STRATEGY FOR DEVELOPING PHYSICAL EDUCATION IN HIGHER EDUCATION INSTITUTIONS FOR FUTURE PHYSICAL EDUCATION TEACHERS BASED ON THE INNOVATIVE EDUCATIONAL CLUSTER

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Abstract: This article explores the role of the innovative educational cluster in training future physical education teachers at higher pedagogical institutions. The cluster method enables the integration of theoretical knowledge with practical skills, fostering students' analytical and creative thinking. The study highlights the pedagogical and methodological advantages of using the cluster approach in developing professional competencies, and provides examples of interactive lessons and interdisciplinary practices. Based on international experiences, a national model adapted to local educational conditions is proposed, emphasizing innovation, integration, and student-centered learning.

Keywords: innovative education, educational cluster, cluster method, physical education, pedagogical technologies, competencies, educational effectiveness, interdisciplinary integration.

Introduction

Cluster is a graphic and methodological approach that helps organize educational material in a systematic and logical manner, express knowledge in a structured way, and identify interrelated concepts. The term "cluster" comes from the English word “cluster,” which means “group,” “collection,” or “knot,”

and in education, it refers to a system that unites interconnected elements. The cluster method was first introduced in the 1980s by American writer and educator Gabrielle Lusser Rico. Initially, it was used as a method called “clustering” aimed at developing writing skills. Later, this method began to be widely applied in other fields of education, including physics, biology, language learning, and pedagogy. Today, the cluster method is widely used in countries with advanced educational systems such as Finland, Japan, and South Korea, particularly in interdisciplinary integrated education, skills-based approaches, and innovative teaching processes**.**

Advantages of the cluster method:

a) Helps to understand the topic in a systematic and visual way;

b) Teaches students to think creatively and analytically;

c) Reveals the connections between interrelated knowledge;

d) Encourages interdisciplinary integration and collaborative learning;

e) Develops students' independent thinking and self-assessment skills.

Application of the cluster method:

1. The lesson topic is determined;

2. Key concepts are identified;

3. A branched cluster diagram is created around these concepts;

4. Additional concepts related to the topic are identified in each branch;

5. Finally, knowledge is reinforced through summarization, analysis, and practical tasks.

Currently, the training of future physical education teachers in higher education institutions is organized based on modern pedagogical approaches. The use of innovative methods is of great importance in increasing the effectiveness of the educational process, activating student engagement, and developing their professional competencies. One of these methods is based on the innovative educational cluster. An innovative educational cluster is a system that integrates interrelated pedagogical resources, methodologies, curricula,

technologies, scientific-methodological support, and modern infrastructure through a comprehensive approach. Such clusters provide opportunities to implement practice-oriented, integrative, and outcome-based education in teacher training at pedagogical higher education institutions. Through these clusters, students not only gain theoretical knowledge but also develop practical skills, innovative thinking, and the ability to make effective decisions in problematic situations.

Within this system, the cluster method plays an important role in developing students' abilities to understand topics systematically, and to think analytically and creatively. Students are able to identify the internal relationships between topics, assimilate new knowledge, and apply it to practical activities. Additionally, this method serves to strengthen interdisciplinary connections, foster critical thinking, and develop students' self-assessment skills.

This article analyzes the concept of the innovative educational cluster and its significance in the training process of physical education teachers, as well as the pedagogical advantages and practical application of the cluster method. On this basis, the scientific foundations for the development of innovative lesson plans, interactive sessions, the integration of physical training exercises using the cluster method, and assessment criteria are examined. Moreover, suggestions are provided for the development of an innovative model tailored to the national education system based on the analysis of international experiences.

Theoretical Foundations of the Innovative Educational Cluster.An innovative educational cluster is a complex method applied in the educational process, in which resources, tools, technologies, and knowledge are integrated systematically. Through this method, cooperative relationships between the teacher and the student, collaborative teaching, creative activity, and lessons focused on personal development are formed. The cluster model especially

strengthens communication between instructors and learners in the field of physical education and is based on an interdisciplinary approach.

Development of Competencies of Future Physical Education Teachers. By forming competency-based education through educational clusters, students develop:

• Professional-pedagogical preparation;

• Knowledge and skills in shaping a healthy lifestyle;

• Practical abilities to implement innovative technologies in physical education lessons;

• Soft skills such as leadership, initiative, and teamwork.

Practical Application of the Cluster Method in the Teaching Process. The following stages are emphasized when using the cluster method:

• Determining the main topic of the lesson and identifying the main concepts related to it;

• Grouping the concepts in the form of a cluster and expressing them visually;

• Clarifying the essence of each concept and developing relevant questions;

• Reinforcing the topic through practical tasks, physical exercises, and group discussions.

The following table presents the stages of the cluster method and their objectives:

Stages	**Objectives**
Concept Selection	Identifying key terms related to the main topic
Creating the Cluster	Grouping the terms in an interconnected way
Analysis and Discussion	Conducting an in-depth analysis of each concept

Practical Exercises	Reinforcing theory through sports practice

Mind Map: Organizing the Lesson Process Based on the Cluster Method

Main Topic: Physical Education

- Stages of the Cluster Method
- Concept selection
- Creating a cluster
- Discussion and analysis
- Practical exercises
- Final assessment
- Competencies
- Pedagogical preparation
- Innovative thinking
- Healthy lifestyle
- Resources
- Multimedia technologies
- Sports infrastructure
- Online platform

Foreign Experience and National Model Proposal

In international practice, particularly in the USA, Finland, South Korea, and Japan, the following approaches are observed in training physical education teachers based on educational clusters:

- trainings using technological platforms;
- use of multimedia tools;
- virtual sports laboratories;
- interdisciplinary integrated lessons.

In the context of Uzbekistan, an innovative model can be developed by adapting these experiences to local culture, traditions, and existing infrastructure:

- establishing a “Cluster for Educational and Sports Innovations” based on sports faculties;
- developing modular programs for physical education;
- introducing digital platforms for teacher professional development.

Methodological Recommendations:

➢ Encourage student-centered teaching approaches that promote active participation and collaboration.

➢ Integrate cluster-based lesson planning into teacher training curricula.

➢ Utilize digital tools (e.g., interactive whiteboards, online quizzes, educational apps) for creating and presenting cluster maps.

➢ Design interdisciplinary tasks that connect physical education with science, health, and technology.

➢ Regularly evaluate and update cluster-based modules based on feedback and educational needs.

Graphic: Stages of the Teaching Process Based on the Cluster Method

1. Select the topic → 2. Build the cluster → 3. Discuss the concepts → 4. Practical exercises → 5. Analysis and assessment → 6. Integrate the results

2. Additional Scientific Foundations and Monitoring System. To effectively implement the innovative educational cluster, a monitoring system should be developed. The following table shows the stages of monitoring and measurement criteria:

Monitoring Stage	Measurement Criteria
Initial diagnostics	Students' knowledge level, initial preparation
Interim monitoring	Success rate in practical tasks

Final analysis	Degree of competency development
Reassessment	Readiness for innovative activities

Conclusion: Training future physical education teachers based on the innovative educational cluster is an important tool for organizing a high-quality, integrated, and results-oriented educational process in line with modern requirements. The cluster method fosters students' independent thinking, analytical, and creative approaches. The recommendations presented in this article, along with the proposed model and foreign experiences, provide a foundation for the wide implementation of innovative pedagogical approaches in the local education system.

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