновляемой энергетике, включая методы NPV, IRR и PI, их адаптация к низкоуглеродным технологиям, а также использование финансовых инструментов для снижения рисков и повышения рентабельности. Рассматривается влияние государственной поддержки и стандартов ESG на инвестиционный портфель. Предложены рекомендации по совершенствованию политики компании в условиях низкоуглеродной экономики.*

Ключевые слова: *PetroChina, возобновляемая энергетика, низкоуглеродные технологии, инвестиционные проекты, финансовая стратегия, устойчивое развитие, оценка эффективности, ESG, энергетический переход.*

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EVALUATION OF THE EFFECTIVENESS OF INVESTMENT PROJECTS IN RENEWABLE ENERGY AND LOW-CARBON TECHNOLOGIES WITHIN THE FINANCIAL STRATEGY OF PETROCHINA

Abstract:*In the context of the energy transition and tightening environmental regulations, the evaluation of renewable energy project efficiency has become a key aspect of the financial strategy for large corporations. PetroChina is actively transforming its investment policy in line with sustainable development trends. This article analyzes the company's approaches to evaluating renewable energy projects, including the use of NPV, IRR, and PI methods, their adaptation to low-carbon technologies, and the application of financial instruments to mitigate risks and increase profitability. The impact of government support and ESG standards on the* *investment portfolio is also examined. Recommendations are proposed for improving the company's policy in the context of a low-carbon economy.*

Keywords: *PetroChina, renewable energy, low-carbon technologies, investment projects, financial strategy, sustainable development, performance evaluation, ESG, energy transition.*

Введение

Глобальный энергетический сектор переживает беспрецедентные изменения, вызванные необходимостью сокращения выбросов углерода, ростом спроса на возобновляемые источники энергии (ВИЭ) и стремлением к устойчивому развитию. Для традиционных нефтегазовых корпораций, таких как PetroChina, этот переход требует значительной трансформации как в стратегическом, так и в операционном аспектах. Основой успешной адаптации к новым реалиям становится грамотная оценка эффективности инвестиционных проектов, нацеленных на развитие низкоуглеродных технологий и ВИЭ.

PetroChina, являясь крупнейшей государственной нефтегазовой компанией Китая, активно работает над диверсификацией своего бизнеса, включая проекты в области солнечной энергетики, ветроэнергетики и технологий улавливания и хранения углерода (CCUS). Настоящая статья посвящена анализу подходов к оценке таких проектов и их интеграции в финансовую стратегию компании.

Методы оценки инвестиционных проектов

Для оценки эффективности проектов в области ВИЭ и низкоуглеродных технологий PetroChina применяет классические методы финансового анализа, адаптированные к отраслевой специфике:

1. Чистая приведенная стоимость (Net Present Value, NPV):

Этот метод позволяет рассчитать разницу между текущей стоимостью будущих денежных потоков и первоначальными инвестициями. В проектах ВИЭ NPV учитывает такие факторы, как сроки окупаемости, государственные субсидии и колебания цен на электроэнергию.

2. Внутренняя норма доходности (Internal Rate of Return, IRR):

IRR используется для определения уровня доходности проекта. Для проектов в сфере низкоуглеродных технологий важным аспектом становится учет долгосрочных выгод, связанных с сокращением углеродного следа и потенциальных штрафов за выбросы.

3. Индекс рентабельности (Profitability Index, PI):

PI помогает PetroChina оценивать соотношение между выгодами и затратами на проект, что особенно важно при ограниченности финансовых ресурсов.

4. Анализ чувствительности:

Этот метод позволяет оценить влияние различных факторов, таких как изменение цен на углеродные кредиты, стоимость технологий или доступность финансирования, на рентабельность проекта.

5. ESG-анализ:

В рамках своей стратегии устойчивого развития PetroChina оценивает соответствие проектов экологическим (E), социальным (S) и управленческим (G) критериям. Это помогает компании привлекать "зеленое" финансирование и укреплять свою репутацию.

Финансовые инструменты и механизмы поддержки

PetroChina активно использует различные финансовые инструменты для поддержки своих проектов в сфере ВИЭ:

- Зеленые облигации: Компания выпускает "зеленые" бонды для привлечения средств на устойчивые проекты.

- Государственные субсидии: В Китае действует ряд программ, направленных на поддержку низкоуглеродных технологий, что снижает финансовую нагрузку на компанию.

- Партнерство с международными организациями: PetroChina участвует в глобальных инициативах по климатическим инвестициям, что обеспечивает доступ к передовым технологиям и финансированию.

Роль государственной политики и ESG-стандартов

На деятельность PetroChina значительное влияние оказывает государственная политика Китая, направленная на достижение углеродной нейтральности к 2060 году. Важную роль играют также международные стандарты ESG, которые становятся обязательным элементом отчетности для крупных корпораций. PetroChina учитывает эти факторы при формировании своего инвестиционного портфеля, что позволяет ей оставаться конкурентоспособной на мировом рынке.

Заключение

PetroChina демонстрирует значительный прогресс в адаптации своей финансовой стратегии к вызовам энергетического перехода. Использование современных методов оценки инвестиционных проектов в сфере ВИЭ и низкоуглеродных технологий позволяет компании снижать риски, повышать рентабельность и укреплять свои позиции на рынке устойчивой энергетики. Однако для дальнейшего успеха необходимо активизировать работу по интеграции ESG-принципов и более широкому использованию инновационных финансовых инструментов. PetroChina имеет все шансы стать лидером низкоуглеродной трансформации в нефтегазовой отрасли.

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ПРАВОВОЕ РЕГУЛИРОВАНИЕ РЕКЛАМНОЙ ДЕЯТЕЛЬНОСТИ: ПРОБЛЕМЫ И ПУТИ РЕШЕНИЯ

Аннотация. *В статье представлен всесторонний анализ правового регулирования рекламной деятельности в Российской Федерации, выявлены ключевые проблемы и предложены пути их решения для совершенствования законодательной базы. Исследование рассматривает положения Федерального закона «О рекламе», Гражданского кодекса Российской Федерации и Закона «О защите прав потребителей», а также научные позиции таких исследователей, как Е.В. Симакова, Т.А. Скворцова, Е.О. Зволинская, В.А. Орлова, Н.С. Репина, Е.А. Каверина, М.Т. Калмураева, И.В. Мокляк, Т.П. Самарина, А.М. Гутиев и В. Столяров. Анализ подчеркивает такие проблемы, как нечеткость определений, недостаточная регламентация цифровой рекламы, этические вопросы и необходимость баланса между государственным контролем и рыночной саморегуляцией. Предложены рекомендации по уточнению правовых определений, усилению защиты уязвимых аудиторий и интеграции современных технологий, таких как искусственный интеллект, в регуляторные практики. Статья акцентирует важность адаптивного законодательства для решения вопросов, связанных с развивающимися рекламными практиками, при обеспечении защиты потребителей и добросовестной конкуренции.*

Ключевые слова: *регулирование рекламы, правовая база, рекламная деятельность, защита потребителей, цифровая реклама, этические нормы, российское законодательство.*

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LEGAL REGULATION OF ADVERTISING ACTIVITIES: PROBLEMS AND SOLUTIONS

Annotation. *The article presents a comprehensive analysis of the legal regulation of advertising activities in the Russian Federation, identifies key problems and suggests ways to solve them to improve the legislative framework. The study examines the provisions of the Federal Law "On Advertising", the Civil Code of the Russian Federation and the Law "On Consumer Rights Protection", as well as the scientific positions of such researchers as E.V. Simakova, T.A. Skvortsova, E.O. Zvolinskaya, V.A. Orlova, N.S. Repin, E.A. Kaverina, M.T. Kalmuraeva, I.V. Moklyak, T.P. Samarina, A.M. Gutiev and V. Stolyarov. The analysis highlights issues such as unclear definitions, insufficient regulation of digital advertising, ethical issues, and the need for a balance between government control and market self-regulation. Recommendations are proposed to clarify legal* *definitions, strengthen the protection of vulnerable audiences, and integrate modern technologies such as artificial intelligence into regulatory practices. The article highlights the importance of adaptive legislation to address issues related to developing advertising practices while ensuring consumer protection and fair competition.*

Keywords: *advertising regulation, legal framework, advertising activities, consumer protection, digital advertising, ethical standards, Russian legislation.*

Реклама является ключевым элементом современных рыночных экономик, выступая каналом передачи информации между производителями и потребителями, формируя спрос и отражая общественные ценности. В Российской Федерации правовое регулирование рекламной деятельности представляет собой сложную и динамично развивающуюся область, регулируемую в первую очередь Федеральным законом «О рекламе» [11].

Е.В. Симакова подчеркивает недостаточную проработку публично-правовых аспектов регулирования рекламы, отмечая, что законодательные рамки часто не содержат четких правил для содержания и распространения рекламы [8, с. 153]. Ее анализ акцентирует внимание на проблемах регулирования рекламы лекарственных средств, рекламы, ориентированной на детей, наружной рекламы и интернет-рекламы. Вклад Е.В. Симаковой важен тем, что она выявляет широкий спектр регуляторных пробелов в различных областях рекламы, особенно в части отсутствия ясности в определении рекламной деятельности. Однако ее работа могла бы быть дополнена более глубоким анализом механизмов правоприменения, поскольку предложенные ею рекомендации остаются в основном теоретическими. Например, хотя она выступает за совершенствование законодательства, конкретные поправки или стратегии правоприменения не детализированы, что ограничивает практическую применимость ее выводов.

Понятие рекламной деятельности, отличное от самой рекламы, является ключевым аспектом, поднятым Т.А. Скворцовой, которая утверждает, что рекламная деятельность заключается в распространении информации для привлечения внимания к объекту рекламирования, но не включает процесс создания рекламы [9, с. 286]. Разграничение Т.А. Скворцовой ценно для уточнения объема регуляторного надзора, поскольку отделяет процесс распространения от творческих и технических аспектов, которые подлежат иным правовым нормам. Эта позиция помогает понять многоаспектную природу рекламной деятельности, включающей рекламодателей, производителей, распространителей и потребителей. Однако анализ Т.А. Скворцовой не включает обсуждение того, как это разграничение может быть реализовано в правовых терминах, особенно в части определения обязанностей каждого участника. Более четкая структура для разграничения этих ролей в рамках Федерального закона «О рекламе» повысила бы практическую ценность ее выводов.

Е.О. Зволинская сосредотачивается на регулировании рекламы фармацевтических препаратов, подчеркивая риски, связанные с неправильным использованием безрецептурных лекарств [3, с. 136]. Ее акцент на необходимости четких рекомендаций по рекламе лекарственных средств подчеркивает потенциальные риски для здоровья, вызванные вводящей в заблуждение рекламой.

Работа Е.О. Зволинской заслуживает внимания за фокус на безопасности потребителей, особенно за призыв к включению в рекламу обязательных предупреждений о побочных эффектах и необходимости консультации с врачом. Однако ее анализ мог бы быть усилен обсуждением правоприменительных механизмов, а также роли регулирующих органов в контроле за соблюдением норм. Отсутствие обсуждения международных практик ограничивает масштаб ее рекомендаций, учитывая глобальный характер фармацевтической рекламы.

В.А. Орлова рассматривает проблемы регулирования интернет-рекламы, в частности вопросы нативной и таргетированной рекламы, которые часто нарушают конфиденциальность пользователей через использование персональных данных [6, с. 229]. Выявление В.А. Орловой таргетированной рекламы как потенциального нарушения защиты персональных данных является важным вкладом, учитывая рост цифрового маркетинга. Ее работа подчеркивает необходимость четкого разграничения между законной рекламой и спамом, который может подорвать доверие потребителей. Однако анализ В.А. Орловой мог бы быть дополнен предложениями конкретных законодательных поправок для решения проблем конфиденциальности, таких как обязательные механизмы согласия или штрафы за несоблюдение. Кроме того, ее фокус на таргетированной рекламе упускает другие формы цифровой рекламы, такие как маркетинг через инфлюенсеров, которые также требуют регуляторного внимания.

Н.С. Репина углубляет анализ проблем регулирования интернет-рекламы, отмечая отсутствие законодательного определения онлайн-рекламы и конкретных требований к ее распространению [7, с. 235]. Наблюдение Н.С. Репиной о сложности запрета тизерной рекламы, которая часто граничит со спамом, особенно актуально в контексте цифровых платформ. Ее работа значима благодаря призыву к четкому определению онлайн-рекламы в правовой базе, что могло бы упростить правоприменение. Однако анализ Репиной не включает детального рассмотрения технологических решений, таких как автоматическая модерация контента, которые могли бы дополнить законодательные меры. Интеграция таких решений повысила бы реалистичность ее рекомендаций.

Е.А. Каверина исследует влияние искусственного интеллекта (ИИ) на рекламные агентства, подчеркивая необходимость адаптации к процессам, управляемым ИИ, для сохранения конкурентоспособности [4].

Анализ Е.А. Кавериной роли ИИ в ускорении творческих и операционных задач проницателен, особенно ее наблюдение о появлении новых ролей, таких как промт-инженеры, в ответ на внедрение ИИ. Ее работа ценна своим перспективным взглядом на технологическую интеграцию в рекламу. Однако обсуждение Е.А. Кавериной могло бы быть расширено за счет анализа этических аспектов рекламы, созданной с помощью ИИ, таких как потенциальная алгоритмическая предвзятость или создание вводящего в заблуждение контента. Кроме того, ее анализ не затрагивает регуляторные вызовы ИИ в рекламе, такие как обеспечение прозрачности в кампаниях, управляемых ИИ.

И.В. Мокляк анализирует гражданско-правовое регулирование рекламы как формы предпринимательской деятельности, подчеркивая роль Федерального закона «О рекламе» в определении участников рынка и установлении стандартов рекламы [5, с. 563]. Ее работа примечательна всесторонним обзором нормативных актов, включая Гражданский кодекс и законы о защите потребителей, а также их влиянием на рекламные практики. Однако анализ мог бы быть дополнен рассмотрением практических проблем правоприменения, особенно в случаях несоблюдения норм малыми или незарегистрированными субъектами. Кроме того, фокус на гражданско-правовых механизмах упускает потенциал административного или уголовного права в решении серьезных нарушений, таких как мошенническая реклама.

А.М. Гутиев предлагает систематизацию рекламных договоров, разделяя их на креативные и стандартные для лучшего регулирования обязательств между сторонами [2, с. 184]. Подход А.М. Гутиева новаторский в попытке упорядочить договорные рамки, что могло бы повысить ясность в рекламных сделках. Однако его анализ не включает обсуждение исполнимости этих договоров, особенно в трансграничных рекламных соглашениях. Включение международных перспектив в договорное право могло бы укрепить его рекомендации, учитывая глобальный характер современных рекламных рынков.

В. Столяров подчеркивает важность договоров как самостоятельных правовых инструментов в регулировании рекламы, выступая за их усиленную роль в балансировании государственного контроля и рыночной саморегуляции [10, с. 43]. Акцент Столярова на договорной гибкости является ценным вкладом, поскольку он соответствует потребности в адаптивных регуляторных рамках. Однако его анализ мог бы быть улучшен рассмотрением проблем стандартизации договоров для различных форматов рекламы, таких как цифровая и традиционная медиа. Кроме того, его работа выиграла бы от изучения роли отраслевых саморегулируемых организаций в дополнении договорных механизмов.

Федеральный закон «О рекламе» служит основной правовой базой для регулирования рекламной деятельности в России, определяя ключевые термины, роли и требования к содержанию и распространению рекламы [11]. Статья 4 устанавливает его приоритет над другими нормативными актами, обеспечивая единый подход к регулированию. Статья 16 предписывает четкую идентификацию рекламного контента, запрещая скрытую рекламу под видом редакционного материала. Это положение критически важно для поддержания прозрачности, но сталкивается с трудностями в правоприменении, особенно в цифровых медиа, где нативная реклама часто размывает грань между контентом и продвижением. Ограничения на рекламу, ориентированную на несовершеннолетних, изложенные в статье 6, защищают уязвимые аудитории, запрещая контент, побуждающий детей просить родителей о покупках. Однако отсутствие конкретных рекомендаций для цифровых платформ ограничивает эффективность этих мер в онлайн-среде.

Гражданский кодекс Российской Федерации дополняет Федеральный закон «О рекламе», устанавливая общие требования к юридическим лицам, такие как обязательное раскрытие достоверной информации в процессе реорганизации [1]. Статья 60 обеспечивает предоставление юридическими лицами достоверной информации о своих товарах и услугах, что важно для предотвращения вводящей в заблуждение рекламы. Закон «О защите прав потребителей» дополнительно укрепляет защиту потребителей, предписывая подробное раскрытие информации о характеристиках продукта, ценах и инструкциях по безопасному использованию. Эти положения необходимы для поддержания доверия потребителей, но требуют более строгих механизмов правоприменения для эффективного устранения нарушений.

Рост цифровой рекламы породил новые вызовы, особенно в области нативной, таргетированной и тизерной рекламы. Нативная реклама, интегрирующая промо-контент в редакционные материалы, часто избегает регуляторного контроля из-за своей скрытой природы. Таргетированная реклама, основанная на данных пользователей, вызывает обеспокоенность по поводу конфиденциальности, поскольку пользователи могут не давать согласия на сбор данных. Тизерная реклама, характеризующаяся провокационными изображениями, часто граничит со спамом, но законодательные рамки не содержат четких механизмов для ее запрета. Эти пробелы подчеркивают необходимость обновления регулирования для учета уникальных характеристик цифровой рекламы.

Регулирование рекламы фармацевтических препаратов является еще одной критически важной областью, учитывая ее влияние на общественное здоровье. Федеральный закон «О рекламе» накладывает ограничения на рекламу рецептурных препаратов, но отсутствие строгих рекомендаций для безрецептурных лекарств допускает потенциально вводящие в заблуждение утверждения. Например, реклама часто упрощает проблемы со здоровьем, представляя лекарства как универсальные решения без упоминания основных состояний или побочных эффектов. Этот вопрос усугубляется отсутствием обязательных требований к включению всесторонних предупреждений о здоровье в рекламу, что могло бы снизить риски для потребителей.

Наружная реклама представляет дополнительные регуляторные проблемы, особенно в городских условиях, где эстетические и безопасностные аспекты имеют первостепенное значение. Федеральный закон «О рекламе» требует получения разрешений на рекламные конструкции, при этом местные органы власти выдают разрешения на основе документации. Однако нечеткие критерии выдачи разрешений приводят к произвольным решениям, подрывая последовательность. Пятилетний срок действия разрешений и возможность их судебного аннулирования добавляют дополнительную сложность, требуя более четких рекомендаций для упрощения процесса.

Интеграция ИИ в рекламные процессы, как обсуждает Е.А. Каверина, открывает как возможности, так и вызовы для регулирования [4, с. 212]. ИИ может повысить эффективность рекламных кампаний, но вызывает этические вопросы, такие как потенциальная алгоритмическая предвзятость или отсутствие прозрачности в создании контента. Текущее законодательство не решает эти вопросы, подчеркивая необходимость регуляторных рамок, обеспечивающих подотчетность в рекламе, управляемой ИИ.

Для решения этих проблем можно предложить несколько решений. Во-первых, Федеральный закон «О рекламе» должен быть дополнен четкими определениями форматов цифровой рекламы, таких как нативная и таргетированная реклама, для упрощения правоприменения. Во-вторых, более строгие рекомендации по рекламе фармацевтических препаратов должны предусматривать обязательное раскрытие побочных эффектов и требований к медицинской консультации. В-третьих, процесс выдачи разрешений на наружную рекламу должен быть стандартизирован для сокращения произвольных решений. В-четвертых, регулирование должно учитывать рекламу, управляемую ИИ, требуя прозрачности в алгоритмических процессах и создании контента.

Таким образом, правовое регулирование рекламной деятельности в Российской Федерации сталкивается со значительными вызовами из-за эволюции рыночной динамики, технологических достижений и общественных ожиданий. Анализ, проведенный Е.В. Симаковой, Т.А. Скворцовой, Е.О. Зволинской, В.А. Орловой, Н.С. Репиной, Е.А. Кавериной, М.Т. Калмураевой, И.В. Мокляк, Т.П. Самариной, А.М. Гутиевым и В. Столяровым, предоставляет ценные insights в эти вопросы, подчеркивая необходимость более четких определений, усиленной защиты потребителей и адаптивных регуляторных рамок. Хотя их вклады создают прочную основу, остаются пробелы в практических механизмах правоприменения и международном бенчмаркинге. Путем уточнения законодательных положений, усиления правоприменения и интеграции этических и технологических аспектов Россия может разработать надежную регуляторную систему, поддерживающую добросовестную конкуренцию, защищающую потребителей и соответствующую глобальным рекламным тенденциям.

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ЛЕЧЕНИЕ И РЕАБИЛИТАЦИЯ ПЕРЕЛОМОВ КОСТЕЙ ПРЕДПЛЮСНЫ И ПЯСТИ

Резюме: *В статье изучены характер, особенности течения, осложнений и последствий переломов костей запястья и пястных костей рук, определение рационального способа их лечения. Наиболее рациональным способом лечения осложненных переломов ладьевидной кости является метод открытого металлоостеосинтеза, а при переломах пястных костей-эндоротезирования.*

Ключивы словы: *костей запястья, пястные кости, переломы, последствия, методы лечения.*

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TREATMENT AND REHABILITATION OF FRACTURES OF THE TARSULA AND METACARPAL BONES

Abstract: *The article studies the nature, features of the course, complications and consequences of fractures of the bones of the wrist and metacarpal bones of the hands, determining a rational method for their treatment. The most rational method for treating complicated fractures of the scaphoid bone is the method of open metal osteosynthesis, and for fractures of the metacarpal bones - endorthesis.*

Keywords: *wrist bones, metacarpal bones, fractures, consequences, treatment methods.*

Введение. Во всем мире механическая травма до настоящего времени стабильно занимает ведущее место в структуре травматизма, при этом в большинстве случаев у пострадавших наблюдаются повреждения кистей рук, которые составляют 25,4-28,4% от общего числа повреждений, из них более 55% - открытые повреждения. Травмы кистей характеризуются полиморфизмом повреждений и чрезвычайным разнообразием переломов, и деформацией костных структур, что обусловлено анатомо-функциональными особенностями этой части тела. Наличие скользящего аппарата кисти и сложность анатомо-топографических взаимоотношений костных и нейрососудистых структур кистей требует разработки высокотехнологических, простых, малотравматичных методов и прочно удерживающих до сращения, а также восстанавливающих движений кисти в кратчайшие сроки после травмы [1; 6].

Повреждения структур кистей рук весьма разнообразные как, по происхожденно, так и по характеру к объему травмы. В МКБ-10 (Международная классификация болезней 10-го пересмотра, 1995) «в блок травмы запястья и кисти (S60-S69) из открытых повреждений вошли открытая рана (укушенная, резаная, рваная, колотая, множественная), открытый перелом (запястья, пясти, фаланг пальцев, множественный), огнестрельный перелом, размозжение (раздавливание), травматическая ампутация (полная, частичная, сочетанная). Термин «отчленение» отсутствует» [2].

Штутин О.А. (1999) при разработке классификаций открытых травм кисти выделяет травмы анатомических структур (I–VI), локализаций (T1–T4), а также степень нарушений кровообращения (компенсированная, субкомпенсированная и декомпенсированная) и характер кожных повреждений. К анатомическим вариантам травмы относятся: I. Травмы одного из трехфаланговых пальцев; II. Травмы 1-го пальца; III. Травмы пястных костей; IV. Множественные травмы пальцев; V. Травмы костей запястья, кистевого сустава, тотальные (субтотальные) травмы в пределах одной или обеих кистей; VI. Травмы мягких тканей (сухожилий, нервов, сосудов, дефекты мягких тканей). Под локализацией травм различают: T1 – от конца пальца до средней трети средней фаланги; T2 – от средней трети средней фаланги до пястно-фаланговых суставов; T3 – от пястно-фаланговых суставов до запястья; T4 – на уровне запястья и нижней трети предплечья].

В современных условиях проводятся научные исследования, направленные на разработки высокотехнологических методов лечения и реабилитации больных с различными видами переломов костей кисти и посттравматическими осложнениями травмы этих структур [3; 5]. Несмотря на это, проблема лечения и реабилитации больных с переломами костей кисти продолжает оставаться высокоактуальной для современной травматологии и ортопедии, обусловленной значительным риском развития посттравматических осложнений, повлияющих на трудоспособность пострадавших [4].

Цель: исследования-выявления характера, особенности течения, осложнений и последствий переломов костей запястья и пястных костей рук, определение рационального способа их лечения.

Материалы и методы исследования

Обследованы 242 лиц с травмой кистей в возрасте от 18 до 74 лет, находившихся на амбулаторном лечении в Самаркандском филиале Республиканского специализированного научно-практического медицинского центра травматологии и ортопедии в 2020-2021 годы. Диагностики и лечения проведены соответствии со стандартом. Среди обследованных больных лица мужского пола – 232 (95,9%), женского – 10 (4,1%). Наибольшее количество травм составляет контингент в возрасте от 18 до 40 лет (83,9%). Другие возрастные категории составили 16,1% (Таблица №1)

Таблица 1

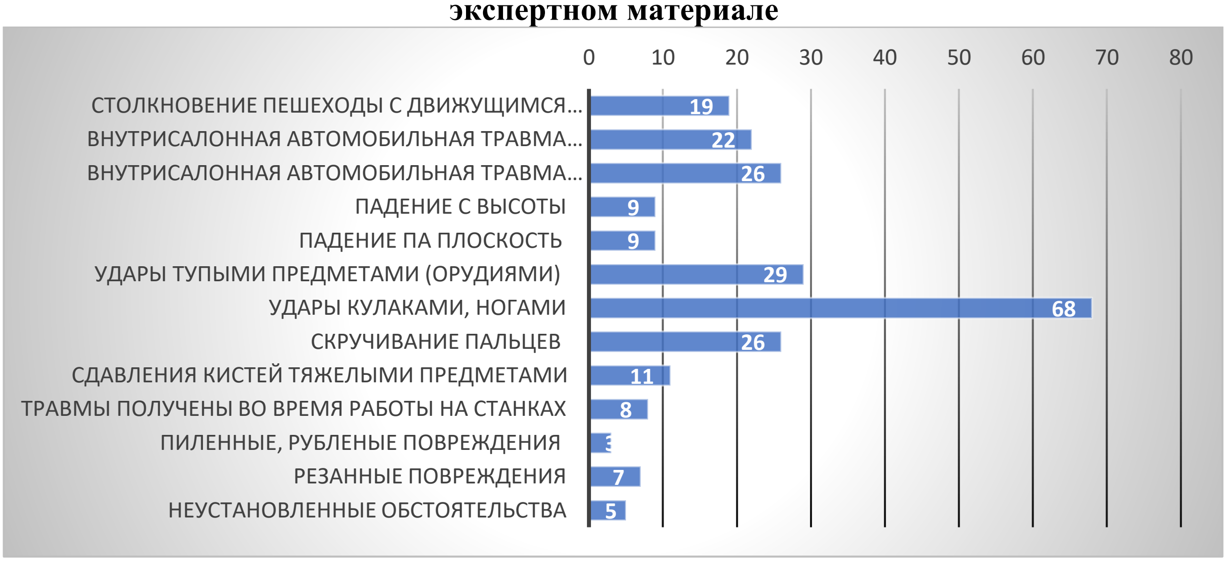
Распределения запястья и пястных костей по больных с переломами костей кисти по полу и возрасту

№	Возрастные группы	Пол			
		мужской	женский	Всего	
				Абс	%
1.	18-24	101	5	106	43,8%
2.	25-40	95	2	97	40,1%
3.	41-60	30	0	30	12,4%
4.	60-74	6	3	9	3,7%
	18-24	232	10	242	100,0%

Выявлено, что происхождение переломов костей кисти чаще всего было связано с падениями на плоскость (65,7%), нередким обстоятельством травмы было также скручивание пальцев (8,6%) и удары тупыми предметами, либо соударения кисти от таковые (5,1%). Другие обстоятельства травмы составили от 0,6 до 2,4%. Значительно меньшее количество женщин вероятно обусловлено обстоятельствами травм. У 14,8% больных не удалось выявить обстоятельств получения травм кистей, из-за отсутствия информации в медицинских документах. Следует отметить, что у всех больных имели место изолированная травма кистей, так как к наблюдениям были включены только амбулаторные больные. Распределение наблюдений по локализации переломов костей кисти приведена в диаграмма 1.

Диаграмма 1.

Обстоятельства происхождения травмы костей кисти у лиц пострадавших в экспертном материале



Из Диаграмма №1 следует, что в структуре травм преобладали переломы костей фаланг пальцев (32,8%) и переломы пястных костей (64,5%), в то же время переломы костей запястья наблюдались сравнительно редко (2,7%). Эти показатели совпадают с данными других исследователей.

В ходе исследования наблюдений были изучены и детально проанализированы характер, локализация, частота, объем, осложнения, исходы повреждений структуры кистей. В процессе анализа и систематизации повреждений структуры кистей, а также при распределении материалов исследований на группы и подгруппы, опирались на клинико-анатомические классификации этих структур. При статистической обработке результатов исследований в рамках вариационной статистики определялись критерии достоверности показателей (t), минимальная ошибка (m) и достоверность различия (p) показателей.

Результаты исследования и обсуждение

Установлено, что со стороны структур запястья чаще всего отмечались переломы ладьевидной (79,1%) кости, переломы остальных костей отмечены в 20,9% случаях. У 19 – ти пострадавших лиц имела место изолированная травма кистей с переломами костей запястья, в остальных 5 случаях травма кистей сочеталась с повреждениями других частей тела: с переломами костей предплечья (2), черепно-мозговой травмой (2) и с переломами костей плеча, бедра и голени (1).

Типы и подтипы переломов ладьевидной кости (20) устанавливали на основе классификации переломов этих структур (Herbert, Russe) – таблица№2.

Таблица 2

Типы и подтипы переломов ладьевидной кости

№ nn	Типы переломов	Подтипы переломов	Количество
1.	Типа А –стабильные свежие переломы	А 1- перелом бугорка	0
		А 2 – незавершенный перелом талии (горизонтальный, полулунный, вертикальный 12)	14±0,005
2.	Тип В – нестабильные свежие переломы	В 1 – дистальный косой перелом	0
		В 2 – завершенный перелом талии	4±0,002
		В 3 – завершенный перелом проксимального полюса	0
		В 4 – Чрезладьевидно-перилунарный переломо-вывих запястья	2±0,001
3.	Тип С –замедленная консолидация		0
4.	Тип Д – доказанное несращение	Д -1 – фиброзное несращение	0
		Д – 2 - псевдоартроз	0
Всего 20			20±0,005

Как видно из таблицы, в ладьевидной кости чаще всего наблюдались переломы Типа А 2 – незавершенный перелом талии (рис. 1), сравнительно режье – типы В 2 – завершенный перелом талии (рис.2) ($p \leq 0{,}005$) и типы В 4 – черезладьевидно – перилунарный перелома-вывих запястья. Со стороны других костей отмечены переломы тел полулунной и крючковидной, внутрисуставной неосложненный перелом гороховидной и краевой перелом трехгранной костей.

18-ти больным с травмами костей запястья, которые обратились своевременно за медицинской помощью, проведено консервативное лечение с наложением гипсовой лангеты на срок от 8 до 12 недель. Исходы травм у этих больных были благоприятные, в течение 2-5 месяцев восстановились функции кистей и лучезапястных суставов, следовательно и не наблюдались стойкой утраты общей трудоспособности. В отношении 6-ти больных с изолированными переломами костей запястья, которые обратились за медицинской помощью спустя несколько недель и месяцев после травмы, проведено оперативное лечение, в последствие у 2-х из них отмечено восстановление функции кистей, а у 4-х наблюдались осложнения в виде ложного сустава (3) и асептического некроза (1).

Результаты исследования показали, что в структуре травмы костей запястья преобладают переломы ладьевидной кости (79,1%). Определено, что формирование переломов костей запьястя в основном было обусловлено непрямым механизмом травмы – сгибанием кистей, так как эти сесамовидные кисти имеют скользящий характер. В связис отсутствием надкостниц в этих костях, даже при своевременном проведении операций, может наблюдаться неблагоприятный исход, среди которых преобладает формирование ложного сустава [Chang K.K., 2008; Boyer M.I., von Schroeder L.P., Axelrod T.S., 2018].

Рис. 1. Падение на плоскость. Давность -15 суток. Отдалённый результат-удовлетворительный.

Рис. 2. Падение на плоскость. Давность - 22 суток. Отдалённый результат-контрактура лучезапястного сустава.

Сроки иммобилизации кисти при переломах других костей запястья составляли в переделах 8-12 недель. Исходя из характера и исходов переломов костей запястья, изолированные неосложненные повреждения этих структур (15), с учетом длительности расстройства здоровья на срок свыше 3-х недель - менее 4-х месяцев, степень тяжести травмы была квалифицирована как средняя. У 4-х пострадавших с изолированными переломами ладьевидной кости, осложненных ложными суставами и асептическими некрозами, в исходе вызвавшие выраженные нарушения функции лучезапястного сустава, вплоть до функционально невыгодного положения, при этом объем стойкой утраты обшей трудоспособности составил свыше одной трети (слева-35%, справа-40%).

В зависимости от анатомических структур пястных костей отмечались нижеследующие переломы по их локализации (таблица № 3).

Таблица 3

Локализация переломов в зависимости от анатомических областей пястных костей

Анатомические области костей	Количество переломов в анатомических областях пястных костей					Всего
	I	II	III	IV	V	
Дистальный эпифиз (внутрисуставной)	1	0	1	2±0,001	1	5±0,001 (2,3%)
Шейка (околосуставной)	6±0,003	14±0,004	9±0,004	21±0,007	57±0,02	107±0,007 (49,1%)
Дистальный эпифиз тела (диафизарный)	2±0,001	7±0,003	9±0,004	15±0,006	12±0,005	45±0,004 (20,6%)
Проксимальный эпифиз (внутрисуставной)	14±0,004	5±0,002	8±0,003	12±0,005	19±0,006	58±0,004 (26,6%)
Комбинированные	0	1*		2**		3 (1,4%)
Всего	23±0,003	27±0,004	27±0,004	52±0,003	89±0,01	218±0,005 (100%)

Из таблицы № 3 видно, что в большинстве случаев у пострадавших отмечены околосуставные переломы в области шейки пястных костей (49,1%), затем – внутрисуставные переломы у основании (26,6%) (рис.3) и околосуставные диафизарные переломы (20,6%) костей. Переломы в области головки и комбинированные переломы выявлялись значительно редко (2,3 и 1,4%).

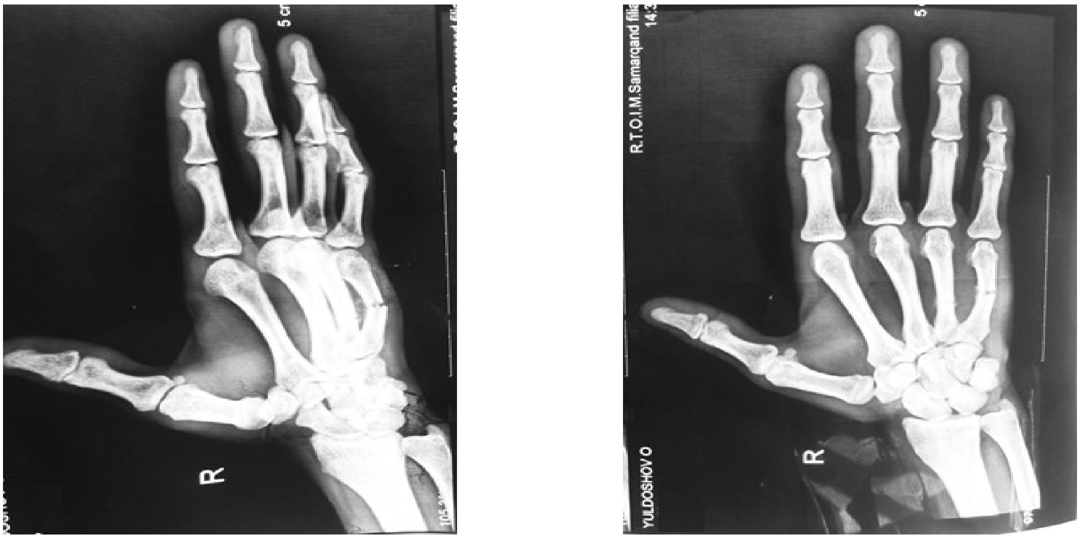


Рис. 3. Рентгенограмма правой кисти. Прямой и боковой проекций. Давность-3 ч. Отдалённый результат-удовлетворительный.

Характер переломов пястных костей указаны в таблице № 4.

Таблица 4

Характер переломов в пястных костях

№	Характер переломов	Количество и % переломов в каждой пястной кости						
		I	II	III	IV	V	VI	Всего
1.	Субкапитальный (вне области суставной поверхности дистального эпифиза)	1	4±0,002	13±0,005	8±0,004	20±0,01	57±0,03	103±0,01 (47,2%)
2.	Оскольчатый без смешением (во всех отделах)	4±0,002	5±0,002	1	10±0,005	8±0,004	8±0,004	34±0,003 (15,6 %)
3.	Косой (в области диафиза, у основания)	7±0,003	0	4±0,002	2±0,001	9±0,004	9±0,004	31±0,003 (14,2%)
4.	Поперечный (во всех отделах, кроме головки)	1	1	4±0,002	5±0,002	9±0,004	6±0,003	26±0,003 (11,9%)
5.	Оскольчатый со смещением (во всех отделах)	0	2±0,001	5±0,003	2±0,001	6±0,003	9±0,004	24±0,002 (11,0%)
Всего		13±0,003 (6,0%)	10±0,002 (4,6%)	27±0,005 (12,4%)	27±0,005 (12,4%)	52±0,01 (23,9%)	89±0,02 (40,8%)	218±0,004 (100%)

Из данных таблицы № 4 видно, что переломы наиболее часто наблюдались в V – ой (40,8%), затем - в IV – ой (23,9%) пястных костях. Переломы других пястных костей составили от 4,6 до12,4%. В разных отделах пястных костей различали следующие виды переломов: косые (31), поперечные (26), оскольчатые без смещения (34) и - со смещением (24). В остальных случаях (103) имело место субкапитальные переломы шейки костей ($p \leq 0{,}001$).

Приведенные данные в таблице № 4 указывают на то, что косые переломы часто наблюдались в IV-V пястных костях. Следует отметить, что при косых переломах пястных костей имеется вероятность смещения краев переломов, в связи с чем при этом в основном проводится оперативное лечение. Однако переломы при этом имеют набольшую площадь, поэтому заживление в них протекает относительно быстро, как правило без осложнений. В связи с этим сроки иммобилизации при этих переломах составили от 5-6 до 6-8 недель. При поперечных переломах нередко наблюдается попадание пораженных мягких тканей в зону перелома, в связи, с чем данный вид перелома требует проведения хирургического лечения (рис. 4). Из-за небольшой площади переломов процесс заживления в них замедляется, в связи с чем сроки иммобилизации кистей составляли в среднем от 6-8 до 8-10 недель. При данном виде переломов контрактуры II, IV-V пальцев чаще всего были отмечены вследствие консервативного лечения. В этих условиях обьем стойкой утраты общей трудоспособности состовил от 10-15 до 20-25 %. Оскольчатые переломы со смещением были отмечены во всех пястных костях, однако чаще всего они отмечались на V и II-ой костях. Данный вид перелома обычно требует проведения хирургического лечения, так как отломки костей будут препятствовать закрытому способу репозиции (рис. 5). Несмотря на это, в отношении 22-х больных (из 24) было проведено консервативное лечение с закрытой репозицией отломков. В результате у 8-ми из 22-х больных после 2-х месячной иммобилизиции в исходе отмечались выраженные контрактуры II и V пальцев, что правело к стойкой утраты общей трудоспособности на 20-25%. Оскольчатые переломы без смещений часто отмечены на III-IV и V- пястных костях. При этом виде перелома из-за отсутствия смещений проводилась консервативное лечение. В этих переломах заживление протекает благоприятно, без осложнений и переломы заживают с формированием незначительной мозоли. В связи с этим, сроки иммобилизации кистей составлили в среднем 4-6 недель и потери стойкой утраты общей трудоспособности не отмечались. Субкапитальные переломы в отдаленном периоде травмы привели к контрактуре V-го пальца в 19-ти случаях из 103-х наблюдений (угол сгибания составил 5%). Сроки иммобилизации при этих переломах составляли от 5-6 до 6-8 недель. В период реабилитации контрактуры пальцев у 19-ти больных были устранены, а у 4-х больных после 2-х месячной реабилитации эти состяния сохарнились в течение 1,5 месяцев, что привело к стойкой утрате общей трудоспособности на 5-10 %.

В настоящее время при лечении переломов пястных костей применяются консервативные и оперативные методы лечения [6; 1; 7]. По мнению большинства исследователей консервативное методы лечения – иммобилизация, закрытая репозиция с иммобилизацией и скелетное вытяжение становятся малоэффективной для лечения переломов этих костей, приводят до 22 31,3% случаев к таким осложнениям как деформаций пястных костей, вторичным смещением костных отломков и ограничению движения пальцев. В связи с этим, в современных условиях широко применяются оперативные методы лечения – интрамедуллярный накостный, трансверсальные, внеочаговый остеосинтезы, а также метод комбинированного остеосинтеза который являются наиболее эффективным методом лечения переломов и деформаций пястных костей.

При неосложненных внесуставных переломах пястных костей и фаланг пальцев кисти чаще всего (62,6-71,4%) проводятся консервативные методы лечения с проведением закрытой репозиции и наложенном внешней иммобилизации гипсовой лангетой. При этом недостаточная механическая прочность фиксации костных отломков нередко (15,2-17,0% случаев) приводит к их вторичному смещению с развитием фиброзирующих процессов и контрактуры межфаланговых суставов. В связи, с чем сроки реабилитации больных превышает 4-7 месяцев.

При анализе результатов реабилитации 470 больных с неосложненным внесуставными переломами пястных костей и фаланг пальцев кисти было установлено что, остеосинтез в комбинацию с иммобилизацией кисти гипсовой лангетой полностью не предотвращает возможность вторичного смещения костных отломков. Авторы считают, что для предупреждения вторичных смешений костных отломков при внутрисуставных переломах пястных костей и фаланг пальцев кисти эффективным является дополнительная фиксация костных отломков стягивающими скобами после внеочагового остеосинтеза.

Выводы

Осложнении переломов ладьевидной кости, приводящие к стойкой утрате общей трудоспособности в объеме более 1/3 проявляется резким ограничением движений в лучезапястном суставе, вплоть до вынужденного его состояния. При неосложненных переломах ладьевидной кости и переломах других костей запястья длительность расстройство здоровья составляет 8-12 недель (до 3 месяцев). Осложнения в виде контрактур пальцев, приводящих к стойкой утрате общей трудоспособности в объеме от 10 до 25% наблюдается преимущественно при субкапитальных, оскольчатых и поперечных переломах пястных костей. В подобных случаях продолжительность расстройство здоровья составляет 3-3,5 месяцев, а при неосложненных переломах - 4-6 недель. Наиболее рациональным способом лечения осложненных переломов ладьевидной кости является метод открытого металлоостеосинтеза, а при переломах пястных костей-эндоротезирования.

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КАФТ ОЛДИ СУЯКЛАРИ СИНГАН БЕМОРЛАРДА ТРАВМАНИНГ УЗОҚ ОҚИБАТЛАРИ ВА АСОРАТЛАРИ

Резюме: *Мақолада кафт олди суяклари жароҳатланишлари билан даволанишда бўлган беморларда кузатиладиган яқин ва узоқ оқибатли асоратларни ва уларнинг реабилитация муддатини аниқлаш орқали шикаст оғирлик даражасини баҳолаш мақсадида ихтисослаштирилган травматология ва ортопедия илмий-амалий тиббиёт марказида қўл панжа суяклари жароҳати билан амбулатор даволанган 20 нафар беморлар текширув ва даволаш натижалари таҳлил қилинган. Натижаларга кўра, кафт олди тузилмаларида кўпинча қайиқсимон суякнинг синишлари (79,1%) кузатилган, қолган суякларнинг синишлари 20,9% ҳолларда қайд этилган. Қайиқсимон суяк синишлари А типи (стабил янги синишлар); Б типи (ностабил янги синишлар); С типи (секин консолидация); Д типи (исботланган битмаслик) тип ва турлари аниқланган. Қайиқсимон суяк синиши оқибатида, умумий меҳнат қобилияти 1/3 қисмидан кўп миқдорда турғин йўқотилишига олиб келадиган, билак-кафт бўғимида мажбурий холатга қадар ҳаракат чекланиши кўринишидаги асоратлар юзага келиши қайд этилган. Қайиқсимон суякнинг асоратланмаган синишлари ва бошқа кафт олди суяклари синишларида узоқ оқибатли асоратлар кузатилмаган ва соғлиқнинг бузилиш муддати ҳам 2-3 ойни ташкил қилган.*

Калит сўзлар: *кафт олди суяклари, кафт суяклари, синишлар, оқибатлар, асоратлар.*

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LONG-TERM CONSEQUENCES AND COMPLICATIONS OF TRAUMA IN PATIENTS WITH FOREARM BONE FRACTURES

Abstract: *In order to clarify the forensic criteria for determining the severity of fractures of the wrist bones, the long-term occurrence of fractures of the wrist bones in 24 male individuals aged 14 to 48 years who were injured under various circumstances and received outpatient treatment was studied. There are 20 men and 4 women among the injured. It was found that fractures of the navicular bone (83.3%) are most often formed from the impact of blunt objects, fractures of the remaining wrist bones are detected relatively less frequently (16.7%). Fractures of Type A 2 – incomplete waist fracture are often formed in the navicular bone, relatively less often types B 2 – complete waist fracture and In 4 – trans–navicular - perilunar fracture-dislocation. The main types of fractures of other wrist bones are fractures of the semilunar and hook-shaped bodies, intraarticular uncomplicated fracture of the pea-shaped and palmar fracture of the triangular bones. In patients with fractures of the navicular bone, especially in cases of late medical treatment, complications in the form of a false joint and aseptic necrosis may occur, causing a pronounced impairment of the functions of the wrist joint, up to its functionally disadvantageous position. In uncomplicated fractures of the navicular bone and fractures of other wrist bones, the duration of the health disorder is 8-12 weeks (up to 3 months). Complicated fractures of the navicular bone are classified as serious bodily injuries. Uncomplicated fractures of this bone and fractures of other wrist bones are classified as moderate injuries.*

Key words: *metacarpal bones, palmar bones, fractures, consequences, complications.*

Кириш: Ҳозирги вақтда бутун дунё мамлакатларида механик фактлари таъсири билан боғлиқ жарохатланишлар травматизм таркибида доимий равишда етакчи ўринни эгаллаб келмокда, улар орасида таянч-ҳаракат тузилмалари жарохатлари 22 % дан 43 % гачани ташкил этган бўлса, қўл панжа суякларининг зарарланиши умумий жарохатланишларнинг 25,4-28,4% ни ташкил қилади ва шундан 55% дан ортиғи очиқ жарохатларга тўғри келади [4; 5].

Кафт олди суяклари синишининг оғирлик даражасини аниқлаш тирик шахслар экспертизасида асосий муаммолардан бир ҳисобланади. Хозирги вақтда суд тиббий экспертиза жараёнида мазкур тузилмалар синишнинг оғирлик даражасини аниқлаш, соғлиқнинг бузилиши давомийлиги ва умумий меҳнат қобилиятнинг турғун йўқотилиш миқдорига (%) асосланади. Бироқ, қўл панжа суяклари синиши типи, тури ва жойлашув ўрнига кўра, ҳамда бу соҳага ёндош тузилмалар жарохатланиш ҳолатларида, соғлиқнинг бузилиш муддатлари ва умумий меҳнат қобилиятининг турғун йўқотилиш миқдори турлича бўлиши мумкин. Бинобарин, мазкур тузилмалар синишининг табиати, асоратлари ва узоқ оқибатлари жуда хилма-хиллиги билан таърифланади ва бу ҳолатлар узун найсимон суяклар синиши жиҳатларидан тубдан фарқ қилади [1]. Бу ҳолат, қўл панжа тузилмалари хусусияти ҳамда тузилмаларнинг ўзаро ўта мураккаб анатомо-топографик боғлиқлиги билан изоҳланади.

Тадқиқот мақсади: кафт олди суяклари жароҳатланишлари билан даволанишда бўлган беморларда кузатиладиган яқин ва узоқ оқибатли асоратларни ва уларнинг реабилитация муддатини аниқлаш орқали шикаст оғирлик даражасини баҳолаш.

Тадқиқот материаллари ва усуллари: Республика ихтисослаштирилган травматология ва ортопедия илмий-амалий тиббиёт маркази Самарқанд филиалида 2020-2021-йилларда қўл панжа суяклари жароҳати билан амбулатор даволанган 14 ёшдан 74 ёшгача бўлган 20 нафар беморлар текширув ва даволаш натижалари ташкил этди. Текшириш ва даволаш амалдаги стандартга мувофиқ ўтказилди. Текширувдан ўтказилган ва даволанган беморларнинг эркак 90,2%ини ва аёллар эса 9,8%ни ташкил этди. Энг кўп жароҳатланишлар 18 ёшдан 44 ёшгача бўлганларда (69.5%) қайд этилган.

Барча жабрланган беморларда қўл панжа суякларининг алоҳида синишлари кузатилди, чунки тадқиқотга фақат амбулатор шароитда даволанганлар киритилган. Маълумки, қўшма жарохатланишлар асосан стационар шароитда даволанади. Қўл панжа суяклари синишларининг асосий қисмини 3 соатгачалик муддат (44,1%) ва 1-3 суткалик (35,5%), шунингдек 4-8 соатлик (10,1%) ташкил этади. Қолган холатларда 4-суткадан 22 ва ундан кўп муддатли синишлар 0,6 дан 5,0% гача ташкил этади. Кўриниб турибдики, беморларнинг аксарияти травманинг дастлабки соат ва кунларда тиббий ёрдамга мурожаат қилишган.

Қўл панжа тузилмаларига зарар етказилишини таҳлил қилишда ва тизимлаштиришда, шунингдек, тадқиқот материалларини гуруҳлар ва кичик гуруҳларга тақсимлашда энг тарқалган клинико-анатомик таснифга таянилди. Вариацион статистика доирасида тадқиқот натижаларини статистик ишлаш жараёнида тузилмалар шикастлари кўрсаткичларининг ишончлилиги (t), кўрсаткичлар минимал хатоси (m) ва асослилик даражаси (p) аниқланди.

Тадқиқот натижалари ва муҳокамаси **-** Аниқландики, кафт олди тузилмаларида кўпинча қайиқсимон суякнинг синишлари (79,1%) кузатилди, қолган суякларнинг синишлари 20,9% ҳолларда қайд этилди. 19 та ҳолатда жароҳатланган шахсларда кафт олди суяклари алоҳида синишлари, қолган 5 нафарида кафт жароҳатлари тананинг бошқа қисмлар жароҳати билан бирга кузатилган: билак суяклари синиши (2), бош мия травмаси (2), елка, сон ва болдир суяклари синишлари (1).

Қайиқсимон суяк синишларини (20) тип ва турларга ажратишда, ушбу тузилмалар синиши таснифи асосида тақсимланди (Herbert, Russe) – №1 жадвал.

1-жадвал

Қайиқсимон суяк синишларининг типлари ва турлари

№ n	Синиқ типлари	Синиқ типости турлари	Миқдори
1.	А типи –стабил янги синишлар	А 1 - думбоқ синиши	0
		А 2 – танасининг тугалланмаган синиши (горизонтал, яримойсимон, вертикал)	14±0,006
2.	Б типи – ностабил янги синишлар	В 1 – дистал қийшиқ синиш	0
		В 2 – танасининг тўлиқ синиши	4±0,003
		В 3 – проксимал қисмнинг тугалланган синиши	0
		В 4 – қайиқсимон - перилунар синиш ва кафт олдининг чиқиши	2±0,001
3.	С типи –секин консолидация		0
4.	Д типи – исботланган битмаслик	Д -1 – фиброз битмаган	0
		Д – 2 – псевдоартроз	0
Жами 20			20±0,005

Жадвалдан кўриниб турибдики, қайиқсимон суякда А2 типидаги синишлар (танасининг тугалланмаган синиши) энг кўп кузатилган (расм 1) ва В2 типидаги (танасининг тўлиқ синиши) 2-расм ва В4 - типи (қайиқсимон суякнинг синиши қўл панжасининг перилунар чиқиши) билан нисбатан кам бўлди. ($p \leq 0,005$). Бошқа суякларда - яримойсимон ва илмоқсимон суяклар таналарининг синиши, нўхатсимон суякнинг асоратсиз синиши ва учқиррали суякнинг қирраси синиши қайд этилган.

Кафт олди суяклари синиши билан ўз вақтида тиббий ёрдамга мурожаат қилган 18 нафар беморлар 8 - 12 ҳафтагача вақт давомида консерватив усулда, гипс боғламада даволанди, натижалари ижобий бўлди, яъни қўл панжа ва билак-кафт бўғимининг функциялари 2-3 ой давомида тўлалигича тикланди ва уларда жароҳат оқибатида умумий меҳнат қобилиятининг турғун йўқотилиши қайд этилмади. Жароҳатдан сўнг бир неча ҳафта ва ой ўтгач тиббий ёрдамга мурожаат қилган 6 нафар беморларда жарроҳлик муолажаси қўлланилди, улардан 2 нафарида қўл панжа функцияси тикланди, 4 нафарида эса асоратлар кузатилиб, шунлардан 3 нафарида сохта бўғим ҳосил бўлган булса, 1 нафарида асептик некроз қайд этилди.

1-расм Рентгенография унг қўл панжаси, тўғри ва ён кўринишлари, қўлига таяниб йиқилган. Муддати -15 кун. Узоқ оқибат-тузалди.

2-расм. Рентгенография ўнг қўл панжаси, тўғри ва ён кўриншлари. Муддати - 22 кун. Узоқ оқибат-билак-кафт бўғими контрактураси.

Натижалар шуни кўрсатадики, кафт олди суяги жароҳатлари таркибида қайиқсимон суяк синишлари устунлик қилади (79,1%). Қайд этилдики, ушбу тузилмада синишлар келиб чиқиши асосан, билвосита таъсирот, яъни қўл панжанинг букилиши билан боғлиқ бўлган, чунки бу ердаги сесамасимон суяклар силжувчанлик хусусиятга эга. Таъкидлаш керакки, кафт олди суякларининг синишларида беморлар одатда оғриқни сезмайдилар ёки оғриқ ва шиш аҳамиятсиз бўлиб, беморлар бунга эътибор бермайдилар. Бу ҳолат, уларда суяк усти пардасининг йўқлиги билан боғлиқ бўлиб, шунга кўра ҳатто ўз вақтида бажарилган операциядан сўнг ҳам, синишдан сунг салбий натижа кузатилиши мумкин ва асоратлар орасида сохта бўғим юзага келиши устунлик қилади [6].

Кафт олди суяклари синишлари оқибатида асоратлар кузатилмаган ҳолларда қўлни иммобилизация қилиш ўртача 8-12 ҳафта бўлиб, уларнинг оғирлик даражаси соғлиқнинг бузилиш давомийлиги асосида баҳоланди, яъни оқибат умумий меҳнат қобилиятининг турғун йўқотилишига олиб келмади. Сохта бўғим ва асептик некроз билан асоратланган қайиқсимон суякнинг синиқлари бўлган 4 беморда билак-кафт бўғимининг функциясини жиддий бузилишига олиб келган ва функционал мажбурий холат юзага келиши, жароҳат оғирлик даражасини аниқлашда инобатга олинмай қолиши ҳам мумкин. Ваҳоланки, бундай ҳолатларда, умумий меҳнат қобилиятининг турғун йўқотилиш миқдори чапда-35, ўнгда-40%и ташкил этади. Ушбу маълумотлар экспертлик амалиётида инобатга олиниши лозим. Демак, қайиқсимон суяк синишидан ташқари, бошқа кафт олди суякларининг алохида синишида оқибатни кутмасдан оғирлик даражаси ўрта даража этиб белгилаш мумкин.

Хулоса:

Кафт олди тузилмаларида кўпинча қайиқсимон суякнинг синишлари (79,1%) кузатилди, қолган суякларнинг синишлари 20,9% ҳолларда қайд этилди. Қайиқсимон суяк синишлари А типи (стабил янги синишлар); Б типи (ностабил янги синишлар); С типи (секин консолидация); Д типи (исботланган битмаслик) тип ва турлари аниқланди. Кафт олди суяклари синишлари келиб чиқиши аксарият ҳолларда билвосита таъсир механизми (қўл панжа букилиши) билан боғлиқ бўлиб, улар орасида қайиқсимон суяк синиши оқибатида, умумий меҳнат қобиляти 1/3 қисмидан кўп миқдорда турғин йўқотилишига олиб келадиган, билак-кафт бўғимида мажбурий холатга қадар ҳаракат чекланиши кўринишидаги асоратлар, юзага келиши қайд этилди. Қайиқсимон суякнинг асоратланмаган синишлари ва бошқа кафт олди суяклари синишларида, соғлиқнинг бузилиш давомийлиги 8-12 хафта (3 ойга қадар)ни ташкил этади.

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СПОСОБЫ ПОВЫШЕНИЯ ПРОЧНОСТИ БЕТОНА

Аннотация: *Данная статья посвящена методам повышения прочности бетона. Качество и прочность бетона имеют важное значение для безопасности строительных конструкций и их долговременной устойчивости. В статье анализируется влияние качества цемента, песка, гравия и воды, а также химических и минеральных добавок, в частности суперпластификаторов, полимерных добавок и микросиликата, на удобоукладываемость и прочность бетона. Кроме того, рассматриваются возможности нанотехнологий, включая нано-кремнезём и углеродные нанотрубки, в улучшении микроструктуры бетона и повышении его прочности. Однако высокая стоимость передовых технологий ограничивает их широкое применение. Статья предоставляет научные и практические рекомендации для специалистов в области строительства по повышению прочности бетона.*

Ключевые слова: *прочность бетон, строительный материал, цемент, суперпластификаторы, нанотехнологии, минеральные добавки, микросилика, химические добавки, полимерные добавки, микроструктура, прочность на сжатие, долговечность, водостойкость*

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METHODS OF INCREASING THE STRENGTH OF CONCRETE

Abstract: *This article is dedicated to methods for improving the strength of concrete. The quality and strength of concrete are crucial for the safety and long-term stability of construction structures. The article analyzes the influence of the quality of cement, sand, gravel, and water, as well as chemical and mineral additives—particularly superplasticizers, polymer additives, and microsilica—on the workability and strength of concrete. Additionally, the potential of nanotechnologies, including nano-silica and carbon nanotubes, to enhance the microstructure of concrete and increase its strength is examined. However, the high cost of advanced technologies limits their widespread application. The article offers scientific and practical recommendations for construction specialists on improving concrete strength.*

Keywords: *concrete strength, construction material, cement, superplasticizers, nanotechnologies, mineral additives, microsilica, chemical*

additives, polymer additives, microstructure, compressive strength, durability, water resistance

Бетон является одним из наиболее используемых материалов в строительной отрасли, и его прочность и долговечность важны в современных инфраструктурных проектах. Качество и прочность бетона оказывают прямое влияние на безопасность, долгосрочное соучастие и экономическую эффективность строительных сооружений. В результате современных технологий и исследований было разработано много методов для улучшения механических свойств бетона. В этой статье обсуждаются основные методы увеличения прочности бетона, их преимуществ и ограничений. Цель состоит в том, чтобы помочь специалистам по строительству использовать оптимальные решения в своих проектах посредством практических и научно обоснованных данных.

Прочность бетона зависит от многих факторов, включая качество материалов, пропорции, укрепление и условия окружающей среды. Качество цемента, песка, шагала и воды определяет свойства бетона. Кроме того, добавки (химические и минеральные и минеральные) и современные технологии могут значительно увеличить прочность. Профессионализация бетонного сжатия и гибкость использования суперпластических программ и нанотехнологий улучшается.

Химические добавки играют важную роль в улучшении использования и сотрудничества бетонной смеси. Суперклоиды увеличивают закрытие бетона за счет уменьшения соотношения цемента. Полимерминды улучшают гибкость и длину бетона. Правильное количество и качество этих приложений оказывают значительное влияние на прочность.Минеральные добавки, такие как пилот, укрепляют микроклюцию силикатной травы, силикатной травы и микролюбия, бетон. В частности, микроскопизм увеличивает прочность сжатия бетона может увеличиться на 20-30%, поскольку он активно участвует в гидратации цемента.

Последние достижения в области нанотехнологий создали новые возможности для улучшения особенностей бетона. Нано-силикатные и углеродные нано-трубки улучшают бетонные микротузолос, что увеличивает консистенцию и долговечность. Но высокая цена этих технологий ограничивает их популярность. Использование подгонки в увеличении бетона широко распространено. Стальная погода увеличит гибкость бетона, но существует риск коридора. Полимерные реформы устойчивы к коррозии, но дороже. Кроме того, оптимизация процесса нагрева бетона оказывает положительное влияние на консистенцию.

Увеличение бетонной стабильности является важной задачей строительства, в этом процессе есть много методов. Механические свойства бетона могут быть значительно улучшены с помощью химических и минеральных добавок, нанотехнологий и фитингов. Но каждый метод имеет свои собственные преимущества и ограничения, поэтому необходимо учитывать требования к проекту и экономические факторы. В будущем ожидается, что развитие нанотехнологий и развитие экологически чистых материалов создадут новые возможности в этой области.

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БИРИНЧИ ЖАҲОН УРУШИ НАТИЖАЛАРИ ВА АНТАНТАНИНГ УСМОНИЙЛАР ИМПЕРИЯСИНИ БЎЛИБ ОЛИШ РЕЖАСИ

Аннотация. *Мақола биринчи жаҳон урушининг муҳим муаммоларидан бири – Антанта мамлакатлари томонидан Усмонийлар империясини бўлиб олишга бағишланган. 1914 – 1918 йиллардаги биринчи жаҳон урушининг келиб чиқишида турклар мероси, айниқса бўғозлар ва Истамбул масаласи муҳим роль ўйнади. Антантанинг барча мамлакатлари ҳали уруш бошланишидан аввал турклар ҳудудлари бўйича ўзларининг режаларига эга эди.*
Калит сўзлар. *Биринчи жаҳон уруши, Усмонийлар империяси, Антанта, Марказий давлатлар, бўғозлар, Истамбул, Англия, Франция, Германия, Россия.*

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RESULTS OF THE FIRST WORLD WAR AND PLANS OF THE ENTENTE FOR THE DIVISION OF THE OTTOMAN EMPIRE

Abstract. *The article is devoted to one of the important problems of the First World War - the goals of the Entente countries to divide the Ottoman Empire. In the outbreak of the world war of 1914-1918. the question of the Turkish inheritance, especially the straits and Constantinople, played a crucial role. All Entente states had their own plans for Turkish territories even before the war.*
Keywords. *World War I, Oman Empire, Entente, Central Powers, Straits, Constantinople, England, France, Germany, Russia.*

Введение. Первая мировая война, ставшей одним из крупнейших конфликтов и трагических событий XX века, привела к разрушению сложившегося в Европе международного порядка. Осенью 1918 года война закончилась. Коалиция «Центральных Держав» – Германия, Австро-Венгрия, Османской империя и Болгария была разгромлена. В победившую коалицию входило 28 государств, но реально судьба Европы и Ближнего Востока оказались в руках Великобритании и Франции. Россия слишком рано вышла из войны, а США слишком поздно в нее вступили и имели слишком мало дипломатического опыта, чтобы оказывать реальное воздействие на послевоенное урегулирование, даже если у них было такое желание. К тому же руководители этих стран по разным причинам не воспринимали традиционных принципов европейской дипломатии[221]. В результате Первая мировая война и вызвавшие ее факторы не были устранены, а закончились возникновением новых экономических условий, политических и социальных проблем как для стран-победительниц, так и для побежденных[222].

Еще в ходе первой мировой войны страны Антанты уже планировали разделить Турцию. При наличии той сложной финансово-экономической ситуации, которая всегда существовала на Ближнем Востоке, согласовать интересы и устремления Антанты представляло, конечно, огромные трудности. Два года происходила в недрах Антанты ожесточенная дипломатическая борьба из-за турецкого наследства, пока не удалось достигнуть некоторого соглашения.

Англия защищала свои огромные колониальные владения и была не прочь округлить их за счет германских колоний в Африке. У Франции были свои интересы на Ближнем Востоке. Так же, хотелось вернуть Эльзас и Лотарингию, потерянные в 1870 г., а также прихватить богатый Саарский угольный бассейн. В России считали жизненно важным отобрать у Турции проливы Босфор и Дарданеллы вместе с Константинополем.

Два года происходила в недрах Антанты ожесточенная дипломатическая борьба из-за турецкого наследства, пока не удалось достигнуть некоторого соглашения.

Материалы и методы. В статье использованы историко-сравнительный, историко-системный и ретроспективный методы исследования.

Использованная литература на русском языке, хотя она по объему не столь велика, имеет тем не менее важное значение. Особенно ценным, на наш взгляд, являются работы М.П. Павловича, В.В. Коряжина, написанные в 20-годы XX века, «Европейские державы и Турция во время мировой войны. Раздел азиатской Турции» – статья, подготовленная по секретным документам министерства иностранных дел России. Из статьи более позднего периода можно выделить рецензию Е. Саркисова на книгу Л.Ф. Миллера «Краткая история Турции», где автор подходит с точки зрения критического анализа.

Работы турецких авторов – Орала Сандера, Фарида Армаоглы, Дорис Геттинг отличаются тем, что авторы при подготовке своих работ использовали материалы турецких архивов и мемуары участников событий, из которых важное значение с точки зрения критического подхода к событиям имели мемуары Махмуда Мухтар-паши и Ахмеда Иззет-паши.

Результаты. Вопрос о разделе Азиатской Турции приобрел не только вполне самостоятельное политическое значение с момента вступления Турции в войну, но и определяющий политику союзных держав для

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221 См. Фомин А.М. Проблемы Ближнего Востока в англо-французских отношениях в 1918-1923 годах. Автореферат диссертации на соискании ученой степени кандидата исторических наук https://www.dissercat-.com/content/problemy-blizhnego-vostoka-v-anglo-frantsuzskikh-otnosheniyakh-v-1918-1923-godakh (14.06.2024)

222 Oral Sander, Siyasi Tarih (lkçalardan 1918’e), 6. Baskı, Ankara, 1998, s.349.

ближайшего послевоенного периода характер. С вопросом о Константинополе и проливах он связан органически и неразрывно: притязания России сделаны были поводом и основанием для приступа к осуществлению притязаний западных держав в азиатских владениях Турции[223].

Война, следовательно, с самого начала, независимо от участия или неучастия в ней Турции, была войною за существование Турецкой империи. Турция должна была выбирать между выступлением на стороне центральных держав, которое присоединило бы ее силы к борьбе против опасности ее уничтожения, и безвольным, пассивным ожиданием решения своей участи». Такова же была и точка зрения той части младотурецких государственных деятелей, которые, с начала кризиса стояли за выступление Турции на стороне центральных держав.

Необходимо отметить, что и Турция имела свои интересы для участия на стороне центральных держав. Хотя Турция являлась орудием империалистической Германии, она вместе с тем сама имела свои собственные захватнические планы. Осуществить эти планы младотурецкая клика могла только в союзе с кайзеровской Германией, ибо захватнические планы турок были направлены, главным образом, против России.

Обсуждение. Известно, что мировая война была начата Германией. Она претендовала на англо-французские колонии, Украину и Прибалтику, стремилась вместе с Австро-Венгрией абсолютно господствовать на Балканском полуострове и дальше – на Ближнем Востоке.

Пока Германия не интересовалась вопросом о турецком наследстве, - русско-германские отношения носили самый дружественный характер. Но как

только господствующие классы Германии устремили свое внимание на Ближний Восток, русско-германские отношения стали портиться.

Официальное начало войны активизировало дискуссии о «турецком наследстве». Царский манифест гласил, что выступление Османской империи «только ускорит роковой для нее ход событий и откроет России путь к разрешению завещанных ей предками исторических задач на берегах Черного моря». Что это были за «исторические задачи», ни для кого не было загадкой: речь шла о Константинополе и проливах[224].

План расчленения Османской империи предусматривало особое тайное соглашение 1915 г., авторами которого были дипломатические эксперты англичанин Марк Сайкс и француз Франсуа Жорж-Пико. В 1916 г. к «соглашению Сайкс-Пико», как стали его называть, присоединилась Россия.

[223] Европейские державы и Турция во время мировой войны. Раздел азиатской Турции (по секретным документам министерства иностранных дел). Под редакцией Е.П. Адамова. – Издание Литиздата НКИД, Москва, 1924. С. 1.

[224] Богомолов И.К. «Больной человек» на тонущем корабле: образ Турции в российской печати времен Первой мировой войны // Имагология и компаративистика. 2022. № 18. С. 323–345. doi: 10.17223/24099554/18/16. С. 328.

Кроме того, в 1915 г. была оформлена еще одна тайная договоренность, включавшая памятные записки министра иностранных дел России С.Д. Сазонова и британского посла в Петрограде Дж. Бьюкенена.

По соглашению Сайкс-Пико к России должны были отойти области Эрзурума, Трабзона, Вана и Битлиса, а также часть турецкого Курдистана к югу от двух последних городов. По договоренности Сазонова-Бьюкенена России были обещаны Константинополь (Стамбул) и Черноморские проливы (Босфор, Дарданеллы, побережье Мраморного моря). Правда, передача России Стамбула и проливов была обусловлена существенными оговорками: во-первых, она могла состояться только в том случае, если война будет доведена до победного конца, и, во-вторых, если Англии и Франции осуществят свои собственные планы на Востоке и в других регионах мира. Последняя оговорка делала весьма проблематичной будущую аннексию этих территорий Россией[225].

В 1915 г. возникает вопрос о будущности Турецкой империи, в связи с попытками держав Антанты привлечь на свою сторону Грецию и Болгарию. Они принуждены обещать первой – территориальные компенсации в Малой Азии, а второй – приобретения в Европейской Турции (Вост. Фракию до линии Энос – Мидия). Среди возникших по этому поводу переговоров Делькассе делает неосторожное замечание о важности для Франции Смирны, как узла французских ж.д., вследствие чего для России, Англии и Франции необходимо «предварительно сговориться о разделе Турции»[226].

Конечно, роль застрельщика, как и следовало ожидать, играла здесь Россия. Лишь только Турция вступила в войну (21.X.1914 г.), как все русские буржуазные партии начали требовать осуществления «исторических задач России» на Востоке. Английское правительство пыталось сначала сопротивляться русским притязаниям. В ответ на торжественном заседании Государственной Думы, где Созонов довольно прозрачно намекал на предстоящий выход России к свободному морю, Э. Грей сделал неприятное разъяснение, что «та политическая форма, которую примет стремление России – будет обсуждаться на мирной конференции». Эти слова руководителя английской политики произвели среди русских империалистически-буржуазных кругов впечатление взорвавшейся бомбы. Негодование было настолько сильно, что информированный Бьюкененом Э. Грей пытался свалить все на Францию, якобы препятствующую утверждению России в проливах. Однако, Делькассе совершенно резонно констатировал, что «узел вопроса находится в Лондоне», что, конечно, прекрасно было известно петербургским дипломатам[227].

Что сделала Османская империя для присоединения к блоку союзных держав? Тот факт, что ее вторая попытка не осуществилась, неизбежно подтолкнул Османскую империю в объятия Германии. В правительстве

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[225] Павлович (Вельтман) М.П. Революционная Турция. – М.: Госиздат, 1921. С. 57.
[226] Коряжин В. Раздел Турции во время мировой войны / Новый Восток, 1923, № 4. С. 4.
[227] Коряжин В. Раздел Турции во время мировой войны / Новый Восток, 1923, № 4. С. 50.

Турции основными сторонниками союза с немцами были великий визирь Саит Халим-паша, военный министр Энвер-паша, министр внутренних дел Талат-бей и председатель парламента Халил-бей. Однако предложение о вступлении в блок Тройственного союза сначала пришло из Австрии, и на основе этого предложения Османская империя 22 июля обратилась к Германии с просьбой о союзе, а по просьбе Вильгельма II Германия начала переговоры о союзе с Османской империей. Известную роль в этом вопросе сыграл австро-венгерский министр иностранных дел граф Берхтольд, подавший 14 июля 1914 г. мысль о союзе; с предложением о заключении союза к Вильгельму II обратился 22 июля 1914 г. Энвер-паша[228].

По данным турецких ученых переговоры с Германией начались в Стамбуле 27 июля и продолжались два дня. Турецко-германский договор о союзе был подписан 2 августа 1914 года. Министр финансов Кавит-бей, известный как сторонник союзных держав и военно-морского ведомства, министр Джемаль-паша и многие другие члены кабинета министров не были проинформированы об этих секретных переговорах, но после подписания альянса им сообщили.

По этому договору:

1) два государства проявят полный нейтралитет в споре между Австрией и Сербией;

2) если в результате военных мер, предпринятых Россией, Австрия и Россия начнут войну и Германия будет вынуждена прийти на помощь Австрии, то к войне присоединится и Османская империя;

3) если Османская империя останется под угрозой, Германия будет защищать её с оружием;

4) Союз продлится до конца 1918 года и снова будет действовать в течение пяти лет, если одна из сторон не прекратит его.

4 августа 1914 года, когда началась мировая война, Османской империи пришлось бросить кости таким образом раз и навсегда[229].

В дополнение к «договору о союзе» от 2 августа 1914 г. обе стороны подписали в дальнейшем особую конвенцию о положении германской военной миссии в Турции[230].

По данным российских источников 28 июля Турция предложила Германии тайный оборонительный и наступательный союз исключительно против России. Предложение было принято, но выступление Турции замедлилось впечатлением, произведенным вступлением в войну Англии, и для того, чтобы победить колебания в среде правящих турецких кругов,

[228] Лудшувейт Е.Ф. Турция в годы первой мировой войны. 1914–1918 гг. (Военно-политический очерк). – Издательство Московского университета, 1966. С. 26.

[229] Fahir Armaoglu. 20.Yüzyıl Siyasi Tarihi (1914-1995), s. 175-176. https://www.kitapyurdu.com/kitap/20yuzyil-siyasi-tarihi-19141995

[230] Лудшувейт Е.Ф. Турция в годы первой мировой войны. 1914–1918 гг. (Военно-политический очерк). – Издательство Московского университета, 1966. С. 28.

«понадобилось самое энергичное давление со стороны центральных держав»[231].

Здесь необходимо отметить, что и Турция имела свои интересы для участия на стороне центральных держав. Хотя Турция являлась орудием империалистической Германии, она вместе с тем сама имела свои собственные захватнические планы. Осуществить эти планы младотурецкая клика могла только в союзе с кайзеровской Германией, ибо захватнические планы турок были направлены, главным образом, против России. По этому поводу председатель германской восточной комиссии Лепсиус пишет, что турки лелеяли мечту, включить в состав Османской империи Закавказье, Северный Иран, Северный Кавказ, Туркестан. Посол Австро-Венгрии в Стамбуле И. Понятовский* в период первой мировой войны сообщил, что правительство Энвер паши питает надежду на быстрый захват нефтяного Баку[232].

Операции англичан в Дарданеллах, угрожавшие, в случае успеха, британской оккупацией Константинополя, чрезвычайно встревожили царское правительство, а оно усилило свой натиск на Англию. В задачи настоящей статьи не входит подробное рассмотрение борьбы за проливы; ограничимся поэтому указанием, что после ряда проволочек со стороны Англии, указывавшей, что она за отсрочку разрешения турецкого вопроса до мирного договора, что Англия не заинтересована в разделе Турции и т. п., все же она принуждена была пойти на уступки.

В марте 1915 г. Франция и Англия отказались в пользу России от того, «что собственно является наиболее ценным приобретением всей войны» — от Константинополя и проливов. Помимо ряда ограничений русского суверенитета в проливах, а также территориальных компенсаций (в Персии) — и Делькассе и Э. Грей указали царскому правительству, что утверждение России на берегах Мраморного моря зависит от разрешения другого вопроса, а именно о разделе азиатских владений Турции.

Как мы видим, вопрос о разделе Оттоманской империи возник в теснейшей связи с устремлением русских империалистов к Константинополю и проливам. Несомненно, что уступка последних России носила чрезвычайно вынужденный характер, как для Англии, так и для «дружественной» Франции. Много месяцев спустя (29/XII 1915 г.) Извольский сообщал Сазонову, что «соглашение о Константинополе и проливах в здешних (парижских) парламентских кругах не особенно популярно, и оно послужило поводом к

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[231] Европейские державы и Турция во время мировой войны. Раздел азиатской Турции (по секретным документам министерства иностранных дел). Под редакцией Е.П. Адамова. – Издание Литиздата НКИД, Москва, 1924. С. 55.

* Здесь Е.Саркисов допускает неточность. На самом деле не Понятковский, а Иозеф Помянковский, поляк по происхождению, и не посол, а с 1909 г. занимал пост австро-венгерского военного атташе в Турции, а во время войны – уполномоченного австро-венгерского Главного командования в Турции. (См.: Лудшувейт Е.Ф. Турция в годы первой мировой войны. 1914–1918 гг. (Военно-политический очерк). – Издательство Московского университета, 1966. С. 26).

[232] Саркисов Е. Рецензия на книгу Л.Ф. Миллера «Краткая история Турции». Госполитиздат, 1948. // Известия Академии наук Армянской ССР. 1949, № 4. Общественные науки. С. 83.

нареканиям на Делькассе». Но царский империализм в то время еще был слишком силен, и Англии и Франции пришлось идти на уступки, позаботившись о максимальных компенсациях в Азиатской Турции.

В общем, в течение года все великие державы зондировали почву и создавали соответствующие предпосылки для предъявления максимальных территориальных требований[233].

Среди завоевательных целей Германии первостепенное место занимал вопрос о Багдадской дороге, тесно связанный с вопросом о гегемонии в проливах и в Константинополе. Немецкая газета «Дейтше Цейтунг» еще в октябре 1899 г. объясняла значение багдадского рельсового проекта, как орудия, с помощью которого Турция будет превращена в немецкую колонию[234].

В Берлине хорошо знали, что Османская империя из-за младотурецкого переворота 1908 года находилась в состоянии кризиса, внутренние беспорядки и Балканские войны 1912 и 1913 годов привели империю на грани краха. Люди в Берлине были фактически убеждены, что она скоро рухнет. Еще в 1913 году немецкой военной миссии под командованием маршала Отто Лимана фон Сандерса было поручено реформировать Османскую армию. Но когда во время июльского кризиса 1914 года военный министр Турции Энвер-паша предложил Германскому рейху военный союз, который укрепил бы позиции турок на Балканах в долгосрочной перспективе, он был отвергнут. Но в конце июля сам немецкий император Вильгельм II захотел слияния[235].

В мировой войне наряду с другими первоклассными государствами усердно готовилась и царская Россия. Тайные документы, захваченные в архиве министерства иностранных дел на другой день после октябрьского переворота, не оставляют сомнения насчет той основной цели, которую преследовало царское правительство, готовясь к мировой войне. Записки камергера Базили, «Журнал Особого Совещания» 8 февраля 1914 г. и другие документы неопровержимо показывают, в чем заключались основные планы русского империализма. Из этих документов явствует, что планы захвата Константинополя разрабатывались российскими военными сферами еще с 1896 г.

Секретнейшее заседание 8 февраля 1914 года происходило за 5 месяцев до начала мировой войны. На этом совещании разрабатывался план захвата Константинополя и проливов. При этом предусматривалось, что эта операция должна происходить в обстановке общеевропейской войны, и заранее учитывались будущие роли Сербии, Болгарии, Греции, Румынии и других государств. Приняты были определенные решения и журнал совещания представлен на одобрение Николая II. На подлиннике журнала имеется

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[233] Коряжин В. Раздел Турции во время мировой войны / Новый Восток, 1923, № 4. С. 50.
[234] Павлович (М. Вельтман). Революционная Турция. – Государственное издательство, 1921. С. 55–56.
[235] Doris Götting. Die türkisch-deutsche Waffenbrüderschaft im Ersten Weltkrieg. https://www.bpb.de/themen/-europa/tuerkei/184966/die-tuerkisch-deutsche-waffenbruederschaft-im-erstenweltkrieg/

собственноручная стереотипная надпись Николая II: «Всячески одобряю заключение совещания».

Документ этот показывает, что ответственность за мировую войну ни в коем случае не может быть возложена на одну Германию, как бы велики ни были грехи Вильгельма и его клевретов, как бы несомненны ни были стремления[236].

Наконец, что касается до Англии, то попутно с Месопотамской кампанией она вступает в оживленные переговоры с арабскими националистами. Она обещает им образование самостоятельного арабского государства, в состав которого входила бы даже Палестина, но ставит непременным условием для этого восстание их против турок.

Именно к этой эпохе относится соглашение между Англией и шейхом Мекки Хуссейном-бен-Али о включении в будущие его владения всей территории распространения арабского языка, т.-е. не только, собственно, Аравии, но и побережья Сирии. Россия осторожно выдвигает встречный проект создания «автономной» Армении с выходом в Средиземное море в одном из портов Киликии. Франция спешит в письменной форме зафиксировать согласие на включение в будущие ее владения в Азиатской Турции Сирии и Киликии. Когда автономной Армении создать не удается, хотя бы и на бумаге, так как армяне требуют слишком многого, Россия выступает с новым предложением: образовать «независимое» мусульманское государство под главенством, будто бы согласного поднять восстание против султана, Джемаля-паши. Наконец, в январе-феврале 1916 г. полоса закулисных интриг кончается: союзники приступают к переговорам сначала в Лондоне, а затем и Петрограде[237].

После этой подготовки державы Антанты приступили, наконец, к заключению соглашений о разделе Османской империи. В феврале 1916 г. уполномоченным Франции Ж. Пико и Англии сэром М. Сайксом был составлен проект раздела Азиатской Турции, который и лег в основу всех дальнейших переговоров.

Основной чертой соглашения было то, что Франции и Англии удалось добиться полного соглашения по вопросу о судьбе арабских областей, входивших в состав Турции. Области эти делились на две категории: на аннексируемые Англией и Францией и на входящий в состав арабского государства, фактически подвластного им.

Франция получила прибережную Сирию (без Алеппо и Дамаска), а также порты Акку и Кайфу, с прилегающим районом Палестине. В этих территориях они пожеланию могли устанавливать свое прямое или косвенное управление. Что касается до Палестины, то она составила зону, находящуюся

[236] Павлович (Вельтман) М.П. Революционная Турция. – М.: Госиздат, 1921. С. 53.

[237] Европейские державы и Турция во время мировой войны. Раздел азиатской Турции (по секретным документам министерства иностранных дел). Под редакцией Е.П. Адамова. – Издание Литиздата НКИД, Москва, 1924. С. 78.

под особым интернациональным управлением, форма которого должна была быть установлена по соглашению с Россией и прочими союзниками.

Территории, находящиеся между французской и английской зонами, составили арабское государство или конфедерацию таковых. Лишенная выхода морю, имеющая лишь отрезки железнодорожных путей, область эта, конечно, никогда не смогла бы жить самостоятельной политической жизнью. Франция и Англия, впрочем, вполне предусмотрели это обстоятельство и поделили эту территорию на две части, Северная, включающая Дамаск, Алеппо, Дейр-Эс-Зор и Мосул – составляли зону влияния Франции. Южная, от Мертвого моря до персидской границы – зона влияния Англии. Права назначать советников, устраивать займы и т.п.д. эти области вассальными по отношению к Англии и Франции[238].

Участие Италии в разделе азиатских владений Турции составляет, быть может, самую любопытную страничку истории дипломатических сношений во время мировой войны. Условия вступления Италии в войну на стороне держав Антанты были определены Лондонским Соглашением 1915 г. (26/IV н. ст.), которое устанавливало, что: 1) Италия заинтересована в равновесии сил в Средиземном море и 2) в случае общего раздела Турции она должна получить «соответствующую часть в областях Средиземного моря, прилегающих к Адалии».

Несмотря на то, что Италия уже 5 июня 1915 г. объявила войну Австро-Венгрии, а три месяца спустя – Турции, все переговоры о разделе Азиатской Турции совершались в глубочайшей тайне от нее. Это чересчур бесцеремонное отношение союзников переполняет чашу терпения итальянского правительства. Оно спешно составляет меморандум о притязаниях Италии в Малой Азии и вручает его державам. Притязания эти, как и надо было ожидать, носят совершенно неумеренный характер: итальянцы требуют передачи им трех вилайетов: Конийского, Адалийского и Айдинского (со Смирной), а также равного участия в правах, вытекающих из англо-французского соглашения (напр., в международном управлении Палестиной). Притязания Италии вызывают необычайное озлобление у других держав, главным образом у России и Франции.

Для окончательного определения итальянской доли в Малой Азии в Лондоне устраивается специальное совещание послов. Италии предлагают территорию, начинающийся на юге от Смирны (в Скаланове) и идущую на Ак Шехр – Ак Сарай – до французских границ в Киликии. Итальянцы, однако, категорически отказываются принять эту границу, хотя, по вычислениям Британского Географического Общества, она и гарантирует им зону, «равноценную» французской. Обсуждение итальянских притязаний происходит в необыкновенной атмосфере. Русский посол в Риме Гирс констатирует «раздражение, усиливающееся в последнее время в взаимоотношениях между Францией и Италией», что внушает ему опасения

[238] Коряжин В. Раздел Турции во время мировой войны / Новый Восток, 1923, № 4. С. 51.

за период после войны. В дипломатической переписке, относящейся к этому времени, можно найти желчные выпады против «крикливых притязаний Италии», «давление Соннино, (итальянский премьер-министр – Ш.Э.) не чуждого некоторого шантажа» и т. п[239].

В политическом отношении для России наиболее значимой неудачей стал провал ее планов выхода в Средиземное море, к важнейшим мировым экономическим коммуникациям путем захвата у Турции Черноморских проливов.

Дипломатия Англии и недостаточная активность российских политиков привели к тому, что эта основная цель России в первой мировой войне не была достигнута. «На апрель 1917 года Император Николай Александрович повелел овладеть Царьградом. Государю удалось победить инерцию слепой и косной Ставки. Два года назад – в апреле 1915 года – операция эта должна была спасти Россию, теперь же все сроки были давно пропущены»[240].

Заключение. Вообщем, планы Антанты по разделу Османской империи осуществились не доконца. России помешала революция которая лишила императора престола. Что касается Турции, то для нее поражение в войне не стало крушением. В ходе подготовки к войне и ее ведения Турция получила не только урок поражения, но и уроки вхождения в современный мир. Появились лидеры, которые, испытав горечь поражений и радости побед в войне с технически превосходящим противником, смогли повести политику страны к обновлению. В первую очередь это – Мустафа-Кемаль, названный народом своей страны Ататюрком – отцом тюрков.

По Северскому договору, заключенному между Антантой и Турцией в 1920 г. Великобритания получила мандат на управление Ираком и Палестиной, Франция стала государством-мандатарием Сирии и Ливана.

Потеря арабских территорий, по сути, лишь освободила турок от бремени, они перестали быть насильниками единоверцев. Уже через три года после Версаля возникла новая Турция, произошел «распад феодальной исламской империи и построение на ее обломках государства европейского типа. Несомненно, вдребезги разгромленная Турция оказалась одним из победителей войны: мир для нее стал лучше довоенного»[241].

Таким образом, планы Антанты по разделу Османской империи, осуществились частично. А реальные результаты первой мировой войны совершенно ясно показывает абсурд войн в целом, тем более войн на уничтожение противника, войн истребительных и захвата чужих территорий.

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ФОРМИРОВАНИЕ ЦЕННОСТНОГО ОТНОШЕНИЯ К ПРОФЕССИИ У БУДУЩИХ УЧИТЕЛЕЙ НА ОСНОВЕ ИЗУЧЕНИЯ ИСТОРИИ ПЕДАГОГИКИ

Аннотация: *Данная статья посвящена особенностям учебной дисциплины «История педагогики» в высших учебных заведениях и вопросам формирования у будущих учителей ценностного отношения к профессии с использованием современных педагогических технологий.*

Ключевые слова: *история педагогики, ценности, студент, национальная и мировая педагогика, профессия учителя, коммуникативные методы, практический опыт.*

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FORMATION OF VALUE ATTITUDE TOWARDS THE PROFESSION IN FUTURE TEACHERS BASED ON THE STUDY OF THE HISTORY OF PEDAGOGY

Annotation: *This article is devoted to the specific features of the academic discipline "History of Pedagogy" in higher education institutions and addresses the issue of developing a value-based attitude toward the teaching profession among future educators through the use of modern pedagogical technologies.*

Keywords: *History of pedagogy, values, student, national and global pedagogy, teaching profession, communication methods, practical experience.*

Введение. Формирование уважения к профессии и системы ценностей является одной из важнейших задач в системе высшего образования. Этот процесс напрямую связан с личностью преподавателя и его профессиональным мастерством, что, в свою очередь, является залогом успешной профессиональной деятельности студентов в будущем. История педагогики является неотъемлемой частью этого процесса и может способствовать развитию у студентов чувства уважения и ценности по отношению к педагогической деятельности.

История педагогики — это не просто совокупность знаний, изучаемых в рамках исторических дисциплин, а важная составляющая профессионального развития педагога. Через данную дисциплину у студентов формируется система профессиональных ценностей, развиваются уважение и вера в избранную профессию. Знания, полученные будущими педагогами по курсу истории педагогики, помогают им сформироваться как личности, как специалисты и как полноценные члены общества.

В современной системе образования профессиональный потенциал педагога, его нравственные качества и ценностный подход к деятельности играют ключевую роль. Дисциплина «История педагогики» является важным средством формирования у будущих учителей уважения к профессии, преданности и духа самопожертвования. В данной статье рассматривается содержание курса истории педагогики, его роль в формировании профессиональных ценностей и предлагаются практические рекомендации.

Основная часть Дисциплина «История педагогики» как научная область изучает исторические этапы развития образования и воспитания, идеи выдающихся педагогов, играя важную роль в формировании педагогического мышления и профессионального мировоззрения студентов. С её помощью будущие педагоги:

- Осознают исторические корни педагогических идей;
- Знакомятся с достижениями национальной и мировой педагогики;
- Усиливают чувство любви и уважения к своей профессии.

Например, изучение наследия таких выдающихся мыслителей, как Абу Наср Фараби, Ахмад Фергани, Юсуф Хос Ходжиб, Махмуд Кашгари доказывает, что профессия учителя является древней и уважаемой.

Ценностное отношение к профессии — это выполнение своей работы не только на основе знаний, но и с верой, совестью и духовной ответственностью. Учитель в этом смысле — не только передатчик знаний, но и образец для подражания. Дисциплина «История педагогики» способствует формированию этого ценностного подхода следующим образом:

- Показывает самоотверженность и трудолюбие на примере исторических личностей;
- Пробуждает дух преданности национальной самобытности и традициям;
- Воспитывает уважение к педагогическому наследию.

Ценностное отношение к профессии является основополагающим фактором, определяющим нравственную, гражданскую и профессиональную позицию педагога.

С этой целью рекомендуется использовать на занятиях следующие педагогические технологии:

- Коммуникативные методы: обсуждение учебных материалов, организация бесед, развитие критического мышления студентов.
- Самостоятельные исследовательские работы: предоставление студентам возможности проводить научные исследования с использованием исторических источников.

Для формирования ценностного отношения к профессии эффективными считаются следующие методы:

- Дискуссии, основанные на жизни исторических личностей — способствуют пробуждению профессионального вдохновения;
- Использование интерактивных методов — ролевые игры, инсценировка исторических событий способствуют осмыслению профессиональных ситуаций;
- Рефлексия и обсуждение — помогают осознать собственные отношения и ценности;
- Обучение на основе опыта — проведение воспитательных лекций, открытых уроков, направленных на пропаганду профессиональных ценностей.

Практика показывает, что эффективное использование этих методов приводит к следующим результатам:

- У студентов появляется высокий интерес к профессии;
- Формируется достоверное представление о различных аспектах педагогического процесса;
- Укрепляются знания и навыки.

Таким образом, можно добиться формирования у студентов устойчивой системы профессиональных ценностей.

Заключение

В заключение следует отметить, что воспитательный потенциал курса истории педагогики чрезвычайно велик. С его помощью будущие учителя формируются не только как носители знаний, но и как профессионалы, опирающиеся на ответственность, ценности и гуманистические принципы. Образовательная практика по курсу истории педагогики способствует формированию у студентов положительного отношения к профессии. Использование различных педагогических технологий в учебном процессе оказывает положительное влияние на развитие соответствующих компетенций студентов.

Поэтому обновление содержания курса истории педагогики и его обогащение интерактивными методами — одна из актуальных задач современного образования.

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ОЗНАКОМЛЕНИЕ С НАЦИОНАЛЬНЫМИ АРХИТЕКТУРНЫМИ ПАМЯТНИКАМИ– КАК ИННОВАЦИОННЫЙ ФАКТОР ФОРМИРОВАНИЯ У ДЕТЕЙ ЛЮБВИ К РОДИНЕ

Аннотация: *Какие бы перемены не происходили в обществе, вопросам любви к Родине и патриотического воспитания уделяется особое внимание и в настоящее время они являются приоритетными на государственном уровне. Так, за последние годы в Республике Узбекистан были предприняты значительные усилия по укреплению и развитию системы патриотического воспитания граждан, особенно детей и молодёжи.*

Ключевые слова и выражения: *глобализация и интеграция, перспективные отрасли, туристические кластеры, формирование рынка, маркетинг, потенциал, архитектурные памятники, рыночная экономика.*

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FAMILIARIZATION WITH NATIONAL ARCHITECTURAL MONUMENTS - AS AN INNOVATIVE FACTOR IN THE FORMATION OF LOVE FOR THE MOTHERLAND IN CHILDREN

Annotation: *Whatever changes take place in society, special attention is paid to the issues of love for the Motherland and patriotic education, and at present they are a priority at the state level. So, in recent years, significant efforts have been made in the Republic of Uzbekistan to strengthen and develop the system of patriotic education of citizens, especially children and youth.*

Key words and expressions: *globalization and integration, promising industries, tourism clusters, market formation, marketing, potential, craft, market economy.*

Сегодня, в процессе глобализации и интеграции в мировую экономику, серьезное внимание уделяется сохранению национальных традиций и ценностей.Какие бы перемены не происходили в обществе, вопросам любви к Родине и патриотического воспитания уделяется особое внимание и в настоящее время они являются приоритетными на государственном уровне. Так, за последние годы в Республике Узбекистан были предприняты значительные усилия по укреплению и развитию системы патриотического воспитания граждан, особенно детей и молодёжи.

Патриотическое воспитание представляет собой систематическую и целенаправленную деятельность органов государственной власти, институтов гражданского общества и семьи по формированию у граждан высокого патриотического сознания, чувства верности своему Родному краю и Родной земли, готовности к выполнению гражданского долга и конституционных обязанностей по защите интересов Родины. Патриотическое воспитание должно начинаться с дошкольного возраста. Именно в этот период активно формируется начальное познавательное и эстетическое отношение к действительности, происходит становление интересов к широкому кругу социальных явлений, выходящих за рамки личного опыта ребенка. Среди разнообразных средств патриотического воспитания особое место отводится ознакомлению с архитектурой города, в котором живет ребенок. Она представляет собой уникальную среду для социокультурного развития и формирования первичных ценностных ориентаций и начального обобщенного представления о культурно-историческом своеобразии родного города. Анализ современной научной литературы показал, что вопросы приобщения дошкольников к архитектуре изучены преимущественно с позиций обучения изобразительной деятельности и конструированию (Т.С. Комарова, Л.А. Парамонова), ознакомления детей с фактами истории и явлениями социальной действительности; художественного развития дошкольников. Вместе с тем, до настоящего времени технологии приобщения дошкольников к архитектуре родного города в рамках реализации стратегии патриотического воспитания недостаточно разработаны.

Таким образом, актуальность вопроса определяется стратегией патриотического воспитания, предполагающей формирование гармоничной личности, воспитание всесторонне развитой личности–зрелого, ответственного человека, в котором сочетается любовь к большой и малой родине, общенациональная и этническая идентичность, уважение к культуре, традициям людей, которые живут рядом. Целевые ориентиры дошкольного образования определяет сегодняГосударственный образовательный стандарт республики Узбекистан. К ним относятся инициативность, самостоятельность в разных видах деятельности, положительное отношение миру, развитое воображение, развитая крупная и мелкая моторика, владение устной речью, любознательность и др. Всё то, что позже определяет успешность ребёнка при обучении, в трудовой деятельности и жизни в целом. А также повышение квалификации и мастерства педагогов позволяет связать содержание и характер методической работы с ходом и результатами реальной образовательной деятельности.

В последние годы значительно возросло участие детей в городских, региональных, республиканских мероприятиях различной направленности. Особенно важно отметить, что каждая пятница неделиустановлена Днём бесплатного посещения музеев и исторических памятников нашей республики.

Однако, наряду с имеющимися достижениями, существует ряд проблем, в первую очередь связанных с внедрением инновационных технологий формирования у воспитанников идеалов патриотических ценностей. Сегодня становится очевидным, что применяемые формы и методы в воспитательном процессе не в полной мере обеспечивают повышение у воспитанников роли патриотизма как ценностно – смыслового ядра развития личности. Обозначилась тенденция сокращения в обществе людей, способных воспринимать ценности патриотизма. Система патриотического воспитания в современных условиях нуждается в корректировке целей, задач, форм, методов и технологий, адекватно учитывающих современные социальные реалии и ситуацию в мире. Поэтому реализация современных моделей патриотического воспитания должна происходить в соответствии с требованиями и вызовами XXI века. Создание системы патриотического воспитания, направленной на формирование потребности в ценностях патриотизма предусматривает следующие задачи:

- совершенствование системы патриотического воспитания на основе внедрения инновационных технологий;

-разработка и реализация вариативных программ, направленных на формирование патриотического воспитания воспитанников;

-совершенствование организационно – методического и информационно – технического обеспечения системы патриотического воспитания в дошкольно-образовательных организациях(ДОО);

-приобщение к национальному культурному и историческому наследию и стремление к его сохранению и развитию;

-включенность родителей в тесное сотрудничество по патриотическому воспитанию;

-создание положительного имиджа ДОО и позиционирование его на рынке образовательных услуг города, области и страны.

Таким образом, воспитание детей в духе патриотизма и любви к Родине с помощью ознакомления с национальными архитектурными памятниками является одним из инновационных и современных технологий обучения и воспитания в системе дошкольного образования.

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ДИДАКТИЧЕСКИЕ ИГРЫ КАК СРЕДСТВО ПОЗНАВАТЕЛЬНОГО РАЗВИТИЯ ДЕТЕЙ РАННЕГО ВОЗРАСТА

Аннотация: *В данной статье рассматриваются некоторые аспекты дидактических игр как средство познавательного развития детей раннего возраста. Дидактическая игра, рассматривается важным средством, направленным на овладение детьми новыми знаниями и умениями, формирование сенсорных эталонов, освоение новых способов деятельности*

Ключевые слова: *Дидактическая игра, ранний возраст, любознательность ребенка, особенности обучения детей, активная, содержательная и интересная для ребенка деятельность.*

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DIDACTIC GAMES AS A MEANS OF COGNITIVE DEVELOPMENT OF YOUNG CHILDREN

Annotation: *This article discusses some aspects of didactic games as a means of cognitive development of young children. Didactic game is considered an important tool aimed at mastering children with new knowledge and skills, the formation of sensory standards, the development of new ways of activity.*

Key words: *Didactic game, early age, child's curiosity, features of children's education, active, meaningful and interesting activity for the child.*

Ранний возраст — наиболее важный период первоначального познания детьми окружающей реальности, поскольку у ребенка формируются основы личностного и познавательного развития.

Любознательность ребенка отражает общее направление его развития и проявляется положительным отношением к явлениям окружающего мира, выражаясь в форме действенного интереса посредством вопросов (Н. Ф. Добрынин, А. И. Сорокина). Любознательность, как одна из первых форм познавательной активности ребенка, выражается в непосредственном интересе к занимательным явлениям, новым фактам; эмоционально позитивном переживании, которое ребенок получает с новой информацией; преимущественно практическом и чувственном отношении к действительности, ориентированности на внешний мир.

Одним из видов игр, которые используются с целью обучения детей, являются дидактические игры. Дидактическая игра, в силу своих особенностей обучения детей посредством активной, содержательной и интересной для ребенка деятельности, рассматривается важным средством, направленным на овладение детьми новыми знаниями и умениями, формирование сенсорных эталонов, освоение новых способов деятельности (сравнение, различие, сопоставление, обобщение).

Успешность обучения ребенка в процессе дидактической игры во многом определяется его заинтересованностью. Поэтому в процессе проведения дидактических игр педагог, с одной стороны, должен учитывать индивидуальные способности и уровень имеющихся у ребенка знаний, создавая максимальные условия для перспективы его познавательного развития, а с другой, поддерживать доброжелательный, положительный эмоциональный настрой, атмосферу сотрудничества, создавать радостную обстановку, поощрять творческие способности ребенка, его фантазию.

Нами была разработана система дидактических игр для познавательного развития, которая в себя включала 3 основные позиции:

1. Отбор дидактических игр, влияющих на познавательное развитие;
2. Разработка перспективного плана по познавательному развитию на основе дидактических игр;
3. Обогащение предметно-пространственной развивающей среды группы раннего возраста.

Для решения данных задач был проведен анализ различных дидактических игр, в том числе, интерактивных, был составлен перечень игр, а также перспективный план работы в группах раннего возраста.

Решение третьей позиции предполагало обогащение предметно-пространственной развивающей среды группы был оформлен уголок «В гостях у Игровичка», обеспечена последовательность и вариативность дидактических (настольных, словесных) игр, специальных лото и карточек.

Следует подчеркнуть, что целенаправленное и систематическое их использование способствует формированию у детей интереса к дидактическим играм, желания играть самостоятельно, друг с другом, педагогом; обеспечивает возможность самостоятельно действовать в определённой ситуации, с определёнными предметами, приобретать индивидуальный опыт познания; развивает сосредоточенность, внимание, последовательность действий, умение осмысливать правила и преодолевать трудности; развивает ощущения и восприятие, формирует представления, помогая усваивать нужные знания.

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ГИСТОЛОГИЧЕСКИЕ И ГИСТОХИМИЧЕСКИЕ ИЗМЕНЕНИЯ СТЕНКИ АРТЕРИЙ ПОСЛЕ ПЕРВОГО И ПОВТОРНОГО АНАФИЛАКТИЧЕСКИХ ШОКОВ

Резюме: *В статье изучены гистологические и гистохимические изменения стенки артерий после первого и повторного анафилактических шоков. Гистологическими и гистохимическими методами мы изучали изменения в стенках аорты, легочного ствола, почечных и некоторых артерий конечностей кроликов, погибших после первого и повторного анафилактических шоков.*

Ключевые слова: *кролик, анафилактический шок, ДНК, эластические волокна, микронекроза, артериальная стенка.*

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HISTOLOGICAL AND HISTOCHEMICAL CHANGES IN THE ARTERIAL WALL AFTER THE FIRST AND REPEATED ANAPHYLACTIC SHOCKS

Resume: *The article examines the histological and histochemical changes in the arterial wall after the first and repeated anaphylactic shocks. Using histological and histochemical methods, we studied changes in the walls of the aorta, pulmonary trunk, renal and some limb arteries of rabbits that died after the first and repeated anaphylactic shocks.*

Keywords: *rabbit, anaphylactic shock, DNA, elastic fibers, micronecrosis, arterial wall.*

Ввдение. В настоящее время известно, что один из десяти жителей земного шара ежегодно претерпевает травму [1]. Это обусловлено увеличением частоты производственных и дорожно-транспортных аварий, которые, как и стихийные бедствия, являются причиной множественных травм с кровопотерей, часто приводящей к возникновению шока [2]. Установлено, что тяжесть состояния организма при геморрагическом шоке определяется нарушением газотранспортной функции крови, в основе которой лежит падение объема циркулирующей крови, сердечного выброса, расстройства микроциркуляции [3]. Гипоксия, развивающаяся вследствие нарушения перфузии тканей при шоке, вызывает изменения энергетического обмена. В результате последующего изменения метаболизма накапливаются недоокисленные продукты обмена, что ведет к развитию ацидоза и нарушению кислотно-основного состояния организма [4,5]. В конечном итоге эти нарушения приводят к цепи метаболических изменений как патогенетического, так и защитно-приспособительного характера. Наряду с указанными, в начальных стадиях шока прослеживаются многие компенсаторные и адаптивные реакции, которые обеспечивают сохранение жизни в экстремальных условиях при действии на организм чрезвычайных раздражителей. Изучение механизмов, лежащих в основе повреждения систем, органов и клеток, а также механизмов выхода из шока позволяет выявить общебиологические закономерности развития адаптационных возможностей организма и его функционирование в экстремальных условиях [6]. В последние годы все большее распространение получают немедикаментозные методы лечения и профилактики различных заболеваний и патологических состояний. В частности, в этих целях применяют адаптацию к таким факторам среды как гипоксия, физическая нагрузка, стресс и другие. В ряде работ убедительно показано, что адаптация к кратковременным стрессорным воздействиям и к периодической гипоксии обладает защитным действием на сердечно-сосудистую систему [7,8].

Цель исследования. Нами были изучено гистологические и гистохимические изменения стенки артерий после первого и повторного анафилактических шоков.

Материалы и методы исследования. Анафилактический первый шок вызывали путем внутривенного введения через 14 суток после последней сенсибилизирующей инъекции нормальной лошадиной сыворотки. Сенсибилизацию проводили путем подкожного четырехкратного введения нормальной лошадиной сыворотки. Непогибшим кроликам, после первого анафилактического шока, на 7 день вызывали таким же способом второй, повторный анафилактический шок.

Результаты исследования. Материалом для исследования были препараты артерий кроликов, погибших после повторного, анафилактического шока, в среднем слое выявляется неодинаково выраженная базофилия фиброида, разрыхление эластических волокон, появляются очаги микронекроза без воспалительного компонента. Вокруг этих очагов повышается скопление кислых мук полисахаридов, ярко окрашиваются ядра на ДНК по Фельтену.

В среднем и наружном слоях наблюдается очаговая инфильтрация крупными клетками с базофильной протоплазмой, во внутреннем слое и в метахромазия одинаково интенсивно выявляется во всех слоях артерии и под воздействием тестикулярной гиалуронидазы исчезает только частично. В препаратах артерий кроликов, погибших после первого анафилактического шока, при окраске гематоксилином-эозином основное межуточное вещество и эластические волокна не окрашиваются. Кислые мукополисахаридные толуидиновым синим выявляются только в среднем слое артерий, в виде слабой в и у метахромазии, которая под воздействием тестикулярной гиалуронидазы почти исчезает. ДНК наиболее ярко окрашивается в ядрышке

Вывод: Реакция на связывание диализированного железа по Хэлу выявляет кислые мукополисахариды в виде синей зернистости, которая на набухших эластических волокнах становится более мелкой. Все вышеописанные изменения артериальной стенки более выражены в аорте и легочном стволе.

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ПРЕИМУЩЕСТВО ПРИМЕНЕНИЯ ТЕХНОЛОГИИ FORESIGHT В АДАПТИВНОМ ОБУЧЕНИИ

Аннотация: *В статье рассматривается значение технологии Foresight как инструмента стратегического прогнозирования в условиях модернизации системы образования Узбекистана. Обоснована необходимость интеграции foresight-подходов в адаптивную модель обучения, ориентированную на индивидуализацию образовательного процесса. Раскрыты возможности прогнозирования будущих образовательных потребностей, разработки персонализированных траекторий, адаптации содержания и стратегического планирования образовательной среды. Особое внимание уделено формированию прогностической компетентности будущих учителей, в частности, преподавателей истории, как ключевому элементу устойчивой и инновационно ориентированной педагогической системы. Представлены методы foresight-анализа, применимые в образовательной практике, такие как сценарный анализ, Delphi-метод, экспертные панели, дорожные карты и сравнительный анализ.*

Ключевые слова: *Foresight, адаптивное обучение, педагогическая трансформация, индивидуализация, образовательная среда, прогнозирование, стратегия, учитель истории, прогностическая компетентность, образовательные технологии.*

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ADVANTAGES OF USING FORESIGHT TECHNOLOGY IN ADAPTIVE LEARNING

Abstract: *The article discusses the importance of Foresight technology as a tool for strategic forecasting in the context of modernization of the education system of Uzbekistan. The need to integrate foresight approaches into an adaptive learning model focused on the individualization of the educational process is substantiated. The possibilities of forecasting future educational needs, developing personalized trajectories, adapting the content and strategic planning of the educational environment are revealed. Particular attention is paid to the formation of prognostic competence of future teachers, in particular, history teachers, as a key element of a sustainable and innovatively oriented pedagogical system. Foresight*

analysis methods applicable in educational practice are presented, such as scenario analysis, Delphi method, expert panels, roadmaps and comparative analysis.

Key words: *Foresight, adaptive learning, pedagogical transformation, individualization, educational environment, forecasting, strategy, history teacher, predictive competence, educational technologies.*

На современном этапе модернизации системы образования Республики Узбекистан акцент сделан на внедрение инновационных подходов, обеспечивающих подготовку высококвалифицированных, социально активных и конкурентоспособных специалистов, способных успешно функционировать в условиях глобализированного общества. Ведущими направлениями образовательной политики становятся развитие самостоятельного критического мышления у молодежи, укрепление национальных и гражданских ценностей, а также формирование готовности к участию в демократических преобразованиях.

В данной парадигме особую значимость приобретает использование технологии **Foresight** как инструмента стратегического прогнозирования, позволяющего интегрировать долгосрочные образовательные цели с индивидуальными потребностями обучающихся и динамикой социально-экономических трансформаций. С англ. *foresight* переводится как «предвидение», «дальновидность», и отражает сущность данной методологии — не точный прогноз, а выявление возможных сценариев будущего, анализ потенциальных угроз и возможностей, проектирование альтернативных траекторий развития.

Адаптивное обучение представляет собой динамичную образовательную модель, ориентированную на индивидуализацию учебного процесса с учетом когнитивных, поведенческих и мотивационных особенностей обучающихся. Интеграция технологии Foresight в эту модель открывает новые горизонты для системной трансформации образования:

Прогнозирование будущих образовательных потребностей, на основе анализа тенденций в технологиях, экономике, профессиях и социокультурной среде можно предвосхищать и формировать навыки, которые будут востребованы в будущем.

Разработка персонализированных образовательных траекторий, Foresight позволяет сопоставлять внутренние ресурсы обучающегося (интересы, способности, темп усвоения) с актуальными и перспективными внешними требованиями.

Адаптация содержания образования, использование прогнозных сценариев позволяет обновлять учебные курсы и методики, исходя из предполагаемых изменений в науке, экономике и культуре.

Гибкое стратегическое планирование образовательной среды, проектирование ресурсов, цифровых решений, педагогических подходов на основе сценарного анализа возможных моделей будущего способствует устойчивости и эффективности образовательного процесса.

Особенно актуально внедрение foresight-подходов в процессе подготовки будущих учителей, в том числе учителей истории. В современных условиях они должны не только передавать знания, но и быть агентами образовательных изменений, проектировать адаптивную среду, формировать у обучающихся навыки системного мышления, критического анализа и гибкости. Foresight способствует формированию **прогностической компетентности** — способности к осознанному действию в условиях неопределенности, планированию на основе анализа альтернатив и устойчивой ориентации на будущее.

В адаптивной образовательной модели применяются разнообразные методы foresight-анализа, каждый из которых обладает высокой практической значимостью:

Сценарный анализ - моделирование альтернативных траекторий развития образования с учетом внешних и внутренних факторов, влияющих на личность обучающегося и педагогическую систему в целом.

Метод Delphi - многоуровневые опросы и анкетирования с привлечением экспертов в области педагогики, цифровых технологий, психологии, что позволяет выявить ключевые тренды и приоритетные компетенции будущего.

Экспертные панели - организация междисциплинарных дискуссий по вопросам внедрения адаптивных решений на основе прогнозных моделей развития.

Дорожные карты (roadmapping) - пошаговое проектирование перехода от существующего состояния образовательной среды к целевым моделям будущего с учетом синергии технологий, знаний и навыков.

Сравнительный анализ (benchmarking) - оценка текущего уровня внедрения адаптивных практик в отечественном образовании по сравнению с мировыми лидерами и выявление направлений ускоренного развития.

Таким образом, технология Foresight в контексте адаптивного обучения выступает не только инструментом прогнозирования, но и механизмом системной трансформации образовательной среды. Она позволяет перейти от реактивного к проактивному управлению педагогическими процессами, формируя устойчивую, инклюзивную и ориентированную на будущее систему подготовки кадров. Особенно это актуально в условиях подготовки будущих учителей истории, которым предстоит синтезировать национальные традиции с международными стандартами, внедряя инновационные образовательные технологии и формируя новое качество преподавания.

Интеграция foresight-подходов в адаптивное обучение становится важным стратегическим шагом на пути повышения качества педагогического образования, соответствия его требованиям времени и устойчивости образовательных систем к вызовам будущего.

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ОСНОВНЫЕ ТЕНДЕНЦИИ РАЗВИТИЯ ВНУТРЕННЕГО РЫНКА РОССИЙСКОЙ ФЕДЕРАЦИИ

Аннотация. *Целью статьи является анализ влияния международных санкций на внутренний рынок Российской Федерации. Объектом исследования выступают торговые связи Российской Федерации. Актуальность исследования на выбранную проблематику обусловлена тем, что в 2022 году были приняты новые пакеты международных санкций, которые препятствуют деятельности российских предприятий, нарушая прежние торговые связи. На основании полученных результатов был сформирован вывод, который может оказать негативное влияние на состояние экономики Российской Федерации.*

Ключевые слова: *структура экономики, внутренний рынок, международные санкции, глобальные риски*

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MAIN TRENDS IN THE DEVELOPMENT OF THE DOMESTIC MARKET OF THE RUSSIAN FEDERATION

Abstract*: The purpose of this article is to analyze the impact of international sanctions on the domestic market of the Russian Federation. The object of the research is the trade relations of the Russian Federation. The relevance of the research stems from the fact that new packages of international sanctions were introduced in 2022, which hinder the activities of Russian enterprises and disrupt previous trade relationships. Based on the results, a conclusion is drawn about the*

negative impact that these sanctions may have on the economy of the Russian Federation.

***Keywords**: economic structure, domestic market, international sanctions, global risks.*

Внутренний рынок является значительной частью экономики Российской Федерации, он состоит из элементов, образующих экономическую систему, благодаря которой предприятия способны производить и получать экономические блага. Если классифицировать внутренний рынок, то он состоит из трех элементов.

1. Рынок товаров и услуг. Субъектами рынка выступают хозяйствующие субъекты, деятельность которых связана с реализацией услуг, товаров, предназначенных для личного пользования. Составными частями рынка являются: розничная торговля; платные услуги предоставляемые населению. От качества внутреннего потребительского рынка страны зависит благосостояние ее населения и конкурентоспособность государства на мировом уровне.

2. Финансовый рынок. Финансовый рынок – это система экономико-правовых отношений, связанных с использованием денежных средств как средство платежа и накопления, а также как культурно-деловая среда, для участников финансового рынка. Без внутреннего финансового рынка не может функционировать ни одна экономическая система, поскольку в его рамках осуществляются операции, благодаря которым поддерживается денежный оборот, денежная кредитная политика и т. д.

3. Рынок экономических ресурсов. Ресурсы, которые участвуют в производстве товаров и услуг, классифицируются как экономические ресурсы. Согласно экономической теории, выделяется три фактора производства: труд, земля и капитал. Важной составляющей рынка экономических ресурсов является рынок труда, он отображает количество необходимых работников для работодателей. Рынок труда в Российской Федерации, в данный момент испытывает дефицит рабочей силы, это последствия внутри- и внешнеэкономических шоков. Специфическими особенностями обладает и рынок земельных ресурсов, в силу ограниченности самого ресурса – земли. В свою очередь, капитал – это собственность, используемая в процессе производства экономических благ. Все элементы внутреннего рынка находятся в зависимости друг от друга, так структурные изменения на одном рынке, приводят к изменениям на другом.

Выделяется так же иная классификация внутреннего рынка, в ее основе лежит разделение по видам экономической деятельности, в которой определяется направление деятельности экономического субъекта.

Отметим, что введенные международные санкции в отношении Российской Федерации в период с 2014 по 2025 год затронули финансовую, банковскую сферу, энергетику, логистику, инвестиции и были направленны на ограничение внутреннего рынка и внешнего рынка. Санкции продолжают наносить ощутимый ущерб экономике: ограничивают темпы экономического роста и замедляют реализацию планов социально-экономического развития. Под удар попали не только предприятия находящиеся под санкциями, но и предприятия ключевых секторов экономики. Предприниматели столкнулись с такими проблемами, как ухудшение условий поставки сырья и комплектующих; сложности с логистикой; снижение потребительского спроса; просрочка по платежам от контрагентов; невозможность закупки нового оборудования и технологий.

Таким образом, данные обстоятельства стимулируют Российскую Федерацию искать новых поставщиков, переориентироваться на партнерство с восточными странами и перестраивать логистику и цепочки поставок.

Проводимая государственная политика, начиная с 2022 года направленна на содействие развития внутреннего производства продукции, особое внимание уделяется продуктам с высоким спросом. Чтобы комплексно подойти к разработке механизма внутреннего рынка Российской Федерации необходимо детально остановится на его составляющих.

1. Сырьевой сектор является основным источником экспортных доходов России. Международные санкции оказали серьезное влияние на сырьевой сектор, санкции привели к сокращению объемов экспорта нефти, газа и металлов. В результате санкционного давления и падения цен на нефть, сырьевой сектор столкнулся с прекращением доступа к кредитам, сокращением инвестиций и росту инфляции. Благодаря усилиям Правительства Российской Федерации по диверсификации экономики, Россия смогла частично справиться с международными санкциями. Важно отметить: увеличение государственных инвестиций в развитие сырьевых отраслей экономики; проведение мероприятий по повышению эффективности добычи и переработке сырьевых ресурсов; внедрение новых технологий и оборудование; введение новых льготных условий для инвесторов.

2. Промышленный сектор является важным источником доходов и составляет часть экспорта страны. Международные санкции повлияли на промышленный сектор, привели к снижению объемов импорта, компонентов и оборудования, что отрицательно сказалось на производстве и качестве продукции. Так же привели к сокращению экспорта, что негативно повлияло на национальную экономику и доходы компании в целом. Многие отрасли промышленности Российской Федерации с международными санкциями столкнулись с трудностями в производстве и продаже своей продукции.

3. Ключевым фактором экономического роста и обеспечение технологического суверенитета Российской Федерации является наукоемкие сектора экономики. Санкции на импорт технологии и оборудования затруднили выполнение многих научных проектов и тем самым привели к сокращению финансирования научных исследований. Российская Федерация стала активно развивать научные кластеры, поддерживать развитие отечественных высоких технологий, что частично компенсировало негатив от международных санкций. Следует отметить увеличение финансирование

научных исследований и разработок; создание новых научных центров; поддержка молодых ученных и стимулирование их научной деятельности.

Таким образом, в рамках проведенного исследования можно сделать вывод, что экономическое развитие Российской Федерации в долгосрочной перспективе определяется экономической политикой на основе стратегического сценария перехода к модернизации внутреннего рынка и использования возможностей экономического потенциала. Предстоит пересмотреть основы и инструменты экономической, промышленной, денежно-кредитной, бюджетной и ценовой политики, адаптированной к работе в новых условиях.

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ОСНОВНЫЕ ТЕНДЕНЦИИ РАЗВИТИЯ ВНЕШНЕТОРГОВОГО РЫНКА РОССИЙСКОЙ ФЕДЕРАЦИИ

Аннотация. *Целью статьи является анализ влияния международных санкций на внешнюю торговлю Российской Федерации. В статье рассматривается специфика развития внешней торговли России в новых реалиях, сформированных санкционным режимом против российской экономики. Исследование позволит нам сделать выводы о положении и конкурентоспособности Российской Федерации на международном рынке и ее роли в мировой экономике. Актуальность исследования на выбранную проблематику обусловлена тем, что в 2022 году были приняты новые пакеты международных санкций, которые препятствуют деятельности российских предприятий, нарушая прежние торговые связи.*

Ключевые слова: *внешняя торговля, международный рынок, международные санкции, антикризисные меры.*

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MAIN TRENDS IN THE DEVELOPMENT OF FOREIGN TRADE OF THE RUSSIAN FEDERATION

Abstract. *The aim of this article is to analyze the impact of international sanctions on the foreign trade of the Russian Federation. The article examines the specifics of the development of Russia's foreign trade in the new realities created by the sanctions regime against the Russian economy. The study will allow us to draw conclusions about the position and competitiveness of the Russian Federation in the international market and its role in the global economy. The relevance of this research is determined by the fact that new packages of international sanctions were* *adopted in 2022, which hinder the activities of Russian enterprises and disrupt previous trade connections.*

Keywords: *foreign trade, international market, international sanctions, anti-crisis measures.*

В настоящее время внешняя торговля Российской Федерации находится под негативным воздействием международных санкций. Введенные международные санкции можно разделить на группы:

1. Финансовые санкции;
2. Логистические санкции;
3. Меры внешнеторгового регулирования – повышение таможенных пошлин на российские товары; прямые ограничения экспорта и импорта товаров.

Для российской внешней торговли наибольшее отрицательное воздействие оказали финансовые санкции, которые создали сложности при оплате внешнеторговых контрактов и внесли неопределенность внешнеторговым операторам. Негатив финансовых санкций затронул, как импорт, так и экспорт. Негативное влияние на импорт было обусловлено резким снижением курса российской валюты и повышением его волатильности, что привело к приостановке большей части поставок из-за рубежа в связи со снижением спроса. Правительством Российской Федерации были реализованы антикризисные меры, так действенной мерой краткосрочного характера явилась рекомендация ЦБ коммерческим банкам приблизить курс обмена валюты к биржевому курсу для импортеров и юридических лиц, имеющих валютные обязательства. В настоящее время в Российской Федерации остаются банки, не находящиеся под санкциями, способные обслуживать внешнеторговые платежи, в целом проблемы с логистикой платежей, преодолимы, совершенствуются механизмы оплаты поставок в альтернативных валютах (юань, рупия, рубль).

Основным направлением ужесточения санкций является блокировка российских финансовых потоков. Так, в конце декабря 2023 года часть крупнейших банков Китая и Турции перестали принимать платежи от российских организаций. С конца марта 2024 года все китайские банки стали блокировать оплату российскими компаниями компонентов для сборки электроники. В апреле 2024 года проблемы с финансовой логистикой при работе с китайскими банками стали наблюдаться при оплате почти всех товаров и услуг из России. В настоящее время проблема решается увеличением цепочек платежей через банки других стран, через массовый перевод российских экспортеров и импортеров на работу через посреднические фирмы.

Таким образом, можно сделать вывод, что влияние международных санкций по ограничениям в финансовой сфере на внешнюю торговлю Российской Федерации демонстрирует тенденцию к снижению.

Не меньшее воздействие на внешнюю торговлю Российской Федерации оказали логистические санкции. Санкции по ограничениям в сфере логистики затронули все виды транспорта. Действует бойкот российских грузов (кроме фармацевтической и продовольственной продукции) и российских портов со стороны крупных международных морских перевозчиков, большое влияние имеет и запрет на проезд российских грузовых автомобилей на территорию стран ЕС.

Таким образом, можно сделать вывод, что нарушение логистических цепочек поставок ведет к значительному росту транспортных расходов и сказывается на спросе, как на экспортные, так и на импортные товары.

Новые международные санкции по прямым торговым ограничениям вызывают наибольшую обеспокоенность, экспорт из Российской Федерации (нефти, газа, алмазов, золота и пр.), запрет поставок в Российскую Федерацию широкой номенклатуры товаров (технологии, высокотехнологичная продукция и пр.), приостановка поставок сырья и комплектующих. Чтобы обеспечить стабильность внутреннего рынка и поддержать выполнение потребности российских предприятий и потребителей в необходимых товарах, Правительством Российской Федерации принято решение о законодательном регулировании механизма

«параллельного импорта». Под понятием «параллельный импорт» подразумевается на законных основаниях ввоз в экономику государства оригинальной продукции зарубежных производителей без получения от них согласия на правообладание. Для решения проблем закупок «параллельного импортного» оборудования и технологий у лояльных поставщиков государство отработало схемы их приобретения через посреднические фирмы. Подтверждением роста популярности параллельного импорта в Российской Федерации является рост его объема. В этой связи можно заключить, что антисанкционная политика предприятий разных отраслей тесно связана с их возможностями противостоять санкциям.

Преодоление последствий прямых торговых ограничений связано с усилиями, направленными на переформатирование географии внешней торговли. Новые масштабные внешнеэкономические связи у Российской Федерации появляются с Китаем, Индией, Бразилией и ОАЭ. Следует отметить опасения, что введенные недружественными странами санкции повлияют и на внешнюю торговлю со странами, их не поддержавшими, в силу рисков вторичных санкций со стороны недружественных стран. Согласно оценкам Центра макроэкономического анализа и краткосрочного прогнозирования, 3/4 российского экспорта демонстрирует устойчивость на внешних рынках. Оставшаяся ¼ часть российского экспорта товаров может столкнуться со сложностями в географической переориентации поставок, наибольшие потери понесет экспорт услуг, оборудования и машин. Введенные санкции, с точки зрения воздействия на объемы международного рынка, аналогичны классическим мерам внешнеторгового регулирования, они прямо или косвенно влияют на объемы экспорта и импорта из Российской

Федерации. Эффект зависит от того, большой или малой страной с точки зрения международного рынка является Российская Федерация. Поскольку Российской Федерации является одним из ключевых игроков международного рынка, то прогнозируемыми были последствия международных санкций в виде резкого повышения цен на рынках энергоносителей и зерна. С точки зрения внешней торговли Российской Федерации, важно, что именно на товары, цены на которые, демонстрируют резкий рост, приходится и большая часть российского экспорта. Главной причиной рекордного роста экспорта из Российской Федерации в период с 2022-2024г.г. является подорожание стоимости углеводородов, минерального сырья, включая нефть и природный газ.

Следовательно, формальная эффективность международных санкций противоречит ее стратегии, способности ограничивать доходы от экспорта. Сложившаяся ситуация может кардинально измениться при снижении нефтяных котировок, введением эмбарго и ценового потолка на российскую нефть, рекордным сокращением объема экспорта природного газа на европейский рынок. В такой ситуации Российской Федерации важно использовать период высоких мировых цен на сырье для максимальной диверсификации поставок за счет расширения присутствия на растущих рынках азиатских стран.

На основании полученных в рамках исследования результатов можно сделать вывод, что международные санкции имеют колоссальное влияние на внешний рынок Российской Федерации:

1. Рекордный рост экспорта в Российской Федерации в период 2022-2024г.г. обусловлен ценовой конъюнктурой на рынке углеводородов, минерального сырья, включая нефть и природный газ. Главной задачей должно стать обеспечение стабильности внутренних цен в условиях ценовой динамики на мировых товарных рынках, в том числе за счет применения инструментов внешнеторгового регулирования. Экспорт нуждается в государственной поддержке внешнеторговых операторов, усилия должны быть направлены на поиск альтернативных рынков сбыта продукции.
2. Текущей задачей внешнеторговой политики в Российской Федерации должно стать замещение выпадающего импорта, как за счет ускоренной реализации политики параллельного импорта, так и изменения географии поставок.

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НЕВРОЛОГИЧЕСКИЕ ИЗМЕНЕНИЯ ПРИ ВИЧ ИНФЕКЦИИ

Аннотация: *Одним из органов мишеней ВИЧ является нервная система: только 1/10000 доля лимфоцитов периферической крови больных СПИДом инфицирована вирусом, в то время как в ткани мозга ВИЧ поражает каждую сотую клетку. Соответственно, одним из частых проявлений ВИЧ/СПИДа является поражение нервной системы. Неврологические осложнения ВИЧинфекции могут быть как вызваны самим ретровирусом, так и обусловлены оппортунистическими инфекциями, опухолями, цереброваскулярной патологией, токсическим воздействием антиретровирусных препаратов. Анализируются клинико-эпидемиологические особенности ВИЧ-инфекции, поражение нервной системы при СПИДе, течения оппортунистических инфекций и их специфического лечения среди взрослого населения по Самаркандской области.*

Ключевые слова: *ВИЧ - инфекция, оппортунистические инфекции, СПИД, характеристика, распространенность, нервная система, АРВТ.*

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NEUROLOGICAL CHANGES IN HIV INFECTION

Summary: *One of the target organs of HIV is the nervous system: only 1/10,000 of the peripheral blood lymphocytes of AIDS patients are infected with the virus, while in brain tissue HIV affects every hundredth cell. Accordingly, one of the common manifestations of HIV/AIDS is damage to the nervous system. Neurological complications of HIV infection can be either caused by the retrovirus itself or due to opportunistic infections, tumors, cerebrovascular pathology, and the toxic effects of antiretroviral drugs. The clinical and epidemiological features of HIV infection, damage to the nervous system in AIDS, the course of opportunistic infections and their specific treatment among the adult population in the Samarkand region are analyzed.*

Key words: *HIV infection, opportunistic infections, AIDS, characterization, prevalence, nervous system, ART.*

Актуальность: ВИЧ инфекция является самой массовой, повсеместно распространенной инфекцией и в настоящее время официально зарегистрирована во всех странах мира [1]. Предотвращение распространения ВИЧ инфекции занимает особое место среди проблем здравоохранения , что обусловлено глобальным ростом ВИЧ инфекции , значительными социально-экономическими последствиями эпидемии, отсутствием средств надежной специфической профилактики и значительными расходами на лечение [2,3]. В России общее число зараженных граждан за 2018 год составляет 1 272 403 человек. Показатель заболеваемости в первом полугодии 2018 года по России составила 35,2 на 100 тыс. населения. Пораженность ВИЧ инфекцией на 2018 год составляет 666,1 на 100 тыс. населения [7,4]. В Узбекистане на сложившую ситуацию по ВИЧ инфекции невозможно обособленно анализировать по обстановке во всем мире. По данным официальной статистики Республиканского центра по борьбе со СПИДом на 01.01.2018 г в Республике Узбекистан зарегистрировано 37 872 лиц с ВИЧ инфекцией (56% мужчин 44% женщин) [5]. При этом доля парентерального пути передачи составила 40,6%, полового 41,8%, и вертикального 3,4%. Возрастная группа от 18 до 59 лет наиболее подвержена инфекции [6]. Пораженность ВИЧ инфекцией составляет всего 0,1% населения, а общее количество ВИЧ инфицированных 109 человек на 100 тыс. жителей. Значительное увеличение охвата тестирования на ВИЧ (795 481 людей в 2008 году, по сравнению 2 536 872 человек в 2013 году) привело к увеличению уровня выявления ВИЧ. Недостаточная осведомленность о ВИЧ и мерах профилактики являются основными причинами распространения вируса среди населения [8].

Цель исследования: Дать характеристику клинико-эпидемиологических данных больных ВИЧ/СПИД инфекции с учетом вторичных заболеваний и оппортунистических инфекций по данным Самаркандской областной инфекционной больницы за 2017-2018 гг..

Материалы и методы исследований: Материалом для исследования и анализа послужили 145 серопозитивных больных, находящихся в областной инфекционной больнице за 2017-2018гг. Для исследования были использованы данные медицинских карт больных.

Для всех больных с ВИЧ инфекцией были проведены общеклинические, лабораторные исследования (общий анализ крови, мочи, кала), развернутый биохимический анализ крови, серологический анализ крови (исследование маркеров гепатита В и С) и ИФА диагностика на ВИЧ инфекцию. Из неспецифических методов проведены иммунологические исследования для определения абсолютного количества СД4+ лимфоцитов, которые проводились в областном центре СПИД г. Самарканда. Факт ВИЧ инфицирования всех обследованных пациентов был подтвержден с помощью рефферентного ИФА на тест-системах в мультиреагенном вошере MRW-AM60.Vosher 203 и иммуноблотинга на тест системах в термостатируемом шейкере Elmi-ST-3. Иммуноферментный анализ проведен на оборудовании фирмы Rider texnologies (США). Лабораторно-диагностическое обследование методом ИФА на маркеры ВГВ (HBs-Ag), ВГС (HCV-Ag,HCV-IgM), проведено с использованием вышеназванного оборудования. Общий анализ крови проведен на фотоэлектроколориметре определением 12 параметров клеток крови. Биохимические показатели крови исследованы на биохимическом анализаторе KPD 89 с определением общего и прямого билирубина, АЛТ, АСТ. При выполнении работы использованы методы эпидемиологического, клинико-диагностического анализа, соответствующих категорий населения, проведено ранжирование территорий округа, с учетом интенсивности эпидемиологического процесса. Диагноз «ВИЧ –инфекция» и оппортунистические инфекции установлены на основании международной классификации пересмотра с учетом клинических симптомов и подтверждены лабораторными данными, проведенными в соответствии с действующими инструкциями областного центра СПИД.

Результаты и обсуждения: Показано преобладание заболевания у лиц мужского пола-94(64,8%), по сравнению с женским-51(35,1%). Из них городских жителей - 85(58,6 %), районных и сельских-80(55,1%).

Ниже приводятся показатели распределения серопозитивных больных находившихся на стационарном лечении в Самаркандской областной инфекционной больнице, по возрастной категории по территориальной распространенности и по клиническим диагнозам (рис 1).

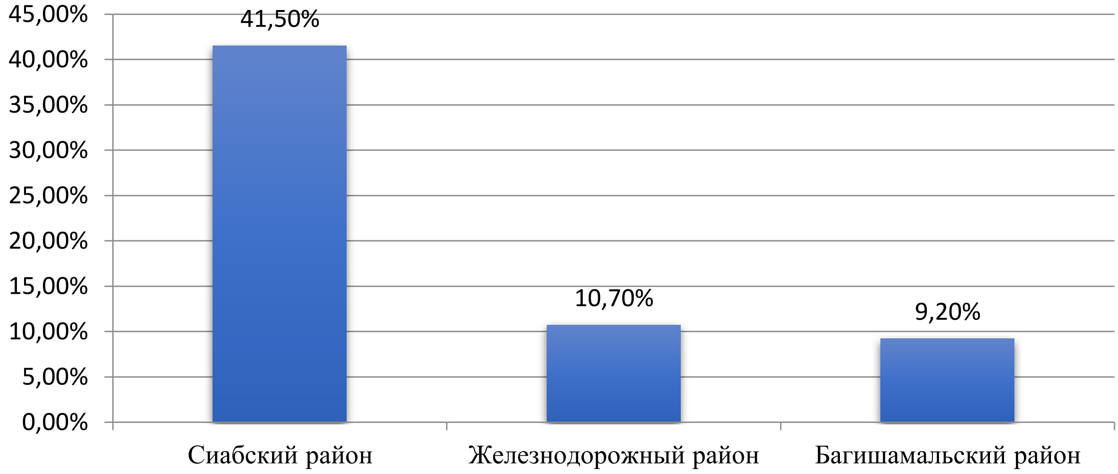

Рис.1 Показатели распределения больных по г.Самарканд

Как видно из рисунка 1, анализ динамики распространенности ВИЧ по области показывает рост доли городских жителей – 58,6% по отношению к сельским 55,1%. По данным г. Самарканда высокий процент обратившихся больных наблюдался из Сиабского района.

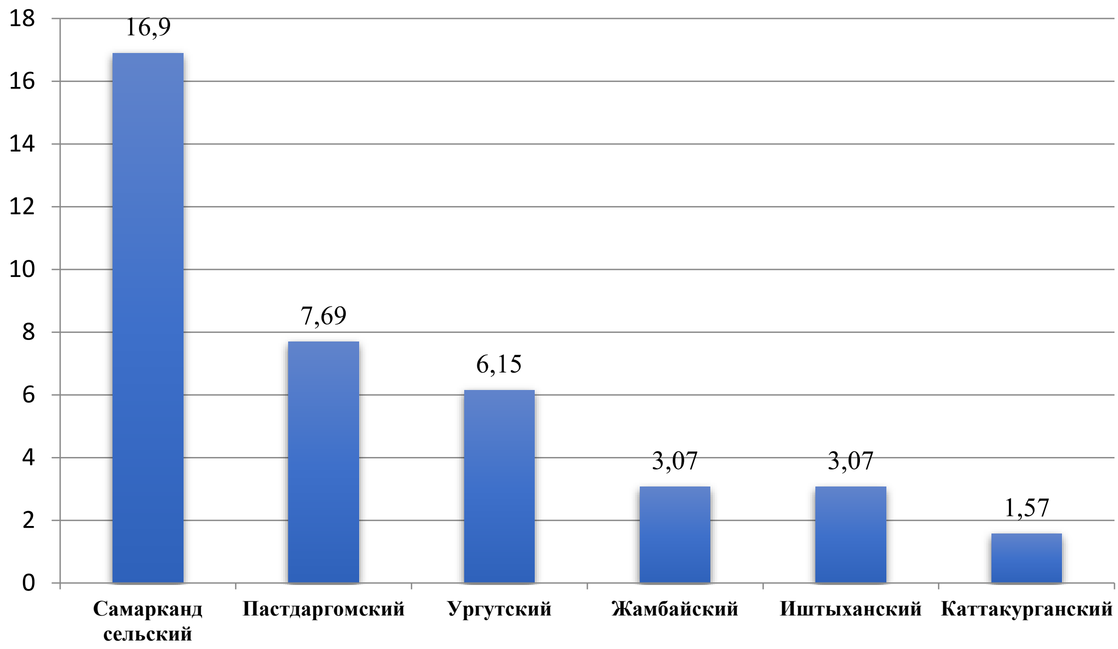

Рис.2 Распределения больных по районам Самаркандской области.

Данные районного распределения показали высокий процент больных обратившихся из Самарканд-сельского района.

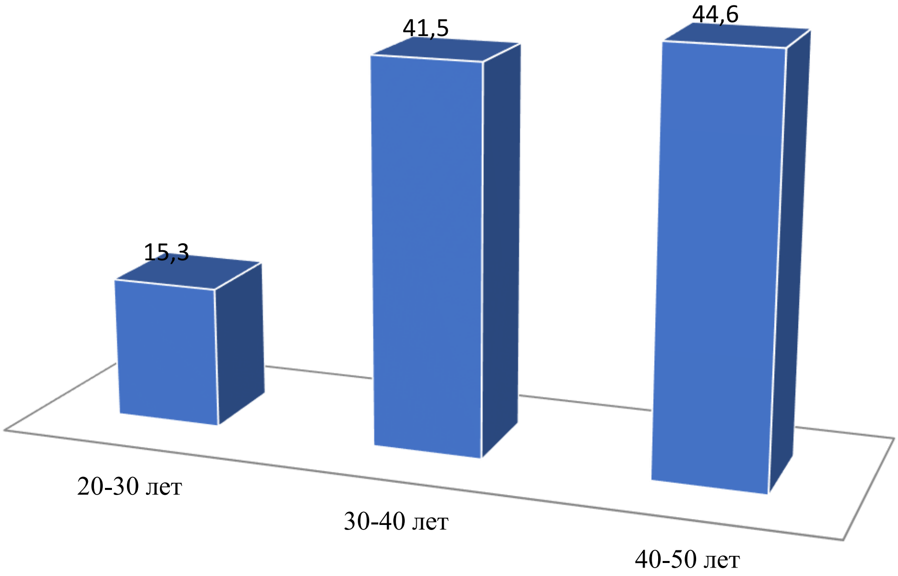

Рис.3 Распределение больных по возрасту

При распределении больных по возрастной категории нами выявлено, что высокий уровень показателя заболеваемости приходится на возраст от 40 до 50 лет – что составило 64 (44,1%) больных (рисунок 3).

При поступлении в клинику больные обследовались врачом, оценивались жалобы больного, тщательно собирался анамнез жизни и болезни, объективные данные, а также лабораторные исследования. Ведущими жалобами при поступлении были синдром лихорадки у 145 больных (100%), астенический синдром наблюдался также у всех поступивших больных, синдром лимфаденопатии отмечался у 141 больных (97,2%), синдром гепатоспленомегалии – у 69 больных (47,5%), синдром хронической усталости – у 127 больных (87,5%), неврологический синдром был выявлен у 140 больных (96,5%).

Все 145 больных поступали в стационар с различной степенью лихорадки (37,2 – 40,0°С). Проведенный анализ дефицита массы тела показал, что менее 10% отмечался вес у 61 (42%) и более 10% - у 77 (53,1%) больных. Высокий дефицит веса с кахексией отмечен у 17 (11,2%) больных. Количество СД 4+ лимфоцитов в норме составляет от 800 до 1500 кл. в 1мл крови. У 62 (42,7%) больных отмечено снижение этого показателя от 760 - 633 клеток, у 44 (30,3%) больных от 633 до 510 клеток, у 39 (26,8%) больных от 510 и ниже. Исследование гемоглобина в периферической крови показало – уровень 100-90 г/л отмечен у 65(44,8%), 90-80 г/л у 57 (39,3%), 80-70 г/л у 23 (15,8%). Исследование количества лимфоцитов показало 50-40% лимфоцитов составляло у 79 больных (54,4%), 40-30% у 45 (31,0%), 30-20% у 14 (9,6%) 20% и ниже у 7 больных что составляло (4,82%). Биохимическое исследование крови проводилось у 56 больных (38,6%) с патологией печени, когда у больных выявлялись повышение уровня билирубина и ферментов.

Больным после объективного осмотра и лабораторного исследования была назначена антиретровирусная терапия. При антиретровирусной терапии назначались препараты по стандартной схеме.

Антиретровирусная терапия включала три основные группы препаратов: нуклеозидные ингибиторы обратной транскриптазы (НИОТ), ненуклеозидные ингибиторы обратной транскриптазы (ННИОТ) и ингибиторы протеазы (ИП). Из группы НИОТ применялся в основном азитотимидин, зальцетабин, диданозин, ламивудин, ставудин и тимазид. Из препаратов ННИОТ больные получили саквинавир , индинавир, ритонавир, нельфинавир, ловерид.. Из препаратов группы ИП получали саквиновир, индиновир, ритоновир, нелфиновир и абакавир. Непосредственно перед началом антиретровирусной терапии больным дважды проводилось определение содержания СД4+клеток.

Из 145 больных поступивших на стационарное лечение антиретровирусную терапию (АРВТ) получали 73 больных. Из них 28 больных получали лечение по схеме: ламивудин +тенофовир+эфвиренц, 24 больных по схеме: ламивудин+зидовудин, 16 больных по схеме ламивудин+абакавир, и 5 больных по схеме: ламивудин+тенафофир.

В результате проведенного лечения в Самаркандской областной инфекционной больнице из 145 больных 127 (87,5%) были выписаны в удовлетворительном состоянии, 9 больных (6,2%) переведены в другие лечебные учреждения, самовольно ушли 6 больных (4,13%), забрали домой в тяжелом состоянии 3 больных (2%).

В целом для Самаркандской области характерны региональные различия в уровне распространенности ВИЧ инфекции рост доли городских жителей по отношению к сельским. По данным города Самарканда большинство больных обращались из Сиабского района. Данные районного распределения показали высокий процент больных обратившихся из Самарканд сельского района. Заболеваемость и пораженность ВИЧ инфекции на разных территориях и в разных группах населения постоянно изменяются. Среди больных лиц мужского пола оказалось больше – 94 (64,8%) по сравнению с женским полом - 51(35,1%). По возрастной категории высокий уровень показателя заболеваемости приходится на лиц от 40 до 50 лет. По клиническим диагнозам высокий показатель сопутствующих оппортунистических заболеваний отмечалось у больных с диагнозом хронический гастроэнтероколит – всего 21 больных (14,4%), хронический гепатит неустановленной этиологии – 14 (9,6%), лихорадка неясного генеза - 15 (10,3%), цирроз печени неустановленной этиологии - 15 (10,3%), персистирующая диарея , персистирующая лихорадка – всего 12 больных (8,27%), острый гастроэнтероколит - 10 (6,89%), острый гастроэнтерит 9 больных (6,2%), хронический гепатит С 9 больных (6,2%), хронический гепатит В 9 больных (6,2%), хронический гепатит В+С 8 больных (5,5%), хронический бронхит - 6 (4,1%), герпетическая инфекция: опоясывающий герпес – 4 больных (2,75%). Коинфекция может отрицательно влиять на течение ВИЧ инфекции .В свою очередь ВИЧ инфекция ускоряет течение заболевания вирусными гепатитами и значительно увеличивается риск развития печеночно-клеточной карциномы. Дефицит массы тела у большинства больных оказался более 10% - у 77 больных (53,1%), менее 10% - у 61 (42%) и в стадии выраженной кахексии поступил всего 17 человек (11,2%). Это означает, что большинство больных поступали на 3-4 клинической стадии ВИЧ –инфекции. Анемия легкой степени выявлена у 65 больных (44,8%), средней степени тяжести – у 57 больных (39,3%) и тяжелой степени у 23 больных (15,8%). Для изучения динамики эпидемического процесса на отдельных территориях необходимо организовывать и использовать постоянный эпидемиологический мониторинг и поведенческие исследования выявления источников ВИЧ путем тестирования на маркеры вируса в интенсивных по ВИЧ инфекции групп населения. Внедрение профилактических программ среди уязвимых групп населения, что предотвращает поражение этих групп ВИЧ инфекцией и снижает риск заражения ВИЧ инфекцией представителей основной популяции. А также повышения информированности граждан по вопросам ВИЧ информирование о способах защиты, формирование адекватного восприятия собственного риска и мотивацию к изменению опасного поведения используя схемы и иллюстрации с примерами в различных местах .

Заключение: Результаты исследования показали, что прогрессированию ВИЧ инфекции способствуют оппортунистические инфекции, то есть усугубление иммунодефицита приводит к снижению качества и жизни больных, в связи с чем у большинства больных наблюдается неврологические изменения. При ведении таких пациентов, мы должны учитывать психоэмоциональное состояние больного.

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ИНФОРМАЦИОННЫЕ И КОММУНИКАТИВНЫЕ ТЕХНОЛОГИИ

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TEXNIK YO'NALISHLARDA O'TKAZILADIGAN TAJRIBAVIY TADQIQOTLAR TAHLILI UCHUN MAVJUD STATISTIKA USULLARI VA MATEMATIK MODELLAR

Anotatsiya. *Ushbu maqolada texnik yo'nalishlarda o'tkaziladigan tajriba tadqiqotlarining natijalarini tahlil qilish uchun mavjud statistik usullar va matematik modellardan foydalangan holda dasturiy ta'minot ishlab chiqish jarayoni muhokama qilinadi. Tadqiqotning asosiy maqsadi texnik sohalardagi tadqiqotlarni samarali tahlil qilish, mavjud statistik vositalardan foydalanish orqali aniq natijalarga erishishdan iborat. Maqolada ilmiy kontekst yaratilib, adabiyotlar tahlil qilingan va tadqiqot jarayonidagi bo'shliqlar ko'rsatilgan. Tadqiqot natijalari maxsus ishlab chiqilgan dasturiy ta'minot tadqiqot jarayonini samaraliroq tashkil qilish va natijalarni to'g'ri baholash imkoniyatini berishi haqidagi xulosalar bilan yakunlanadi.*

Kalit so'zlar*: statistik usullar, matematik modelllar, tajribaviy tadqiqotlar, dasturiy ta'minot, tahlil.*

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ANALYSIS OF EXPERIMENTAL RESEARCH IN TECHNICAL FIELDS USING STATISTICAL METHODS AND MATHEMATICAL MODELS FOR SOFTWARE DEVELOPMENT

Abstract. *This article discusses the process of developing software for analyzing the results of experimental research in technical fields using existing statistical methods and mathematical models. The main objective of the research is to conduct effective analysis of technical research, achieving accurate results by utilizing available statistical tools. The article establishes the scientific context, analyzes the literature, and identifies gaps in the research process. The research results conclude that the developed software facilitates a more efficient organization of the research process and enables accurate assessment of the results.*

Keywords: *statistical methods, mathematical models, technical research, software, analysis.*

Kirish. Texnik sohalarda tadqiqotlar olib borish jarayonida aniq va ishonchli ma'lumotlar to'plash bilan birga, ushbu ma'lumotlarni to'g'ri va samarali tahlil qilish muhim ahamiyatga ega. Tadqiqot natijalarini tahlil qilishda statistika usullari va matematik modellardan foydalanish ilmiy ishlar samaradorligini oshirish uchun asosiy vosita bo'lib hisoblanadi. Biroq, ko'p hollarda texnik yo'nalishlarda tadqiqot natijalarini tahlil qilish uchun maxsus ishlab chiqilgan dasturiy ta'minotlar mavjud emas yoki ular cheklangan funksionallikka ega. Shu bois, mavjud statistika usullari va matematik modellardan foydalangan holda maxsus dasturiy ta'minot ishlab chiqish dolzarb vazifa hisoblanadi. Ushbu maqolaning asosiy maqsadi texnik tadqiqotlar uchun mos keluvchi tahlil vositasini ishlab chiqish va uni tadqiqot jarayoniga integratsiya qilishdan iborat [1].

Hozirgi kungacha statistik tahlil uchun turli xil vositalar va dasturlar mavjud bo'lib, ularning katta qismi umumiy qo'llash uchun ishlab chiqilgan. Misol uchun, SPSS, R, Python va MATLAB kabi dasturlar keng foydalaniladi, biroq ular texnik yo'nalishlardagi mutaxassislar uchun har doim ham qulay yoki avtomatlashtirilgan emas. Tadqiqot jarayonida yuzaga keladigan muammolardan biri shundaki, umumiy maqsadli tahlil dasturlari tadqiqotlar jarayonining barcha bosqichlarini qamrab olmaydi, shuning uchun aniq sohalarda faoliyat olib boruvchi tadqiqotchilar o'z tadqiqotlarini samarali tahlil qilish uchun o'zgaruvchan va moslashuvchan tahlil vositalariga ehtiyoj sezadilar.

Texnik sohalarda o'tkaziladigan tajriba tadqiqotlari ko'plab parametrlar va ma'lumotlar to'plamiga ega bo'lib, ularni to'g'ri tahlil qilish oson ish emas. Masalan, mashinasozlik, elektrotexnika yoki materialshunoslik sohalaridagi tajribalar katta hajmdagi ma'lumotlarni o'z ichiga oladi, va ushbu ma'lumotlarning samarali tahlili uchun mavjud statistik usullardan to'g'ri foydalanish lozim. Shuningdek, ushbu sohalarda ko'plab muammolarning yechimi tadqiqot natijalariga bog'liq bo'ladi. Lekin tadqiqot jarayonida ishlatiladigan instrumentlar kamligi yoki ularning mos kelmasligi ko'pincha muammolarga sabab bo'ladi. Bu jihatdan maxsus statistik va matematik tahlil vositalari bilan ta'minlangan dasturiy ta'minot ishlab chiqish zarur.

Ushbu maqoladagi tadqiqotning asosiy maqsadi texnik yo'nalishlarda o'tkaziladigan tajriba tadqiqotlarining natijalarini tahlil qilish uchun mavjud statistik usullar va matematik modellarni jamlagan dasturiy ta'minot ishlab chiqishdan iborat. Mazkur dasturiy ta'minot texnik sohalardagi tadqiqotchilarga tezkor va samarali tahlilni amalga oshirish, shuningdek, tadqiqot natijalari bo'yicha to'g'ri qaror qabul qilish imkoniyatini yaratish uchun ishlab chiqiladi. Tadqiqot jarayonida mavjud bo'lgan ma'lumotlar asosida matematik modellashtirish, natijalarni tahlil qilish va ularni vizualizatsiya qilish vazifalari avtomatlashtirilgan shaklda bajariladi.

Metodlari. Tadqiqot metodlari tadqiqot jarayonida ishlatiladigan mavjud statistik usullarni tahlil qilish va ularning texnik tadqiqotlarga mosligini aniqlashga qaratilgan. Avvalambor, texnik sohalarda ko'p qo'llaniladigan tadqiqotlar, masalan, mashinasozlik va elektronika sohalaridagi tajribalar tahlil qilinib, ushbu sohalar uchun eng mos keladigan statistik usullar va matematik modellar aniqlanadi.

Keyingi bosqichda ushbu modellarga va usullarga asoslangan maxsus dasturiy ta'minotni ishlab chiqishga alohida e'tibor qaratiladi.

Tajribaviy tadqiqotlarda asosiy statistika usullari

Statistik ma'lumotlarni tahlil qilishda analitik bosqich va tavsiflovchi bosqichni ajratish mumkin. Ta'riflovchi bosqich oxirgi bo'lib, u to'plangan ma'lumotlarning qulay grafik shaklda - grafikalar, diagrammalar, boshqaruv panellarida taqdim etilishini o'z ichiga oladi.

Analitik bosqich - bu quyidagi usullardan biri yordamida tahlil:

Statistik kuzatuv - qiziqish xususiyatlari to'g'risidagi ma'lumotlarni muntazam yig'ish;

Ma'lumotlarning qisqacha mazmuni, unda siz kuzatuvdan so'ng ma'lumotlarni qayta ishlashingiz mumkin; u individual faktlarni umumiy populyatsiyaning bir qismi sifatida tavsiflaydi yoki guruhlarni yaratadi, har qanday xususiyatlarga ko'ra ma'lumotlarni guruhlarga ajratadi;

Namuna olish usuli - tahlil qilishda barcha ma'lumotlarni emas, balki faqat ularning ma'lum bir qoidalar asosida tanlangan qismlarini ishlatish (namuna tasodifiy, tabaqalashtirilgan, klaster va kvota bo'lishi mumkin);

Korrelyatsiya va regressiya tahlili - ma'lumotlar o'rtasidagi bog'liqlikni va ma'lumotlarning bir-biriga bog'liqlik sabablarini aniqlaydi, ushbu aloqaning mustahkamligini aniqlaydi;

Vaqt qatori usuli - ob'ektlar va hodisalarning o'zgarishi kuchini, intensivligini va chastotasini kuzatadi; ma'lumotlarni vaqt o'tishi bilan baholashga imkon beradi va hodisalarni bashorat qilishga imkon beradi [2-3].

Tajribaviy tadqiqotlarda qo‘llaniladigan matematik modellar

O‘rganilayotgan voqelik, hodisa yoki jarayonni ifodalovchi kattaliklarni tadqiqot obyektiga ta’sir ko‘rsatuvchi boshqariluvchi va boshqarilmaydigan faktorlar ta’sirida o‘zgarish qonunlarini, parametrlarini analitik usulda aniqlash orqali erishiladi. Texnik obyektlarda olib borilayotgan nazariy tadqiqotlarda tadqiqotdan ko‘zlangan maqsad va o‘rganilayotgan voqelik, hodisa yoki jarayonni xususiyatlariga ko‘ra turli modellardan foydalaniladi.

Topologik matematik modellar – texnikaviy obyekt unsurlarining tarkibi va o‘zaro aloqasini grafalar, turli matritsalar, ro‘yxatlar va boshqalar yordamida ifodalaydi.

Matritsa ko‘rinishidagi topologik modellar – konstruktorlik va texnologik loyihalashni avto’latlashtirishda binar munosabatlar, aralashlik, muvofiqlik va boshqalar insidentligi matritsa ko‘rinishidagi topologik modellar keng qo‘llanadi.

Texnik tadqiqotlarda qo‘llaniladigan **chiziqli modellar** asosan o‘zgaruvchilar orasidagi chiziqli bog‘liqlikni ifodalaydigan matematik modellardir. Bu modellar tajribaviy ma’lumotlarni tahlil qilish va bashorat qilishda keng qo‘llaniladi.

Chiziqli modellarning asosiy turlari:

1. **Oddiy chiziqli regressiya (Simple Linear Regression)**

- Model: $y = \beta_0 + \beta_1 x + \varepsilon$
- Bitta mustaqil (x) va bitta bog‘liq (y) o‘zgaruvchi orasidagi bog‘liqlik
- Misol: Metallarning qizdirish harorati va kengayish koeffitsienti o‘rtasidagi bog‘liqlik

2. **Ko‘p o‘zgaruvchili chiziqli regressiya (Multiple Linear Regression)**
- Model: $y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + ... + \beta_n x_n + \varepsilon$
- Bir nechta mustaqil o‘zgaruvchilar ta’sirini hisobga oladi
- Misol: Qurilma ishlash muddatiga harorat, namlik va yuklanishning birgalikda ta’siri

Texnik amaliyotda chiziqli modellar ko‘pincha birinchi yaqinlashuv sifatida qo‘llaniladi, keyinroq agar zarurat bo‘lsa, murakkabroq nolinear modellarga o‘tiladi.

Stoxastik modellar — bu **tasodifiylik (ehtimollik)** elementlarini o‘z ichiga olgan matematik modellar bo‘lib, aniq (deterministik) modellardan farqli o‘laroq, tizimning har xil holatlari va natijalari ehtimollik taqsimotlari bilan ifodalanadi. Texnik sohalarda stoxastik modellar tizimlarning noaniqligi, shovqinli ma’lumotlar va tasodifiy jarayonlarni modellashtirishda qo‘llaniladi [4-5].

Natijalar va muhokama

Ba’zi bir tasodifiy tajribada tasodifiy kattalik X kuzatilib, uni taqsimlanish funksiyasi θ parametriga bog‘liq bo’lsin. Parametming qiymati no’la’lum va uni aniqlash kerak. Buning uchun no’la’lum parametr θ ga nisbatan ma’lumot manbai bo‘lib hisoblanadigan $\left(x_1, x_2, x_3, ..., x_p\right)$ kattaliklar ustidagi ba’zi bir hajmdagi kuzatishlarning tasodifiy kattaliklarini tanlab olinadi. Kuzatishlar ketma-ketligi $\left(x_1, x_2, x_3, ..., x_p\right)$ ni bir xil zichlikdagi taqsimlanish $f(x, 0)$ funksiyali n ta bog’liq bo’lmagan tasodifiy kattalik ko‘rinishida ifodalash mumkin. U vaqtda to‘planma n o’lchamli ($x_1, x_2, x_3, ...$) quyidagi tasodifiy taqsimlanish zichligining funksiyasi bo’lib hisoblanadi

$$f(x_1, x_2, .., x_n; \theta) = f(x_1; \theta) f(x_2; \theta) ... f(x_n; \theta)$$

Faqat kuzatishlar $x_1, x_2, .., x_n$ natijalariga bog’liq bo’lgan funksiyani statistik (to‘planma tavsif) deb ataladi.

$$Q = \psi\left(x_1, x_2, .., x_n\right)$$

Bundan statistika o‘zi bilan birga haqiqatnamo funksiya orqali va tasodifiy kattalikni taqsimlanish qonuni bilan aniqlanadigan tasodifiy kattalikni ifodalaydi. Ishlab chiqilgan dasturiy ta'minot asosida o'tkazilgan tahlillar natijasi shundan iboratki, u texnik tadqiqotlarda qo'llaniladigan tajriba tadqiqotlarining natijalarini aniq baholashga yordam beradi. Natijalar shuni ko'rsatadiki, maxsus ishlab chiqilgan statistik va matematik modellar asosida tahlil jarayonini avtomatlashtirish tadqiqot natijalarini yaxshilashga olib keladi [6].

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РИСКИ И УГРОЗЫ ЦИФРОВИЗАЦИИ, ПРОБЛЕМЫ ОБЕСПЕЧЕНИЯ ИНФОРМАЦИОННОЙ БЕЗОПАСНОСТИ РЕСПУБЛИКИ БЕЛАРУСЬ

Аннотация:*В статье исследуется проблема цифрового неравенства как ключевого вызова информационной безопасности современной экономической системы. Рассматривается эволюция концепции цифрового неравенства, включая его трехуровневую структуру (разрыв в доступе, навыках и результативности), предложенную в работах Л. Робинсон, Ш.Р. Цоттен, Х. Оно, А. Куан-Хаасе, Г.Месч, В.Чен, Й. Счулз, Т. М. Хале, М. Й. Стерн, Я.В. Дейка и др. Анализируются социально-экономические, антропогенные и психологические детерминанты цифрового расслоения, а также его влияние на формирование антропогененого капитала в контексте теорий П. Бурдье, М. Грановеттера и А.Портеса. Предложены институциональные меры по усилению роли высшего образования в преодолении цифрового неравенства в рамках практической реализации концепции «Образование 2.0». Исследованы глобальные проблемы кибербезопасности, включая рост сложности угроз (атаки с использованием ИИ, социальная инженерия), дефицит кадров и необходимость международной координации. Рассмотрены меры Беларуси по обеспечению цифрового суверенитета, включая сотрудничество с Россией в рамках Союзного государства и ЕАЭС, а также вызовы, связанные с технологической изоляцией и санкционным давлением недружественных стран. Определена необходимость комплексного подхода обеспечения информационной безопасности, сочетающего технологические, образовательные и институциональные решения для устойчивого развития информационной экономики Республики Беларусь.*

Ключевые слова: *цифровое неравенство, информационная безопасность, киберугрозы, цифровой суверенитет, человеческий капитал, высшее образование, Республика Беларусь.*

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RISKS AND THREATS OF DIGITALIZATION: CHALLENGES OF ENSURING INFORMATION SECURITY IN THE REPUBLIC OF BELARUS

Abstract:*The article examines the problem of digital inequality as a key challenge to the information security of the modern economic system. It explores the evolution of the concept of digital inequality, including its three-tier structure (access gap, skills gap, and outcome gap), as proposed in the works of L. Robinson, S. R. Cotten, H.Ono, A.Quan-Haase, G.Mesch, W.Chen, M. J.Stern, J.V. Dijk and others. The study analyzes the socioeconomic, anthropogenic, and psychological determinants of digital stratification, as well as its impact on the formation of human capital in the context of theories by P. Bourdieu, M.Granovetter, and A. Portes.*

Institutional measures are proposed to enhance the role of higher education in overcoming digital inequality through the practical implementation of the "Education 2.0" concept. The study investigates global cybersecurity challenges, including the increasing complexity of threats (AI-driven attacks, social engineering), workforce shortages, and the need for international coordination.

The article examines Belarus' efforts to ensure digital sovereignty, including cooperation with Russia within the framework of the Union State and the Eurasian Economic Union (EAEU), as well as the challenges posed by technological isolation and sanctions pressure from unfriendly states. The necessity of a comprehensive approach to information security, combining technological, educational, and institutional solutions for the sustainable development of Belarus' information economy is emphasized.

Keywords: *digital inequality, information security, cyber threats, digital sovereignty, human capital, higher education, Republic of Belarus.*

Введение. Современная экономическая система, трансформирующаяся под влиянием цифровых технологий, сталкивается с рядом фундаментальных вызовов, среди которых особое место занимает проблема цифрового неравенства. Данный феномен, изначально рассматривавшийся как разрыв в доступе к информационно-коммуникационным технологиям (ИКТ), эволюционировал в сложную многоуровневую структуру, включающую неравенство в цифровых навыках и социально-экономических результатах использования технологий. В условиях глобальной цифровизации цифровое неравенство становится не только барьером для инклюзивного развития, но и угрозой информационной безопасности, поскольку формирует уязвимые группы населения, экономические субъекты и даже целые регионы, неспособные эффективно противостоять киберугрозам.

Одновременно с этим растет масштаб и сложность киберугроз, направленных на дестабилизацию государственных и экономических систем, что требует усиления мер по обеспечению цифрового суверенитета. Укрепление цифрового суверенитета становится необходимым условием для защиты национальных интересов, обеспечения устойчивого развития и безопасности информационной инфраструктуры Республики Беларусь в условиях усиливающейся глобальной конкуренции и геополитических рисков. Преодоление цифрового неравенства и противодействие киберугрозам выступают взаимодополняющими задачами, критически важными для формирования надежной и безопасной цифровой среды.

Основная часть. Одной из наиболее значимых проблем обеспечения информационной безопасности новой экономической системы является проблема цифрового неравенства. Цифровое неравенство – феномен комплексный и многомерный, находящийся в центре современных исследований информационного общества и новой экономики. Первоначально Организация по экономическому сотрудничеству и развитию (ОЭСР) определила цифровое неравенство как неравенство между отдельными лицами, домашними хозяйствами, предприятиями и географическими районами, находящимися на разных уровнях социально-экономического развития в отношении их возможностей доступа к ИКТ и Интернету для осуществления широкого спектра видов деятельности [1].

Со временем взгляды на цифровое неравенство претерпели эволюцию. Так в рамках исследования *Л. Робинсон, Ш.Р. Цоттен, Х. Оно, А. Куан-Хаасе, Г.Месч, В.Чен, Й. Счулз, Т.М. Хале, М.Й. Стерн* модель цифрового неравенства приобрела трехуровневую структуру [2].

Разрыв первого уровня (access gap) – неравенство в техническом доступе и инфраструктуре. Вследствие экономического неравенства, региональных различий, возрастного фактора и других детерминант формируются группы населения с разным уровнем доступа к ИТ. Данное расслоение получило научное обоснование в исследованиях профессора коммуникативных наук в университете Твенте *Я.В. Дейка*, который подчеркивает, что первым уровнем цифрового неравенства является физический доступ в сеть Интернет [3].

По мнению экспертов Всемирного банка и ООН доступ в Интернет, является неотъемлемой частью прав человека. По состоянию на начало 2025 года в мире только 5,56 млрд жителей (68% населения Земли) могли выходить во Всемирную сеть [4]. Это отправная точка цифрового неравенства. *Я.В. Дейк* полагает, что проблема неравенства никогда не будет решена, учитывая, что ряд стран уже находится на пути к широкому внедрению мобильного Интернета 5G, ИИ, виртуальной реальности и других технологий нового уклада, а у трети населения Земли нет базового доступа в Интернет [3].

Разрыв второго уровня (skills gap) – различия в цифровых навыках, компетенциях и практиках использования технологий. Цифровое неравенство на данном уровне обусловлено не только техническими аспектами, но и психологическими, мотивационными факторами, уровнем образования и культурной средой. Так, по мнению *Дж. Ван Дейка* когда все население мира получит доступ к Интернету, неравенство цифровых навыков и умение пользоваться данными останется и, напротив, продолжит расти [3].

Разрыв третьего уровня (outcomes gap) – социально-экономические последствия использования цифровых технологий: доходы, образование, здоровье, участие в общественной жизни. Расширение использования сети Интернет и цифровых сервисов не гарантирует равных выгод для всех, что определено в исследованиях по «цифровому расслоению» [5]. Так, в социологии цифровое неравенство рассматривают как новый модус социальной дифференциации, связанный с неравенством в доступе к социальным благам и возможностям, порождаемым цифровой средой [6].

Психологический аспект, в частности различие в цифровых компетенциях разных поколений нашел отражение в *теории принятия технологий*, а также *теории мотивированного действия и теории запланированного поведения,* которые применяются для объяснения мотивации использования ИКТ и цифровых сервисов.

Цифровое неравенство непосредственно влияет на формирование антропогенного капитала – критического фактора экономического роста, что согласуется с исследованиями *П.Бурдье* [7], акцентирующего внимание в своих исследованиях на репродукции социального неравенства через социальный капитал, а также М.Грановеттера [8], Х.Флэпа [9] и А.Портеса [10], Важнейшее значение приобретают исследования цифрового неравенства в сфере высшего образования, которое служит базой формирования ключевых цифровых компетенций, финансовой грамотности и профессиональных навыков.

Цифровое неравенство проявляется не только в доступе к цифровым ресурсам, но и в качестве их использования, а также в конечных образовательных эффектах, причем такие различия можно наблюдать между различными вузами, их подразделениями, преподавателями и студентами.

По справедливому замечанию *М.Д. Напсо* «Важную роль в формировании цифрового неравенства играют цифровые разрывы – между индивидами, группами индивидов, и чем сильнее эти барьеры, тем сложнее процесс их преодоления. В обществе, в котором средние классы не сформированы, а пространство низших классов достаточно обширно, возникают условия, которые усиливают цифровое неравноправие. Студенты из средних низших и низших слоев имеют меньше финансовых и материальных возможностей для успешной интеграции в цифровой контекст, что отражается на качестве получаемого высшего образования» [11].

Для эффективного преодоления цифрового неравенства в современном высшем образовании необходим *системный и комплексный подход*, ключевым элементом которого является развитие Образования 2.0. Данный подход предполагает не просто внедрение цифровых технологий, а создание целостной образовательной среды, где современные ИКТ-инструменты делают процесс обучения интерактивным, адаптивным и ориентированным на индивидуальные потребности каждого студента [12].

Для реализации такой среды требуется сочетание нескольких взаимодополняющих мер:

– институциональные инициативы по поддержке и обеспечению равного доступа к цифровой инфраструктуре, особенно в регионах с ограниченными ресурсами;

– масштабная модернизация технической базы вузов и создание условий для полноценного онлайн-взаимодействия;

– системное развитие цифровой грамотности преподавателей и студентов с учётом психологических и социокультурных особенностей.

Успешное преодоление цифрового неравенства требует межсекторального сотрудничества между государством, бизнесом и образовательными учреждениями, а также разработки и внедрения нормативно-правовой базы в рамках развития информационного общества.

За последнее десятилетие в Республике Беларусь наблюдается значительный прогресс в преодолении цифрового неравенства благодаря развитию цифровой инфраструктуры и расширению доступа к высокоскоростному Интернету, особенно в сельских и удалённых регионах. По официальным данным Национального статистического комитета, удельный вес населения, использующего сеть Интернет, вырос к 2025 году до 94,3 % от общей численности [13]. Подписание Президентом Республики Беларусь *А.Г.Лукашенко* 1 апреля 2025 года Указа №139 «Об инвестиционном проекте», предусматривающего создание сети 5G, стало важным шагом на пути к дальнейшей цифровизации страны. Внедрение технологии 5G направлено на повышение доступности современных ИКТ-услуг, стимулирование экономического роста, привлечение инвестиций и укрепление технологического суверенитета.

На основе статистических данных о развитии ИКТ в учреждениях высшего образования Беларуси с 2016 по 2023 годы можно отметить положительную динамику в оснащении вузов компьютерной техникой и доступом к сети Интернет. За этот период общее количество персональных компьютеров, используемых в образовательном процессе, увеличилось с 29940 до 33870, а число компьютеров на 1000 студентов – с 170 до 218. Также наблюдается рост доли компьютеров, подключённых к сети Интернет, что свидетельствует о постепенном улучшении цифровой инфраструктуры в системе высшего образования страны [13]. Цифровая трансформация системы образования Республики Беларусь осуществляется в соответствие с Концепцией цифровой трансформации процессов в системе образования Республики Беларусь на 2019-2025 годы, утвержденной Министерством образования Республики Беларусь 15 марта 2019 года, которая представляет собой комплексный план модернизации образовательной сферы с использованием современных цифровых технологий. В её основе лежит модернизация инфраструктуры системы образования, направленная на обеспечение доступа к цифровым ресурсам и стабильную работу образовательных платформ. Особое внимание уделяется внедрению прорывных технологий, таких как искусственный интеллект, виртуальная и дополненная реальность, «умные учреждения» на базе интернета вещей, в том числе в формате «Smart School», что способствует повышению интерактивности и адаптивности учебного процесса. Одновременно происходит оптимизация и оцифровка всех процессов, протекающих в системе образования, с помощью программных средств, что повышает эффективность и прозрачность управления и обучения. Для реализации этих задач разрабатываются технические, программные, методические и нормативные решения, обеспечивающие безопасность данных и подготовку кадров. В результате данная концепция создаёт условия для формирования современной, технологически оснащённой и гибкой системы образования, способной эффективно адаптироваться к вызовам цифровой эпохи и обеспечивать высокое качество образовательных услуг.

Проблемы цифровой безопасности представляют собой следующий важный аспект устойчивого развития информационной экономики. Современное информационное общество характеризуется высокой степенью зависимости от ИКТ, что, в свою очередь, обуславливает уязвимость как отдельных субъектов, так и целых государств перед лицом киберугроз. В научной и прикладной литературе под *информационной безопасностью* принято понимать совокупность мер, направленных на обеспечение конфиденциальности, целостности и доступности информации вне зависимости от формы её представления – цифровой или аналоговой. *Кибербезопасность,* в свою очередь, представляет собой более узкую категорию, фокусирующуюся исключительно на защите цифровых систем, сетей и данных от несанкционированного доступа, разрушения или модификации. Несмотря на различие в определениях, в условиях современной технологической конвергенции границы между этими понятиями становятся всё более размытыми, что требует комплексного и междисциплинарного подхода к формированию стратегий информационной защиты.

Одной из ключевых проблем в области информационной безопасности является усложнение характера угроз. Как отмечает специалист в сфере кибербезопасности *Н. Кшетри* современные кибератаки характеризуются высокой степенью целенаправленности, скрытности и технологической изощрённости. В частности, наблюдается рост числа инцидентов, связанных с применением программ-вымогателей, вредоносного программного обеспечения, атак на встроенные системы, а также методов социальной инженерии [14]. Эти угрозы требуют от специалистов не только глубоких технических знаний, но и способности к стратегическому мышлению, а также понимания поведенческих и организационных аспектов безопасности. По мнению *С. Каднаги* человеческий фактор продолжает оставаться одной из наиболее уязвимых составляющих информационной системы: ошибки пользователей, недостаточная осведомлённость персонала, несоблюдение протоколов безопасности и использование слабых аутентификационных механизмов нередко становятся причиной серьёзных инцидентов [15].

В 2024 году мировой рынок услуг в области информационной безопасности существенно вырос, достигнув объема в 354,57 миллиардов долларов США, что на 21% больше показателей 2023 года. Зарубежные компании все активнее внедряют комплексные стратегии защиты, опираясь на современные технологии, такие как ИИ, машинное обучение и технологии-блокчейн, которые позволяют повысить эффективность обнаружения и предотвращения угроз. При этом злоумышленники также используют новые технологии для совершенствования кибер-атак.

Рост спроса на решения в сфере кибербезопасности поддерживается ужесточением нормативных требований по защите данных и расширением цифровой инфраструктуры, включая облачные сервисы и интернет вещей, что создает дополнительные уязвимости.

Лидирующими сегментами рынка остаются решения для защиты облачных ресурсов и данных, а также безопасность сетей и облачных сервисов. Географически наибольшие затраты несут правительственные и частные компании в Северной Америке, за ней следуют Европа и Азиатско-Тихоокеанский регион. Прогнозы аналитиков указывают на продолжение высокого темпа роста рынка с ожидаемым среднегодовым приростом около 21%, что к 2035 году может привести к увеличению глобальных расходов в сфере информационной безопасности до триллиона долларов США [16]. В Беларуси число киберпреступлений также продолжает расти: если в 2023 году они составляли около 21,5% от всех преступлений, то в первой половине 2024 года их доля увеличилась до 27,9%, превысив четверть от общего числа преступлений [17].

На международном уровне ситуация усугубляется отсутствием единых стандартов и согласованных правовых норм в области информационной безопасности. Различия в национальных законодательствах, подходах к защите данных и терминологической базе затрудняют координацию усилий в борьбе с трансграничными угрозами. Это особенно актуально в условиях, когда киберпространство становится ареной геополитического противостояния, а кибератаки используются в качестве инструмента давления, шпионажа и дестабилизации.

Трансграничность данных процессов и открытость экономических субъектов делают национальную экономику более уязвимой к внешним угрозам, что создает риски информационно-технического воздействия со стороны зарубежных стран, направленного на подрыв информационной инфраструктуры в политических, экономических и военных целях. Кроме того, усиливается деятельность организаций, занимающихся технической разведкой в отношении государственных и коммерческих структур, что также требует повышенного внимания.

22 февраля 2023 года Высший Государственный Совет Союзного Государства России и Беларуси, утвердил Концепцию информационной безопасности. Этот документ подготовлен благодаря тесному сотрудничеству государственных органов двух стран и направлен на защиту их национальных интересов в информационной сфере. Концепция задаёт общие принципы и меры для обеспечения безопасности информационных систем, особенно критически важных объектов, а также противодействия вредоносному воздействию на информационные ресурсы Союзного государства. При этом обе страны действуют в международном информационном пространстве, учитывая международное право и национальные законы, чтобы поддерживать социальное и экономическое развитие, а также безопасность на региональном и глобальном уровнях. Реализация Концепции происходит совместно с партнёрами на международной площадке ООН. В частности, Беларусь и Россия участвуют в работе Специального комитета по созданию Конвенции против преступного использования ИКТ и в Рабочей группе открытого состава по вопросам безопасности ИКТ в период с 2021 по 2025 годы [18].

В этом контексте особую роль играет политика цифрового протекционизма, проводимая рядом государств, в первую очередь США, которые под предлогом обеспечения национальной безопасности ограничивают доступ к технологиям, программному обеспечению и цифровым платформам для определённых стран. Подобные меры не только подрывают принципы свободного и равноправного цифрового взаимодействия, но и способствуют фрагментации глобального цифрового пространства, что, в свою очередь, увеличивает риски технологической изоляции, снижает совместимость систем и способствует росту уязвимостей.

Отдельного внимания заслуживает политика новой американской администрации в сфере высоких технологий. *Д.Трамп*, несмотря на традиционную для США осторожность в вопросах технологического регулирования, явно делает ставку на поддержку гигантов американской ИТ-индустрии. Одним из первых решений Трампа уже стало выделение миллиардов долларов США инвестиций на развитие ИИ в США, что свидетельствует о намерении сделать эту отрасль ключевым приоритетом американской экономической политики.

Новый курс *Д.Трампа* несет с собой как угрозы, так и возможности для белорусской экономики. Усиление санкционного давления, ограничение доступа к технологиям и торговая война США с ключевыми торговыми партнерами создают серьезные вызовы, которые потребуют от Беларуси пересмотра своих стратегий. Вместе с тем снижение цен на энергоносители и временное ослабление фокуса внимания ЕС на Восточной Европе могут предоставить Беларуси дополнительное время для адаптации к новым реалиям информационной экономики.

В ответ на эти вызовы в Беларуси утвердили Концепцию обеспечения суверенитета в сфере цифрового развития до 2030 года. Это предусмотрено постановлением Совета Министров от 31 декабря 2024 года №1074. В документе декларируется, что под суверенитетом в сфере цифрового развития понимается «неотъемлемое право государства управлять государственной информационно-коммуникационной инфраструктурой и информационными ресурсами, осуществлять над ними контроль, защищать свои интересы, проводить независимую внешнюю и внутреннюю государственную политикув сфере цифрового развития» [19]. Обеспечение суверенитета в этой области является частью обеспечения информационной безопасности Республики Беларусь.

Ключевые уязвимости цифрового суверенитета снижают доступ к международному программному и аппаратному обеспечению, что может привести к технологической изоляции. Использование иностранных облачных сервисов увеличивает риски утечек данных и потери контроля над стратегически важной информацией. Недостаток специалистов в ИТ-сфере и их релокация также сокращают потенциал цифровой трансформации. Монополизация ИТ-рынка иностранными поставщиками и отсутствие единого подхода к цифровой трансформации усложняют интеграцию систем государственного управления и снижают доверие граждан к электронным сервисам.

Одним из наиболее заметных последствий санкционного давления является ограничение доступа к зарубежным ИТ-решениям, что создает необходимость в активном процессе импортозамещения программного обеспечения, и, в свою очередь, требует комплексной перестройки существующих каналов передачи данных и технологий. В этих условиях важным аспектом является сотрудничество с Россией в рамках создания совместных импортозамещающих производств. Например, в России создан стратегический проект «Иннопрактика» – негосударственный институт развития, реализующий стартапы, направленные на рост национального человеческого капитала, в том числе через структуры и механизмы информационной экономики. 6 марта 2025 года с участием данной ассоциации и представителей Парка высоких технологий при участии Постоянного комитета Союзного государства обсуждались направления синхронизации программ поддержки ИТ-компаний двух стран [20]. Это сотрудничество может стать ключевым фактором в преодолении технологической изоляции и обеспечении доступа к необходимым ресурсам информационного развития. Сотрудничество с Китаем также открывает новые перспективы для белорусской экономики. Растущая роль Китая как глобального технологического лидера предоставляет возможности для привлечения инвестиций и технологий, которые могут помочь Беларуси в модернизации экономики и развитии новых цифровых решений. Реализовать подобный потенциал сотрудничества мы предлагаем с помощью *системы информационных кластеров.*

В ближайшие годы Беларусь вступает в фазу активной реализации новой стратегии цифрового суверенитета. В условиях стремительного технологического прогресса страна стремится сочетать независимость в цифровой сфере с интеграцией в проекты Союзного государства России и Беларуси и ЕАЭС. Цифровая трансформация национальной экономики требует взвешенной политики, направленной на обеспечение национальной безопасности и устойчивого экономического развития. Поэтому Беларусь делает акцент на развитие собственных ИТ-ресурсов и укрепление цифровой устойчивости.

Тем не менее, эксперты подчеркивают, что все эти амбициозные планы могут остаться нереализованными, если не будет решена главная проблема – дефицит кадров и развитие сферы ИТ-образования. Даже с доступом к передовым технологиям и выходом белорусского ИТ-сектора на мировой рынок, без квалифицированных кадров стране будет сложно реализовать свой потенциал в полной мере.

Таким образом, обеспечение информационной безопасности Республики Беларусь в условиях цифровой трансформации требует системного, междисциплинарного и проактивного подхода. Необходимо не только совершенствование технических средств защиты, но и развитие культуры информационной безопасности, повышение уровня цифровой грамотности населения, внедрение эффективных организационных и правовых механизмов, а также формирование устойчивых международных институтов сотрудничества с партнерами из России и ЕАЭС.

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СИСТЕМА ОБНАРУЖЕНИЯ АНОМАЛЬНОГО ТРАФИКА В ПРОГРАММНО КОНФИГУРИРУЕМЫХ СЕТЯХ С ПРИМЕНЕНИЕМ ТЕХНОЛОГИЙ МАШИННОГО ОБУЧЕНИЯ

Аннотация: *Статья посвящена актуальной на сегодняшний день задаче обнаружения аномального трафика в программно конфигурируемых сетях. Рассматриваются особенности реализации системы с помощью технологий машинного обучения.*

Ключевые слова: *интернет вещей, атака распределённого отказа в обслуживании, метод опорных векторов*

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A SYSTEM FOR DETECTING ABNORMAL TRAFFIC IN SOFTWARE DEFINED NETWORKS USING MACHINE LEARNING TECHNOLOGIES

Abstract:*The article is devoted to the current problem of detecting abnormal traffic in software defined networks. The features of the system implementation using machine learning technologies are considered.*

Keywords: *Internet of Things, distributed denial of service attack, support vector machine*

Технология интернета вещей (IoT) объединяет различные устройства: датчики, ПО и оборудование в единую сеть, обеспечивая предприятиям возможность отслеживать рабочие процессы и собирать данные в режиме реально времени. Это позволяет принимать обоснованные решения, а также автоматизировать процессы, в которых присутствие человека может быть опасным для его здоровья. Основные проблемы реализации сети IoT заключается в широком спектре устройств участников этой сети. Эти устройства должны поддерживаться в состоянии автономной работы и не нарушать принципы доверия, безопасности и конфиденциальности сети, в которой они находятся. Открытость технологии IoT делает её уязвимой к атакам. Эти атаки могут быть направлены на выведения компонентов сети из стабильного рабочего состояния путём атаки типа распределённый отказ в обслуживании DDoS. Такая атака перегружает сеть большим объемом пакетов ложных запросов с задачей деградации системы производства. Такие типы атак, при успешном для злоумышленника исходе, приводят к отказу обслуживания легитимных пользователей сети.

Достижения в области программно-конфигурируемых сетей (SDN) и их распространение привело к росту интереса в исследовании разработок SDN-основанных решений в области сетевой безопасности.

Структура SDN-сети обладает преимуществами, в сравнении с обычными сетями, которые являются критически важными для выявления и уменьшения последствий DDoS-атак. Одной из особенностей является отделение плоскости управления от плоскости данных в централизованный программный контроллер. Такое существенное отличие от обычной сети даёт возможности: изменять параметры сети при помощи внешних приложений, анализировать трафик сети с помощью программ, динамически изменять правила маршрутизации. Ряд работ [1], [2], [3] посвящён также моделированию сетей.

OpenDaylight — это открытая программная платформа для программно-конфигурируемых сетей. Контроллер ODL разработан на языке Java и работает на виртуальной машине JVM. Такая особенность позволяет установить его на любом оборудовании и операционную систему, в которой можно запустить Java-машину.

OpenDaylight состоит из нескольких уровней. Уровень приложений – здесь располагаются прикладные программы. Здесь запускаются политики маршрутизации и системы анализа трафика. Уровень управления – слой, где реализованы северные и южные API взаимодействие с которыми управляет программно-конфигурируемой сетью. Контроллер предоставляет открытые северные API, которыми могут пользоваться приложения. Инфраструктура сети – уровень, где располагаются физические и виртуальные устройства. OpenDaylight поддерживает протокол OpenFlow необходимый для конфигурации сети.

Разработка системы обнаружения DDoS-атак

Существуют различные методы обнаружения DDoS-атак. Программно-конфигурируемые сети позволяют быстрее и эффективнее обнаруживать такие атаки. Алгоритм основан на модели обучения методом опорных векторов (SVM). Разрабатываемый алгоритм обнаруживает узел с аномальным трафиком, сравнивая параметры с выявленными при обучении модели пороговыми показателями. Ключевым элементом исследования стало использование открытого набора данных «IoT-DH Dataset», специально подготовленного для задач сетевой безопасности [4]. Эти данные были собраны в ходе развертывания сети-приманки, которая представляет собой искусственную уязвимую сеть, намеренно открывающую порты и сервисы для привлечения злоумышленников. Такая сеть действует как пассивный наблюдатель, собирающий данные о стратегиях и типах атак, инициированных извне. Задача обученной модели – определить аномальный трафик.

В машинном обучении используется большое количество метрик, помогающих определить точность и эффективность работы обученной модели. В рамках работы параметрами оценки эффективности исследуемого метода обучения выбраны accuracy, error, hinge loss.

Метод опорных векторов (SVM, от англ. Support Vector Machine) является одним из наиболее популярных алгоритмов машинного обучения, особенно для задач бинарной классификации. Он находит оптимальную разделяющую гиперплоскость между двумя классами, максимизируя отступ (margin) от ближайших точек данных. Это свойство обеспечивает высокую способность обобщения и устойчивость модели при работе с реальными данными, что делает SVM эффективным инструментом в различных областях.

Алгоритм SVM может использовать различные типы ядер (kernels) — функций, которые преобразуют входное пространство в более высокое измерение, где классы могут быть разделены линейно. В данном исследовании применялись радиально-базисное ядро (RBF) и линейное ядро. Эти ядра позволяют охватывать как линейные, так и нелинейные зависимости в данных, что значительно расширяет возможности алгоритма и повышает его адаптивность к различным типам задач.

Одним из главных достоинств «IoT-DH Dataset» является его реалистичность: он отражает поведение злоумышленников в реальной сетевой среде и включает широкий спектр атак — от простого сканирования портов до сложных DDoS-атак, направленных на истощение ресурсов. Это делает набор данных ценным источником для обучения алгоритмов обнаружения угроз, особенно в контексте IoT и SDN-сетей.

Набор данных содержит как нормальный, так и атакующий трафик, который был размечен как вручную, так и автоматически.

Дополнительно, набор данных был расширен за счет информации, собранной в сети с использованием OpenFlow-коммутатора Aruba 2930F. В рамках этого процесса были проведены серии пингов для генерации нормального трафика, а также эксперименты по созданию UDP-трафика с передачей больших пакетов данных, что позволило получить аномальный трафик. Эти дополнительные данные способствуют улучшению качества и точности моделей, направленных на обнаружение аномалий в сетевом трафике.

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ИСПОЛЬЗОВАНИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА ДЛЯ ОБУЧЕНИЯ ДЕТЕЙ ПРОГРАММИРОВАНИЮ

Аннотация: *Современная образовательная среда переживает качественные изменения под влиянием цифровых технологий, в частности — искусственного интеллекта (ИИ), который открывает новые горизонты в преподавании основ программирования детям. В настоящем исследовании рассматриваются теоретические и прикладные аспекты использования ИИ для обучения программированию в возрасте 7–14 лет. Анализируются адаптивные обучающие платформы (например, Code.org, Scratch, Tynker), а также интеллектуальные обучающие системы, использующие машинное обучение и обработку естественного языка для персонализации учебного процесса. Согласно отчету* EdTech Digest (2023)*, более 63% начальных и средних школ в США внедрили ИИ-инструменты в базовое обучение программированию, а 78% педагогов отметили рост вовлечённости учеников после внедрения ИИ-ассистентов. В ходе сравнительного анализа показано, что дети, обучающиеся с применением ИИ-средств, демонстрируют в среднем на 24% более высокие результаты в решении алгоритмических задач по сравнению с контрольной группой (по данным исследования Stanford AI+Education, 2022).*

Ключевые слова: *искусственный интеллект, программирование, образование, дети, адаптивное обучение, геймификация, машинное обучение, цифровизация.*

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USING ARTIFICIAL INTELLIGENCE TO TEACH KIDS TO CODE

Abstract:*The modern educational environment is undergoing qualitative changes under the influence of digital technologies, in particular artificial intelligence (AI), which opens up new horizons in teaching the basics of programming to children. This study examines the theoretical and applied aspects of using AI to teach programming to 7-14 year olds. Adaptive learning platforms (e.g. Code.org, Scratch, Tynker) and intelligent teaching systems that use machine learning and natural language processing to personalize the learning process are analyzed. According to the EdTech Digest report (2023), over 63% of elementary and middle schools in the United States have implemented AI tools in basic programming education, and 78% of teachers noted an increase in student engagement after the introduction of AI assistants. A comparative analysis showed* *that children taught using AI tools demonstrate, on average, 24% higher results in solving algorithmic problems compared to the control group (according to the Stanford AI+Education study, 2022).*

Keywords: *artificial intelligence, programming, education, children, adaptive learning, gamification, machine learning, digitalization.*

Введение

В условиях стремительного развития цифровых технологий и глобальной трансформации образовательных систем обучение программированию становится неотъемлемым компонентом базовой цифровой грамотности. Традиционные методы преподавания программирования зачастую не учитывают индивидуальные особенности развития ребёнка, уровень его когнитивных способностей, мотивации и стиля обучения. По данным аналитической платформы *HolonIQ (2022)*, глобальные инвестиции в образовательные ИИ-решения превысили $5,4 млрд, при этом около 18% этих средств были направлены на разработку платформ для детского обучения программированию. В 2023 году в США более 64% начальных школ использовали ИИ-инструменты в преподавании программирования, а в ряде азиатских стран этот показатель превысил 70% (OECD, 2023). В научной литературе и педагогической практике уже существует ряд примеров успешной интеграции ИИ в образовательный процесс: от интеллектуальных обучающих систем, автоматически подбирающих задания и отслеживающих динамику обучения (например, Code.org AI Tutor), до геймифицированных платформ, которые встраивают машинное обучение в процесс освоения синтаксиса и логики (например, Tynker, Scratch с LLM-модулями).

ОСНОВНЫЕ НАПРАВЛЕНИЯ ПРИМЕНЕНИЯ ИИ В ОБУЧЕНИИ ПРОГРАММИРОВАНИЮ

Применение технологий искусственного интеллекта (ИИ) в сфере обучения программированию детям охватывает ряд ключевых направлений, каждое из которых способствует повышению эффективности, доступности и персонализации образовательного процесса.

1. Адаптивные обучающие системы

Одним из ведущих направлений применения ИИ в образовании является разработка адаптивных обучающих платформ, способных в реальном времени анализировать уровень знаний обучающегося, его ошибки, темп освоения материала и подбирать задания соответствующей сложности. Примерами являются платформы *Smart Sparrow*, *Century Tech* и *Khan Academy*, где ИИ реализует индивидуальные траектории обучения.

Согласно исследованию *Brookings Institution (2022)*, применение адаптивных систем позволило увеличить успеваемость учеников в возрасте 8–14 лет по программированию в среднем на **29%** по сравнению с традиционным подходом. Кроме того, уровень удержания внимания увеличился на **34%**, что особенно важно при обучении младших школьников.

2. Интеллектуальные ассистенты и чат-боты

ИИ-ассистенты, основанные на технологиях обработки естественного языка (Natural Language Processing, NLP), выполняют роль виртуальных наставников. Они способны отвечать на вопросы учащихся, объяснять программные конструкции, анализировать код и предлагать исправления. Такие инструменты, как *Khanmigo* (на базе GPT), *Mimo AI Helper* и *Replit Ghostwriter*, позволяют организовать интерактивный диалог с обучающимся в естественной форме, снижая барьер в восприятии абстрактных понятий.

Согласно данным *EdTech Research Group (2023)*, использование ИИ-ассистентов в начальной и средней школе способствует снижению времени на освоение новых тем в среднем на **23%**, а также позволяет повысить мотивацию к самостоятельному изучению кода на **31%**.

3. Геймифицированные платформы с ИИ-компонентами

Геймификация с применением ИИ предполагает создание обучающей среды, в которой элементы игры сочетаются с адаптивной подачей материала и прогностическим анализом поведения учащегося. Платформы *Tynker*, *CodeCombat* и *Codemonkey* используют ИИ для динамической настройки уровней сложности, введения новых игровых механик в зависимости от стиля обучения и адаптации интерфейса под возраст пользователя.

Отчёт *MIT Media Lab (2021)* показал, что при использовании геймифицированных платформ с ИИ-компонентами доля учеников, завершивших курс «Основы программирования», увеличивается на **42%**, а удовлетворённость обучением превышает **85%**.

Модель персонализированного обучения с ИИ

1. Структура модели

Математически модель персонализированного обучения с ИИ может быть представлена следующим образом:

Пусть:

- $S=\{s_1,s_2,...,s_n\}$ — множество учебных навыков, подлежащих освоению (например, работа с циклами, переменными, условиями);
- $L=\{l_1,l_2,...,l_n\}$ — текущий уровень освоения соответствующих навыков;
- $M(t)$ — когнитивная модель учащегося на момент времени t, включающая скорость восприятия, частоту ошибок, стиль обучения;
- $A(S,L,M)$ — алгоритм адаптации контента и заданий с использованием ИИ.

Цель модели — максимизация обучающего эффекта E, зависящего от степени усвоения знаний и уровня вовлечённости:

$$\max E = \sum \quad i = \ ln \ w_{i*} \ f(l_i,m_i)$$

где:

- w_i— вес важности навыка s_i.
- $f(l_i,m_i)$ — функция соответствия между уровнем освоения и индивидуальными особенностями.

2. Формальная модель

Математическая формализация может быть представлена через функцию индивидуальной успешности обучения:

$E_i(t) = f(K_i(t), C_i(t), M_i(t), F_i(t))$

где:

- $E_i(t)$— образовательный эффект для ученика i в момент времени t;
- $K_i(t)$ — уровень знаний по ключевым навыкам программирования;
- $C_i(t)$ — когнитивные особенности (восприятие, память, мышление);
- $M_i(t)$ — мотивационный профиль и вовлечённость;
- $F_i(t)$ — фактор обратной связи, в том числе от ИИ.

Обновление обучающей стратегии осуществляется через минимизацию функции потерь:

$\min L = \sum i = \ln(y_i - \hat{y}_i) * 2 + \lambda R(\theta)$

где:

- y_i— реальный результат (например, тестовая оценка),
- $\hat{y}_i$ — предсказанный результат системой ИИ,
- $R(\theta)$ — регуляризатор, контролирующий переобучение модели.

3. АРХИТЕКТУРА СИСТЕМЫ В ПРИКЛАДНОЙ РЕАЛИЗАЦИИ

На практике архитектура персонализированной ИИ-системы может включать следующие модули:

Модуль	**Функция**
Модуль сбора данных	Сбор и анализ действий учащегося, его времени реакции, частоты ошибок и т.д.
Когнитивный движок	Оценка особенностей восприятия, концентрации, уровня усвоения
Рекомендательная система	Генерация персональных заданий на основе обучающих алгоритмов
Обратная связь и прогноз	Обработка результатов и корректировка траектории обучения
Визуализатор прогресса	Отображение успеваемости, слабых зон и достижений ребёнка

Потенциальные риски и ограничения

1. **Проблемы с данными**: недостоверная информация может искажать учебные рекомендации.
2. **Приватность**: обработка персональных данных детей требует особого внимания к кибербезопасности.
3. **Снижение роли педагога**: автоматизация не должна полностью заменять личное взаимодействие с преподавателем.

Заключение

Использование искусственного интеллекта в обучении детей программированию открывает новые горизонты для персонализированного, эффективного и мотивирующего образования. Интеллектуальные системы не только упрощают усвоение сложных концепций, но и способствуют развитию критического мышления, логики и креативности.

В то же время необходимо выработать этические и методологические рамки для безопасного и эффективного применения ИИ в детском образовании. Будущее обучения программированию лежит на стыке технологий, педагогики и этики, и ИИ играет в нём ключевую роль.

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DEVELOPMENT OF TECHNOLOGY FOR OBTAINING SILICON-BASED COMPOSITE MATERIALS

Abstract: This article investigates the synthesis and properties of silicon nitride (Si_3N_4)-based ceramic materials. Owing to their excellent thermal stability, wear resistance, and high mechanical strength, these materials are widely used in aerospace, automotive, and electronic industries. The article presents various synthesis methods, including carbothermal reduction and self-propagating high-temperature synthesis (SHS), and evaluates the impact of microstructure on performance.

Keywords: Silicon nitride, ceramic composites, synthesis, microstructure, SHS, high-temperature materials

INTRODUCTION

Advanced ceramic materials based on silicon nitride (Si_3N_4) have emerged as prominent candidates in high-temperature applications. Their superior characteristics, including high fracture toughness, thermal shock resistance, and chemical inertness, have led to their application in extreme environments such as gas turbines, automotive engines, and electronics.

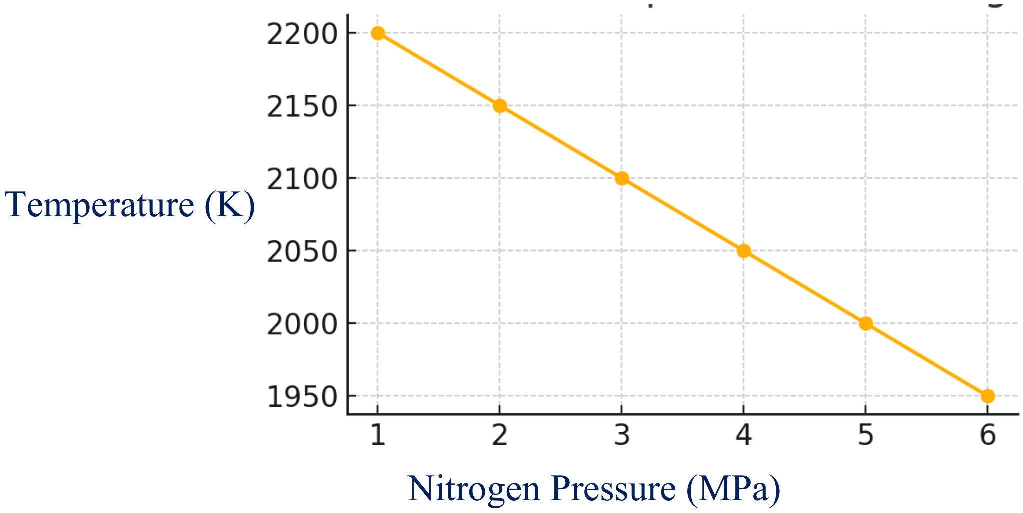
SYNTHESIS METHODS OF SILICON NITRIDE POWDER

The most commonly used synthesis techniques for Si_3N_4 powders include direct nitridation of silicon, carbothermal reduction of silica, and SHS. Each method offers unique advantages in terms of purity, morphology, and cost-effectiveness.

TABLE 1: PROPERTIES OF SI_3N_4 POWDERS FROM VARIOUS METHODS

Method	Surface Area (m²/g)	Oxygen Content (%)	Carbon Content (%)	α/β Ratio
Direct Nitridation	8-25	1.0-2.0	0.1-0.4	95%
Carbothermal Reduction	4.8	1.6	0.9-1.1	95%
Gas Phase Reduction	3.7	1.0	-	95%
Diimide Synthesis	10	1.4	0.1	85%

FIGURE 1: ADIABATIC COMBUSTION TEMPERATURE VS. NITROGEN PRESSURE



CONCLUSION

Silicon nitride-based ceramics exhibit a promising combination of properties that make them suitable for high-performance applications. Future advancements in synthesis technology and microstructural control will further enhance their usability in industrial sectors.

LITERATURE REVIEW

Numerous studies have explored the behavior of Si_3N_4 ceramics under various synthesis and processing conditions. According to Samsonov et al., the addition of rare earth oxides can significantly enhance sinterability and improve the high-temperature mechanical performance. Moreover, researchers have investigated the role of microstructural control in determining fracture toughness and thermal conductivity. Grain boundary phases and $\alpha \rightarrow \beta$ phase transformation mechanisms are particularly critical in this regard.

MICROSTRUCTURAL CONSIDERATIONS

The performance of Si_3N_4-based ceramics depends strongly on their microstructure, including grain size, grain shape, and the distribution of secondary phases. Typically, elongated β-Si_3N_4 grains form during sintering, providing a toughening mechanism through crack deflection. The microstructure is influenced by sintering additives, particle size of the starting powder, and sintering temperature profile.

APPLICATIONS OF SI_3N_4 CERAMICS

Silicon nitride ceramics are used in a variety of demanding environments. In the automotive sector, they are employed in turbocharger rotors, exhaust gas control valves, and engine components. Aerospace applications include turbine blades, thermal shields, and structural components. In electronics, Si_3N_4 serves as a substrate material due to its dielectric properties and mechanical strength. Table 2 outlines key application domains and their functional requirements.

TABLE 2: APPLICATIONS OF SILICON NITRIDE CERAMICS

Sector	Application	Requirements
Automotive	Turbocharger rotors	Thermal shock resistance, low weight
Aerospace	Turbine blades	High-temperature stability, toughness
Electronics	Substrates and insulators	High dielectric strength, mechanical rigidity
Manufacturing	Cutting tools	Wear resistance, hardness

FUTURE OUTLOOK AND RESEARCH DIRECTIONS

Ongoing research aims to develop cost-effective and energy-efficient synthesis routes for Si_3N_4 materials. The integration of advanced sintering technologies such as microwave and spark plasma sintering is expected to yield better control over grain growth and phase formation. Additionally, composite designs involving SiC, Al_2O_3, or graphene reinforcements may further enhance mechanical and thermal properties.

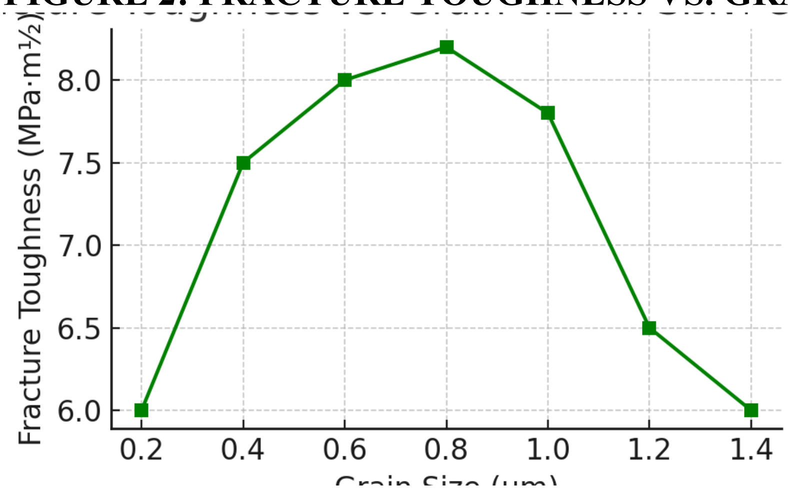
SINTERING TECHNIQUES AND ADDITIVES

Sintering is a critical process in the fabrication of dense silicon nitride ceramics. Techniques such as pressureless sintering, hot pressing, and hot isostatic pressing (HIP) are commonly employed. Additives like Y_2O_3, Al_2O_3, and MgO promote liquid-phase sintering by reacting with the SiO_2 layer on Si_3N_4 particles to form transient liquid phases. The nature of this phase and its viscosity significantly influence grain growth and the final microstructure.

MECHANICAL PROPERTIES OF SI_3N_4 CERAMICS

The mechanical properties of Si_3N_4 ceramics are primarily influenced by their density, grain size, and phase distribution. Typical values include flexural strength exceeding 800 MPa, fracture toughness of 6–8 MPa·$m^{1/2}$, and hardness values above 1500 HV. These characteristics make them ideal for structural applications under mechanical stress.

FIGURE 2: FRACTURE TOUGHNESS VS. GRAIN SIZE



FINAL REMARKS

The integration of advanced synthesis and sintering technologies with intelligent additive selection paves the way for the future of silicon nitride ceramics. These materials hold potential in next-generation applications ranging from aerospace propulsion to microelectronic substrates, supported by continuous research and development efforts.

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KAM LEGIRLANGAN VA KAM UGLERODLI PO'LATLAR YEYILGAN YUZALARINI ERITIB QOPLASHDA ELEKTROD QOPLAMASI TARKIBINI TAKOMILLASHTIRISH MASALALARI

Annotatsiya. *Ushbu maqolada payvandlash yoyida ham, payvandlash havzasida ham suyuqlik oqimi tasvirlanadi. Payvand chokining kimyoviy birikmalar bilan qoplangan payvand chokiga ta'siri o'rganiladi. Qoplama yoki payvandlash havzasining qotishma elementlari, metall va metall bo'lmagan elementlarining bug'lanishi tasvirlanadi.*

Kalit so'zlar. *Himoya gazlari, shlak, qoplanish, minerallar.*

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ISSUES OF IMPROVING THE COMPOSITION OF ELECTRODE COATINGS IN MELTING WORN SURFACES OF LOW-ALLOY AND LOW-CARBON STEELS

Abstract. *This paper will describe the fluid flow in both the welding arc and the weld pool. The effect of the weld pool on a weld coated with chemical compounds will be investigated. The evaporation of alloying elements, metallic and non-metallic elements of the coating or weld pool will be described.*

Key words. *Shielding gases, slag, molding, minerals.*

Elektrod qoplamasi tarkibida bir necha xil tabbiiy modda komponentlari va kimyoviy usul bilan hosil qilingan moddalardan foydalaniladi. Ular vazifalariga ko'ra quyidagi asosiy guruhlarga bo'linadi:

1. Turg'unlashtiruvchi komponentlar – yoyning tez hosil bo'lishini va turg'un yonishini ta'minlaydi. Bularga tarkibida kaliy bo'lgan potash (K_2CO_3, GOST 10690-73), kaliy nitrati (KNO_3), xromat (K_2CrO_4) va boshqalar kiradi. Yaxshi turg'unlashtiruvchi moddalar sifatida shuningdek, titan ikki oksidi (TiO_2), kalsiy karbonat ($CaCO_3$) va bariy karbonat ($BaCO_3$) lardan foydalaniladi [1-2].

2. Shlak hosil qiluvchi komponentlar – atmosfera taribidagi payvandlashga salbiy ta'sir etuvchi gazlardan himoya qilib, shlak hosil bo'lishini ta'minlaydi. Bular: marganets rudasi, dala shpati (dala shpati konsentrati GOST 4421-73), iliminit, rutil (rutil konsentirati GOST 22938-78) va boshqalar [1-2].

3. Gaz hosil qiluvchi komponentlar – yoy hosil qilinganda yoyni va payvand vannasini atmosferaning payvandlash va metallga salbiy ta'siridan himoya qiladi. Bular: kraxmal, yog'och uni, sellyuloza, marmar (GOST 4416-94) va b. [1-5].

4. Oksidsizlantiruvchi komponentlar – qoplama tarkiblaridan va havodan ta'sirlanish hisobiga metal payvand vannasidagi oksidlanishdan aktiv himoya qiladi. Metalldan oksidni qaytarishda ferromarganets, ferrosilitsiy, ferrotitan, ferroalyuminiy va b. dan foydalaniladi [1-5].

5. Legirlovchi komponentlar – molibden, xrom, nikel, marganets va boshqa boshqalar eritib qoplash metali mexanik xususiyatlarini oshirish uchun xizmat qiladi. Ferrokremniy, ferroxrom va ferromarganets kabi elementlardan ham oksidsizlantirish, ham legirlash uchun foydalaniladi [1-5].

6. Bog'lovchi moddalar sifatida So'da va potash sillikatlari kabi kaliy va natriy metasilikatlari (K_2O_3Si) dan foydalaniladi [1-5].

7. Forma hosil qiluvchi komponentlar – qoplamani bosim ostida qoplash jarayonini sifatli bo'lishini ta'minlab, qoplamaning plastiklik hususiyatini oshiradi. Bularga bentonit va kaolin kabi yaxshi plastifikatorlar kiradi [1-5].

Elektrod qoplamasi tarkibiga ishlab chiqarish samaradorligini oshirish uchun temir kukuni qo'shiladi. Bu eritib qoplash koeffitsientini ham ortishiga hizmat qiladi [1,2,5].

Eritib qoplashda TiO_2 nanozarrachalarining selluloza va rutil qoplamali elektrodlarda eritib qoplash jarayonida metall tarkibiga singdirilish muddati (30 s, 2 min, 4 min, 8 min.) metallning nisbiy uzayish va nisbiy torayish hossalari shuningdek, qattiqligi bir-biriga bog'liq holda ortishini ko'rsatdi. Selluloza qoplamali elektrodlarda nometall komponetlarning hajmi kattaligi tufayli TiO_2 nanozarrachalari nisbatan uzoq vaqtda singidi (4 min – 8 min), TiO_2 nanozarrachalari ninasimon uchli kristallarning qayta joylashuvlarini ta'minlab, eritib qoplashda chokning mexanik hususiyatlarini ortishiga hizmat qildi. Rutil qoplamali elektrodlarda singdirish haroratni ushlab turish natijasida eritib qoplangan yuzada nisbiy uzayishga va qattiqlikga ta'siri ham o'rganildi. Rutil qoplamali elektrodlarda eritib qoplash jarayonida kam va o'rta singdirish davri (30 s - 4 min) ham mikrostrukturani va mexanik hossalarni oshirdi. Payvand chok metalining singdirish davri rutil qoplamali elektrodlarida uzoq vaqt davom ettirilsa (8 min. va undan ko'p), namunalar shuni ko'rsatdiki, nometall qo'shimchalarning ta'sirida metal kristallidagi dislokatsiyalar hajmi ortib, nisbiy uzayish hossalarini kamaydi va katta donali allotriomorf ferrit struktura hosil bo'ldi.

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СИСТЕМНЫЙ ПОДХОД К ДЕЯТЕЛЬНОСТИ ПО УКРЕПЛЕНИЮ И СОХРАНЕНИЮ ЗДОРОВЬЯ ДЕТЕЙ

Аннотация: *Здоровье детей – одна из ключевых ценностей общества, определяющая его будущее. В последние годы наблюдается тенденция к ухудшению физического и психического здоровья детей, что связано с рядом факторов: снижением двигательной активности, несбалансированным питанием, высокой учебной нагрузкой, стрессами и влиянием цифровых технологий. В связи с этим возникает необходимость поиска новых, более эффективных подходов к укреплению и сохранению здоровья подрастающего поколения.*

Ключевые слова:*мотивация, дошкольное образование, развитие, обучение, здоровьесберегающие технологии, системный подход, профилактика, семья, образовательная среда*

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A SYSTEMATIC APPROACH TO ACTIVITIES AIMED AT STRENGTHENING AND PRESERVING CHILDREN'S HEALTH

Abstract : *Children's health is one of the key values of society, determining its future. In recent years, there has been a tendency for children's physical and mental health to deteriorate, which is associated with a number of factors: decreased physical activity, unbalanced nutrition, high academic workload, stress and the influence of digital technologies. In this regard, there is a need to find new, more effective approaches to strengthening and maintaining the health of the younger generation*

Key words: *motivation, preschool education, development, training, health-saving technologies, systemic approach, prevention, family, educational environment*

Традиционные подходы, основанные на лечении уже возникших заболеваний, оказываются недостаточно эффективными. Требуется комплексная стратегия, объединяющая медицинские, педагогические, социальные и семейные аспекты. Системный подход позволяет рассматривать здоровье ребенка как результат взаимодействия множества факторов и обеспечивать преемственность профилактических и оздоровительных мер на всех этапах его развития.

Цель исследования

Обосновать необходимость системного подхода к укреплению и сохранению здоровья детей, определить его ключевые компоненты и предложить практические механизмы реализации в условиях современного образования и здравоохранения.

Методы

В исследовании использовались:

Анализ нормативно-правовых документов (ФЗ "Об образовании", ФЗ "Об основах охраны здоровья граждан", СанПиНы для ДОУ и школ).

Системный анализ научных публикаций по педиатрии, педагогике и психологии здоровья.

Статистические методы (анализ данных Росстата и Минздрава о заболеваемости детей).

Сравнительный анализ российского и зарубежного опыта здоровьесберегающих технологий.

Многие аспекты человеческого существования определяются множеством внутренних и внешних факторов.

1. Здоровье ребенка – многофакторная система, зависящая от:

-медицинского сопровождения (профилактика, ранняя диагностика, реабилитация);

- образовательной среды (эргономика, физическая активность, психологический климат);

- семейного воспитания (режим, питание, эмоциональная поддержка);

- социальных условий (экология, доступность спортивной инфраструктуры).

2. Ключевые направления системного подхода:

- Медицинское: усиление профилактики, диспансеризация, развитие школьной медицины.

- Образовательное: внедрение здоровьесберегающих технологий (динамические паузы, правильная осанка, снижение учебной нагрузки).

- Семейное: повышение родительской компетентности через консультации и образовательные программы.

- Социальное: создание безопасной и развивающей среды (парки, спортивные площадки, экологический контроль).

3. Мотивация как ключевой фактор успеха:

- Для детей – игровые формы обучения здоровому образу жизни (квесты, интерактивные программы).

- Для педагогов – включение здоровьесберегающих методик в образовательные стандарты.

- Для родителей – доступные информационные ресурсы (вебинары, мобильные приложения).

4. Роль дошкольного образования:

- Формирование базовых здоровых привычек (гигиена, закаливание, двигательная активность).
- Психологическая адаптация к дальнейшему обучению в школе.
- Взаимодействие с семьей для единых подходов к укреплению здоровья.

Заключение

Системный подход к сохранению и укреплению здоровья детей требует координации усилий государства, образовательных учреждений, медицинских организаций и семьи. Важнейшими условиями его эффективности являются:

- межведомственное взаимодействие (Минздрав, Минпросвещения, региональные власти);
- научно обоснованные здоровьесберегающие технологии;
- мотивация всех участников процесса (дети, родители, педагоги, медики);
- постоянный мониторинг и коррекция мер на основе данных.

Только комплексная стратегия, учитывающая медицинские, педагогические и социальные аспекты, позволит сформировать поколение здоровых и гармонично развитых детей.

Использованные источники:

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ИССЛЕДОВАНИЕ ГАРМОНИЧЕСКИХ ХАРАКТЕРИСТИК ТОКА СТАТОРА В ТРЕХФАЗНЫХ АСИНХРОННЫХ ДВИГАТЕЛЯХ

Аннотация: *В данной статье подробно описан асинхронный двигатель, который считается основным потребителем электроэнергии, и система оценки его потребления активной и реактивной мощности. Представлен сравнительный анализ, преимущества и недостатки преобразователей тока и датчиков, применяемых при контроле и контроле различных потерь мощности в обмотке статора асинхронного двигателя. Также впервые был использован трехфазный преобразователь ток-напряжение для контроля потребления реактивной мощности асинхронного двигателя. Управление и мониторинг потребления реактивной мощности асинхронного двигателя трансформатора тока поясняется с использованием аналитических выражений и графовых моделей.*

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INVESTIGATION OF STATOR CURRENT HARMONIC CHARACTERISTICS IN THREE-PHASE ASYNCHRONOUS MOTORS

Abstract: *This article presents in detail the main consumer of electric energy, the induction motor, and the system for assessing its active and reactive power consumption. A comparative analysis, advantages and disadvantages of current transformers and sensors used to control and manage various types of power wasted in the stator winding of an induction motor are presented. Also, for the first time, a current transformer that converts three-phase current into voltage is used to monitor the reactive power consumption of an induction motor. The control and monitoring of the reactive power consumption of an induction motor by a current transformer is explained using analytical expressions and graph models. In the* *process of monitoring the reactive power consumption of an induction motor, the changes in electrical and magnetic processes in the stator winding of an induction motor and their effects on the main energy indicators, power factor, and useful efficiency are considered. Also, for monitoring the reactive power of an asynchronous motor, a fast four-phase transform form of non sinusoidality in the stator winding has been developed by connecting the proposed current-to-voltage converter in series and parallel.*

В результате протекания несимметричных и высокогармонических токов в обмотке статора асинхронного двигателя формируются магнитные потоки, которые отрицательно влияют на режимы работы асинхронного двигателя. Это, в свою очередь, приводит к увеличению реактивной мощности асинхронного двигателя. Необходимо разработать технические решения для мониторинга и управления несимметричными и высокогармоническими токами, влияющими на реактивную мощность асинхронного двигателя.

Одним из эффективных мероприятий для системы электроснабжения является использование источников реактивной мощности для компенсации реактивной мощности, возникающей в результате несимметричных и высокогармонических токов в статоре асинхронного двигателя.

Несимметричные и несинусоидальные токи, возникающие в системе электроснабжения промышленных предприятий, отрицательно влияют на режимы работы потребителей электрической энергии, а именно: они вызывают увеличение их реактивной мощности, снижение срока службы, ухудшение качества работы и ряд других негативных факторов. Как известно, асинхронные двигатели являются основными потребителями электрической энергии на промышленных предприятиях благодаря их невысокой стоимости по сравнению с другими типами двигателей той же мощности, малым габаритным размерам и простоте запуска. Асинхронные двигатели потребляют 55–60% всей электроэнергии, вырабатываемой электростанциями. При этом 25–40% от их полной потребляемой мощности приходится на реактивную мощность.
Если несимметричные и высшие гармонические токи асинхронного двигателя не соответствуют нормативным требованиям, то его КПД снижается. Снижение величины несимметричных и высших гармонических токов позволяет повысить энергетическую эффективность, поэтому определение, мониторинг и управление этими токами является одним из приоритетных направлений научно-технического прогресса.
Из принципа действия асинхронного двигателя следует, что обмотка ротора не имеет электрического соединения с обмоткой статора. Между этими обмотками существует только магнитная связь, и передача энергии осуществляется посредством магнитного поля. Во время работы асинхронного двигателя токи в обмотках статора и ротора создают два намагничивающих действия — намагничивающую силу ротора и намагничивающую силу статора. В результате их совместного действия

создаётся суммарный магнитный поток Φ, вращающийся со скоростью синхронного вращения n_1 относительно статора.

В настоящее время существует множество типов токовых преобразователей, что затрудняет выбор подходящей модели и конкретной конструкции. Поэтому целесообразно проводить анализ элементов и конструкции преобразователей на основе определённых принципов, что позволит определить их принцип действия и конструктивные особенности.

Среди таких преобразователей можно выделить: волоконно-оптические датчики тока, магнитогальванические токовые преобразователи, электромеханические преобразователи, однофазные трехэлементные датчики, трансформаторы тока, электромагнитные преобразователи с расширенным функционалом, а также токовые датчики Honeywell.

Хотя существующие токовые преобразователи и датчики, такие как преобразователи тока на эффекте Холла, обеспечивают высокую точность при измерении больших токов, они имеют ограничения по точности из-за насыщения магнитной системы, требуют дополнительных ресурсов и являются относительно дорогостоящими.

Асинхронные двигатели считаются основными потребителями электрической энергии и изначально рассчитаны на работу при симметричных и синусоидальных напряжениях. Однако, из-за подключения различных нагрузок к системе электроснабжения и ряда неисправностей в самих асинхронных двигателях, в них возникают несимметричные и несинусоидальные токи, что отрицательно влияет на режимы их работы.

Рассмотрим формирование, виды и негативные последствия несимметричных токов, возникающих под воздействием различных факторов во время работы асинхронного двигателя.

На статоре асинхронного двигателя размещены симметричные обмотки, которые отличаются друг от друга на угол 120°. При подаче напряжения на эти обмотки в каждой фазе формируются соответствующие магнитные потоки, пропорциональные величине приложенного напряжения (см. рисунок 1).

В асинхронных двигателях могут возникать амплитудные и фазовые несимметрии. Амплитудные несимметрии в основном обусловлены несимметрией напряжений в обмотках статора, что, в свою очередь, приводит к несимметрии магнитных потоков в асинхронных двигателях.

$$\Phi_A(\theta,t)=\frac{1}{2}\Phi_m\left\{\sin(\theta-\omega t)+\sin(\theta+\omega t)\right\}$$

$$\Phi_B(\theta,t)=\frac{1}{2}\Phi_m\left\{\sin(\theta-\omega t)+\sin\left(\theta+\omega t-\frac{2\pi}{3}\right)\right\}$$

$$\Phi_C(\theta,t)=\frac{1}{2}\Phi_m\left\{\sin(\theta-\omega t)+\sin\left(\theta+\omega t)-\frac{4\pi}{3}\right)\right\}$$

В трехфазных асинхронных двигателях симметричные токи возникают, когда величина токов в каждой фазе отличается друг от друга. Причины появления симметричных токов в асинхронных двигателях следующие:

• Повреждение обмотки статора асинхронного двигателя

• Повреждение подшипников асинхронного двигателя

• Повреждение магнитной цепи асинхронного двигателя

Вследствие вышеуказанных причин симметричные токи вызывают следующие негативные последствия в асинхронных двигателях:

• Снижение коэффициента активной мощности

• Перегрев асинхронного двигателя

• Снижение электромагнитного крутящего момента асинхронного двигателя

• Увеличение величины тока статора

Различные факторы — такие как увеличение нагрузки на асинхронный двигатель, длина питающего кабеля, управление с помощью устройств на полупроводниковых элементах, повреждения в магнитной системе асинхронного двигателя, асимметрия вращающихся частей, а также подключение асинхронных двигателей к сетям с неравномерными и разнообразными нагрузками — могут привести к возникновению высокочастотных гармонических токов в обмотках статора. Эти гармоники, в свою очередь, отрицательно влияют на работу и эффективность (коэффициент мощности) асинхронного двигателя.

Высокочастотные гармонические токи, возникающие в обмотках статора, можно обнаружить по выходным сигналам трехфазного электромагнитного преобразователя тока. Раскладывая значения напряжения, полученные от чувствительных измерительных петель, в ряд Фурье, можно определить амплитуды гармоник, воздействующих на асинхронный двигатель, с использованием метода быстрого преобразования Фурье (БПФ).

Графический метод разложения в ряд Фурье позволяет рассчитывать значения этих гармонических токов. В этом методе один период функции делится на равные n частей, и затем определяются составляющие значения функции.

Постоянная (средняя) составляющая функции...

$$a_0 = \frac{1}{2\pi}\int_0^{2\pi} f(x)dx \approx \frac{1}{2\pi}\sum_{p=1}^{p=n} f_p(x)\Delta x = \frac{1}{2\pi}\sum_{p=1}^{n} f_p(x)\frac{2\pi}{n} \qquad a_0 = \frac{1}{n}\sum_{p=1}^{n} f_p(x)$$

Значение синусоидальной составляющей функции на k-й гармонике

$$a_n = \frac{1}{\pi}\int_0^{2\pi} f(x)\cos kx dx \approx 2\cdot\frac{1}{2\pi}\sum_{p=1}^{n} f_p(x)\frac{2\pi}{n}\cos_p kx$$

Значение косинусоидальной составляющей функции на k-й гармонике "

$$b_n = \frac{1}{\pi}\int_0^{2\pi} f(x)\sin kx dx \approx 2\cdot\frac{1}{2\pi}\sum_{p=1}^{n} f_p(x)\frac{2\pi}{n}\sin_p kx$$

" Амплитуда k-й гармоники "

$$a_k = \sqrt{a_n^2 + b_n^2}$$

" Общее гармоническое искажение (ОГИ) функции "

$$THD_I = \sqrt{\sum_{k=2}^{N} \left(\frac{I_k}{I_1} \right)^2}$$

Исследование показывает, что мониторинг и контроль гармонических искажений имеют решающее значение для поддержания энергетической эффективности и надежности асинхронных двигателей. Применение спектрального анализа на основе частот является эффективным диагностическим инструментом для повышения эксплуатационных характеристик и продления срока службы таких двигателей в промышленных условиях.

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СОВЕРШЕНСТВОВАНИЕ УПРАВЛЕНИЯ СТОМАТОЛОГИЧЕСКИМИ КЛИНИКАМИ: ВНЕДРЕНИЕ СБАЛАНСИРОВАННОЙ СИСТЕМЫ ПОКАЗАТЕЛЕЙ

Аннотация: *Статья посвящена анализу современных подходов к управлению стоматологическими клиниками с использованием сбалансированной системы показателей (Balanced Scorecard, BSC). Рассматриваются особенности конкурентоспособности клиник в условиях рыночной среды, включая влияние внутренних и внешних факторов. В ходе исследования проанализированы операционные процессы муниципальных и частных медицинских учреждений, проведена адаптация BSC для учета специфики стоматологической отрасли. Внедрение системы управления BSC позволило оптимизировать бизнес-процессы, повысить качество услуг и удовлетворенность клиентов, а также обеспечить стратегическую устойчивость медицинских организаций. Предложенная методология включает интеграцию ключевых показателей эффективности (KPI) и показателей результативности процессов (PPI), что способствует развитию клиник и модернизации национальной системы здравоохранения.*

Ключевые слова: *сбалансированная система показателей, стоматологические клиники, конкурентоспособность, ключевые показатели эффективности, операционные процессы, управление медицинскими учреждениями, модернизация здравоохранения.*

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IMPROVEMENT OF DENTAL CLINIC MANAGEMENT: IMPLEMENTATION OF A BALANCED SCORECARD

Abstract: *The article is devoted to the analysis of modern approaches to the management of dental clinics using a balanced scorecard (BSC). The features of the competitiveness of clinics in a market environment are considered, including the influence of internal and external factors. The study analyzed the operational processes of municipal and private medical institutions, adapted the BSC to take into account the specifics of the dental industry. The implementation of the BSC* *management system allowed us to optimize business processes, improve the quality of services and customer satisfaction, and ensure the strategic sustainability of medical organizations. The proposed methodology includes the integration of key performance indicators (KPI) and process performance indicators (PPI), which contributes to the development of clinics and the modernization of the national healthcare system.*

Keywords: *balanced scorecard, dental clinics, competitiveness, key performance indicators, operational processes, management of medical institutions, healthcare modernization.*

Введение

Спрос на стоматологические услуги среди российского населения в последние десять лет претерпел значительные колебания, что связано с влиянием различных внешних факторов: ограничений, вызванных пандемией COVID-19, санкционными мерами западных стран, затруднившими поставки технологий, материалов и инструментов, изменениями в уровне платежеспособности разных социальных групп, а также активным развитием медицинского туризма, где стоматология занимает одну из лидирующих позиций [1]. Переход отечественного здравоохранения к процессно-ориентированному управлению обусловлен необходимостью внедрения современных методов менеджмента в отрасли, которая играет ключевую роль в обеспечении национального приоритета — сохранении здоровья населения. Основная задача, поставленная перед системой здравоохранения руководством страны, заключается в повышении качества и доступности медицинских услуг, что требует разработки новых подходов к управлению операционными процессами медицинских учреждений при одновременном сохранении их ресурсов и стимулировании конкурентоспособности.

Стоматология, как одно из направлений медицины, обладает рядом специфических особенностей, которые необходимо учитывать при формировании и совершенствовании системы управления профильными медицинскими организациями. Эта отрасль характеризуется высокой степенью конкуренции, что требует разработки уникальных методов и подходов к управлению. Такие подходы должны позволять эффективно балансировать между краткосрочными задачами клиник и их стратегическими целями, основными и вспомогательными операционными процессами, а также успешно противостоять внешним вызовам и максимально использовать внутренние ресурсы.

Одним из эффективных методов управления, широко применяемых в последние годы, является построение сбалансированной системы показателей, направленной на достижение стратегических целей организаций [2, 3]. Концепция, разработанная Р. Капланом и Д. Нортоном, нашла применение в различных сферах, включая управление медицинскими учреждениями. Однако уникальные особенности стоматологических клиник требуют более глубокого теоретического анализа и практической адаптации сбалансированной системы показателей в их управлении. Указанные факторы определяют теоретическую и практическую значимость данного исследования.

Метода и исследования

Аналитическое агентство BusinesStat зафиксировало снижение объема рынка коммерческой стоматологии в России в 2022 году более чем на 8%, с 77,7 до 71,3 млн посещений по сравнению с предыдущим годом. Частично это объясняется переходом клиентов из частных стоматологических клиник в государственные учреждения, что было обусловлено более быстрым ростом цен на услуги коммерческих клиник по сравнению с муниципальными. Например, в период с 2021 по 2022 год общая стоимость стоматологических услуг в стране увеличилась на 8,39%. На первичный прием у стоматолога цены выросли на 9,32%, на удаление зуба под местным обезболиванием — на 7,99%, на лечение кариеса — на 6,22%, на изготовление съемного протеза — на 6,73%, а на установку коронок — на 7,54% [4]. Разница в показателях по регионам несущественна.

Исследование проводилось на примере стоматологических клиник Пензенской области, где за рассматриваемый период стоимость первичного приема в коммерческих клиниках снизилась на 0,7%. В муниципальных клиниках такие приемы обычно бесплатны и осуществляются по программе обязательного медицинского страхования (ОМС) [1].

Причиной снижения цен на первичный прием в коммерческих клиниках, по мнению руководителей девяти медицинских учреждений региона, стал эксперимент, начатый в 2019 году в трех муниципальных клиниках Пензенской области: ГАУЗ ПО «Пензенская стоматологическая поликлиника» (отделение №3), ГАУЗ «Кузнецкая межрайонная стоматологическая поликлиника» и филиал ГАУЗ ПО «Пензенская стоматологическая поликлиника» в г. Каменка (отделение №12).

Как показали результаты исследования, конкурентоспособность стоматологических клиник зависит не только от ценовой политики, но и от качества предоставляемых услуг, а также от впечатлений клиентов об их взаимодействии с медучреждением. На рынке стоматологических услуг существует разделение между сегментами масс-маркета и VIP-клиник [5]. В то время как муниципальные клиники активно проводят рекламные кампании и используют скидки для привлечения клиентов, частные клиники сосредоточены на персонализированном обслуживании и удержании клиентов [6, 7].

Услуги для клиентов масс-маркета оказываются по стандартным протоколам, тогда как в VIP-сегменте применяется индивидуальный подход, что может сопровождаться отклонениями от стандартов, не всегда обеспечивающими успешное лечение. Государственные клиники предоставляют ограниченный перечень услуг, тогда как частные клиники стремятся предложить эксклюзивные решения. После оказания услуг пациенты масс-маркета обращаются к врачу только при наличии жалоб, тогда как VIP-клиенты сопровождаются индивидуально.

Муниципальные клиники оказываются в менее выгодном конкурентном положении и вынуждены совершенствовать подходы к управлению, чтобы привлекать нестандартные сегменты рынка. Для частных клиник проблема конкурентоспособности заключается в сложности привлечения пациентов по системе ОМС, поскольку она покрывает только часть стоматологических услуг.

Пациенты выбирают между бесплатными услугами с ограниченным качеством и более дорогими услугами в частных клиниках, оплачивая их самостоятельно. Муниципальные учреждения стремятся расширять перечень услуг, возмещаемых ОМС, а также адаптировать цены для привлечения клиентов, ориентируясь на те виды услуг, которые не входят в систему госстрахования.

Основные внутренние факторы, влияющие на конкурентоспособность стоматологических клиник, представлены в таблице 1.

Таблица 1 — Внутренние факторы стоматологических клиник

Фактор	**Внешнее проявление фактора**
Квалификация персонала	Владение современными материалами и стоматологическим оборудованием; регулярное повышение квалификации; отсутствие жалоб от пациентов; наличие положительных отзывов о работе персонала.
Внедрение инноваций в операционные процессы	Использование современных материалов и инструментов; применение передового стоматологического оборудования; внедрение инновационных методов лечения и протезирования.
Качество основных и вспомогательных бизнес-процессов	Отсутствие судебных споров из-за низкого качества оказания услуг; положительные отзывы о качестве стоматологических услуг; наличие систем управления качеством или гарантийного обслуживания.
Местоположение клиники	Расположение в жилых или деловых районах; наличие парковки; удобный доступ общественным транспортом; отсутствие поблизости объектов, создающих дискомфорт; наличие сопутствующей инфраструктуры.
Время работы клиники	Возможность приема пациентов до 9:00 и после 18:00; работа в ночные часы; оказание срочной стоматологической помощи круглосуточно.
Уровень цен и ассортимент услуг	Доступные цены для масс-маркета; обоснованные цены для VIP-клиентов; наличие услуг, предоставляемых по ОМС; предложение редких и инновационных стоматологических услуг.

Источник: [9].

Некоторые внутренние факторы трудно формализовать, поскольку они зависят, с одной стороны, от субъективного восприятия клиентов, но, с другой стороны, большинством потребителей воспринимаются положительно и способствуют формированию благоприятного имиджа стоматологической клиники. Например, новооткрытые медицинские учреждения часто вызывают недоверие у потенциальных клиентов, так как предполагается, что в них еще не сформирован профессиональный коллектив, не накоплены достаточные навыки и отсутствуют массовые положительные отзывы. Такое недоверие сложно преодолеть с помощью рекламных акций и стимулирования спроса, поэтому требуется использование специализированных инструментов управления с разработкой метрик для привлечения новых клиентов.

Одним из ключевых факторов, влияющих на конкурентоспособность стоматологической клиники, особенно коммерческой, является внутреннее благоустройство помещения [10]. Несмотря на индивидуальные предпочтения в восприятии комфорта, большинство клиентов ценят хорошее освещение в залах ожидания, удобную мебель, чистоту в местах общего пользования. Признаки износа или неисправности в интерьере формируют негативное впечатление, что не только отпугивает клиентов из сегмента премиум-услуг, но и может оттолкнуть потребителей масс-маркета. Если клиника предоставляет услуги для детей, наличие игровых зон и администратора с соответствующей квалификацией становится обязательным [9].

Особое значение в формировании конкурентоспособности клиники имеет работа администратора, который создает как общее, так и персональное впечатление о медицинском учреждении через взаимодействие с пациентами. Для этой должности стоматологические клиники, как частные, так и муниципальные, предъявляют высокие требования. Среди ключевых компетенций выделяют вежливость, умение работать в условиях многозадачности, стрессоустойчивость и внимательность к деталям [11].

Администратор стоматологической клиники должен обладать обширными профессиональными знаниями, так как на него возложены задачи координации множества бизнес-процессов.

Для сохранения клиентской базы в сегменте масс-маркета и расширения охвата VIP-сегмента муниципальные клиники внедряют передовые подходы к управлению, одним из которых является использование сбалансированной системы показателей (Balanced Scorecard, далее — BSC). Эта методология, разработанная в начале 1990-х годов командой исследователей Гарвардской бизнес-школы под руководством профессора Роберта Каплана, включает управление по четырем основным перспективам:

1. Внутренние бизнес-процессы. Этот аспект охватывает ключевые виды деятельности клиники, уровень внедрения технологий, включая высокотехнологичные методы лечения, и соблюдение стандартов оказания медицинской помощи.

2. Отношения с клиентами. Включает персонализированный подход к клиентам, наряду с мерами по их привлечению и удержанию.

3. Потенциал. Основной акцент делается на квалификацию персонала, как главного фактора, обеспечивающего высокое качество медицинских услуг.

4. Финансовая составляющая. Клиники ориентируются на показатели, отражающие финансовую эффективность и результаты их работы.

Эти четыре перспективы взаимосвязаны через стратегическую причинно-следственную цепочку, которая формирует логику, присущую стоматологическому бизнесу. Следование этой логике позволяет клиникам добиваться успеха [12].

Применение BSC помогает менеджерам сформировать целостное представление о развитии клиники, определить приоритеты и оценить последствия принимаемых решений с точки зрения достижения стратегических целей. Таким образом, управление клиникой приобретает стратегическую направленность.

Описание эксперимента

Эксперимент был направлен на внедрение в работу стоматологических клиник стимулирующих показателей с четко определенными критериями их достижения в рамках заданных технико-технологических и экономических условий. Внедренная модель управления медицинскими организациями стоматологического профиля основывалась на стратегических целях и ключевых показателях эффективности бизнес-процессов, направленных как на удовлетворение потребностей клиентов муниципальных стоматологических клиник, так и на выполнение задач, поставленных их владельцем — государством. Основным преимуществом выбранной стратегии было её построение от общей цели к конкретным показателям, что позволило создавать новые бизнес-процессы и обеспечивать клиникам конкурентное преимущество в долгосрочной перспективе.

Ключевым элементом модели BSC стала базовая перспектива внутренних (операционных) процессов, рассматриваемых как основа эффективности всей системы [14]. В этом контексте основными задачами менеджмента стали:

—Определение наиболее значимых операционных процессов.

—Определение вспомогательных и второстепенных процессов.

—Детализация процессов по элементам для их последующей комбинации и оптимизации.

Для оценки эффективности внутренних бизнес-процессов стоматологических клиник были сформированы две группы показателей:

—Показатели эффективности бизнес-процессов (PPI — Process Performance Indicators).

—Ключевые показатели эффективности (KPI — Key Performance Indicators) [13].

Обе группы показателей интегрировались в систему постоянного улучшения процессов (CPI — Continuous Process Improvement), ориентированную на регулярное совершенствование деятельности клиники. Данная методология базировалась на анализе добавленной ценности, предложенном Адитьей Вардханом, и предполагала акцент на значимости процессов для клиентов.

Приоритет PPI над KPI был принят для оценки эффективности бизнес-процессов стоматологических клиник, так как удовлетворенность клиентов и рациональное использование ресурсов играли ключевую роль в конкурентной борьбе. Формирование системы оценки качества стоматологических услуг осуществлялось на основе сочетания экспертных оценок пациентов и специалистов, что позволило валидировать субъективные данные.

Экономическая эффективность в рамках эксперимента оценивалась с позиции минимизации ресурсов, необходимых для реализации операционных процессов, при сохранении их достаточной результативности.

Показатели удовлетворенности клиентов дифференцировались на абсолютные и относительные значения, основываясь на собственной системе критериев.

Общие черты и различия между PPI и KPI применительно к медицинским организациям стоматологического профиля представлены в таблице 2.

Таблица 2. Характеристика показателей PPI и KPI в стоматологических клиниках

Характеристика	**PPI**	**KPI**
Срок оценки	Длительный период (до очередного планового пересмотра или корректировки стратегии организации).	Длительный период (до очередного планового пересмотра или корректировки стратегии организации).
Объект достижения	Цели процесса.	Цели бизнеса.
Цель	Оценка экономических факторов для определения их измеримости.	Оценка экономических факторов для определения их измеримости.
Инструмент внутреннего аудита	Используются для внутреннего аудита, так как помогают оценить прогресс клиники по периодам и в сравнении с конкурентами.	Используются также для внешнего аудита, так как способствуют оценке стоимости медицинского бизнеса.
Возможность корректировки	Могут быть скорректированы в любой момент времени.	Могут быть скорректированы в любой момент времени.

Основные принципы формирования	SMART (specific — конкретный, measurable — измеримый, achievable — достижимый, relevant — актуальный, time-bound — ограниченный во времени).	SMART (specific — конкретный, measurable — измеримый, achievable — достижимый, relevant — актуальный, time-bound — ограниченный во времени).
Объект оценки	Затраты ресурсов, затраты времени, удовлетворенность клиентов.	Финансовый результат, текучесть персонала, доля рынка, оценка бренда.
Тип показателей	Показатели результативности, производительности, сравнение с прошлым периодом, средними по отрасли или конкурентами.	Достижение целевых значений, сравнение текущих значений с целевыми.

Дополнительно показатели эффективности процессов были разделены на три основные группы с соответствующими характеристиками (рисунок 1).

Рисунок 1. Основные группы показателей эффективности внутренних бизнес-процессов в медицинских организациях стоматологического профиля и их характеристики

Результаты оригинального авторского исследования

Как было отмечено ранее, эксперимент по внедрению системы управления для стоматологических медицинских учреждений, основанной на BSC, включал участие трех муниципальных клиник. Для обеспечения объективности сравнения в исследование также были включены частные стоматологические медучреждения.

Достигнутые в ходе наблюдений показатели PPI соответствовали установленным ключевым показателям эффективности (KPI). Наилучшие результаты демонстрировали организации, которые обеспечивали высокий уровень рентабельности, оптимальное соотношение рабочего и общего времени бизнес-процессов, а также их высокое качество. Среди них лидировали муниципальные стоматологические клиники, особенно ГАУЗ ПО «Пензенская стоматологическая поликлиника». Внедрение системы комплаенса позволило муниципальным клиникам поддерживать запланированный уровень качества и ежегодно улучшать его. Это подтверждает значимость терапевтического взаимодействия в управлении и совершенствовании бизнес-процессов в медицинских организациях стоматологического профиля.

Практическое исследование и апробация разработанной методики выявили ключевые факторы, способствующие повышению клинической и экономической эффективности бизнес-процессов муниципальных стоматологических клиник при использовании BSC:

1. своевременность и функциональная обоснованность бизнес-процессов;
2. соответствие бизнес-процессов масштабам медицинской организации и её профилю;
3. баланс между стоимостью и ресурсоемкостью процессов;
4. регулярный мониторинг и архивирование данных для управления бизнес-процессами;
5. внедрение KPI и систем мотивации для персонала;
6. интеграция комплаенса как важного элемента бизнес-процессов.

Заключение

Таким образом, внедрение системы управления на основе BSC позволяет учитывать факторы конкурентоспособности стоматологических клиник и формировать стратегию устойчивого развития в условиях высокой конкуренции между частными и муниципальными медучреждениями. Учет внешних и внутренних факторов, повышающих требования к качеству и сервису, позволяет разрабатывать сбалансированные показатели, включающие маркетинговые, финансовые и квалиметрические критерии. Эти показатели должны быть гибкими, учитывать индивидуальные особенности сотрудников и пациентов, соответствовать стратегическим целям организации, а также способствовать модернизации национальной системы здравоохранения.

Совершенствование бизнес-процессов в стоматологических клиниках возможно с применением BSC при соблюдении стандартов медицинского обслуживания и организационной эффективности процессов. Разработанная методика оценки четырех перспектив BSC может использоваться для определения эффективности управления, выявления точек роста и стратегических ориентиров. Она позволяет выявлять проблемы и устанавливать цели для их устранения.

Особое значение имеет персонал организации, и предложенные критерии направлены на формирование понятных ориентиров для сотрудников. Для руководства муниципальных стоматологических клиник эти методики помогают создать эффективную систему мотивации, основанную на справедливом распределении поощрений и наказаний. Индивидуальные достижения персонала способствуют росту целевых показателей, увеличению конкурентоспособности, развитию стоматологических услуг при сохранении доступных цен и повышении качества медицинской помощи в рамках задач национальной системы здравоохранения.

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