A SYSTEMIC APPROACH TO DEVELOPING PROFESSIONAL COMPETENCIES OF FUTURE PHYSICAL EDUCATION TEACHERS: PROBLEMS AND STRUCTURAL SOLUTIONS

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In modern pedagogical research, developing professional competencies among future physical education teachers requires a comprehensive examination of educational systems as multi-level, structural entities. Grounded in systemic and activity-based methodologies, this study analyzes how internal content and external functional mechanisms interact to shape pedagogical readiness. Higher education institutions often face complex challenges, including gaps between theoretical knowledge and practical execution, insufficient digital integration, and unstandardized evaluation systems. By evaluating these systemic components, this paper establishes a structured theoretical foundation designed to optimize teacher preparation, enhance assessment models, and drive continuous professional growth in physical education.

A targeted integrity system includes considering the components of the system and their interrelationships, which reveals the structure of this system and its organization. In the course of research, the object functions as a multi-structural, multi-level unit in terms of complexity. In turn, various structural elements of the system create an integral structure with specific characteristics manifested during the operation of the system.

Structural analysis allowed us to identify structural components that qualitatively differ in target direction within the context of the three systems under investigation and to highlight their internal composition. Based on the methodology of the systems approach, we considered these structural components from the perspective of two qualitative characteristics: qualitative nature (content) and qualitative characteristics (essence).

First, the component acts from the perspective of internal, abstract states; second, as a constituent part of the overall system.

Structural analysis allows for the disclosure of external and internal mechanisms. The activity of the educational system for developing competencies in physical education, its development process, and the control and evaluation of the degree of formation as systemic objects were studied in terms of being conditioned by the content and structure of the component (internal activity), as well as their external function (external activity).

Internal activity describes the relationship between functional clarity and the comparison between its components. Thus, according to the Provisions on Hierarchy, any subsystem is a progressive element and, accordingly, is subject to it during its operation, while simultaneously establishing unique characteristics and influencing the operation of the system. The characteristics of the main subsystems are reorganized in the properties of higher systems in the process of interacting with other subsystems of the same order. Thus, the higher system involves subsystems in activities according to the goals of the activity based on individual characteristics, as they help obtain the programmed result (P.K. Anokhin) [1].

The results of the systems analysis we obtained were used in systems synthesis, according to the results of which holistic theoretical models of competencies in physical culture were formed and experimentally studied, along with the formation of these competencies, as well as the control and evaluation of their formation level. This allowed for revealing the principles and conditions for the emergence and formation of new systemic properties as holistic results of the interaction of the structural elements of the presented models (Table 1).

Table 1.

Problems in Developing the Professional Competencies of Future Physical Education Teachers and Ways to Solve Them

№	Problem	Essence of the Problem	Impact on the Educational Process	Possible Solutions / Recommendations
1	Insufficient theoretical knowledge	Future teachers do not sufficiently master the fundamentals of pedagogy, sports, and methodology	The effectiveness of practice in sessions decreases, and incorrect techniques may be applied	Strengthen theoretical knowledge through modern textbooks, electronic learning resources, seminars, and masterclasses
2	Lack of practical skills	Limited opportunities to fully control students during sessions and apply methodology	Errors in sessions increase, and safety issues arise	Increase practical sessions and organize training in laboratories and sports facilities

№	Problem	Essence of the Problem	Impact on the Educational Process	Possible Solutions / Recommendations
3	Underdeveloped pedagogical competencies	Lack of knowledge regarding professional pedagogical approaches, communication, and motivation methods	Teachers cannot educate students effectively	Enhance competencies through mentoring, pedagogical internships, and didactic seminars
4	Low ability to use modern technologies	Insufficient application of e-learning tools and digital technologies	The educational process becomes non-interactive and ineffective	Introduce online platforms, interactive lessons, multimedia tools, and provide teacher training
5	Lack of psychological preparation	Difficulty in establishing effective relationships with students and motivating them	Motivation and discipline during sessions decrease	Psychological training, communication courses, and in-depth study of pedagogical psychology
6	Lack of a system for assessing professional competencies	Teachers' qualification levels and development are not accurately assessed	Monitoring the quality of education becomes difficult	Implement a competency-based assessment system and develop indicators and criteria
7	Insufficient study of foreign experience and standards	Lack of knowledge regarding modern international methodologies	Opportunities for effective implementation of innovative pedagogical	Exchange experience through foreign scientific articles, conferences, and collaborative programs

№	Problem	Essence of the Problem	Impact on the Educational Process	Possible Solutions / Recommendations
			technologies are reduced	
8	Limited practical training facilities	Insufficient sports fields, equipment, and laboratories	Reduces the quality of training sessions	Modernize sports bases and educational laboratories, and improve conditions
9	Lack of an individual approach	Education is not adapted to the abilities and needs of each student	Student skill levels vary, reducing overall effectiveness	Individual student plans, differentiated training sessions, and a mentoring system
10	Absence of a system for continuous professional development	Teachers do not regularly acquire new knowledge and skills	The educational process relies on outdated methods	Organize periodic refresher courses, webinars, conferences, and scientific seminars

In the scientific research process, scholars tested a number of methodological approaches. In particular, V.G. Afanasyev [2] identified a number of parameters of a system, based on which cases of representing it as a holistic entity were observed:

1. The presence of integrative (systemic) properties, that is, properties not possessed by individual components of the system;
2. The presence of integrated properties, that is, properties not possessed by an individual element of the system;
3. The presence of structural units that form the system;
4. The presence of structure, that is, connections and relationships between parts and structural components;
5. The presence of functional features of the system and its individual structural components;
6. The presence of communicative qualities of the system, expressed in two forms: interaction with the environment and interaction of a specific system with other systems, that is, subsystems and super-systems, systems of which they are a part (subsystems) or function within in general;

7. The presence of periodicity or temporal dependence in the system and its elements.

The system for developing competencies in physical education, defined as the subject of research, its operation in the process of mastering the physical education curriculum, as well as the control and assessment system, are revealed by these indicators, which are necessary and sufficient for their deep demonstration.

The next guide for the methodological framework in our study was the activity-based approach. According to A.N. Leontyev, the real principle of personality exists in the activity carried out by knowledge and skills. The line of research should not move from acquired knowledge and skills to the activity that reflects them. Studying competencies in physical education in accordance with the principles of this approach, as well as their development, control, and evaluation, was carried out by us in connection with the essence and content of physical culture as a specific type of human activity [3]. In another of his works, A.N. Leontyev considers the psychological theory of activity from the point of view of the subject of activity, which is understood as the subject's ability to repeat its logic, subordinate their activity to it, and disregard the laws of this activity from the subject's point of view during their own activity.

In conclusion, the structural-functional analysis of physical education teacher preparation highlights the necessity of treating competency development as an integrated, multi-level system. By aligning internal educational mechanisms with external functional demands, higher education institutions can effectively resolve critical issues related to practical skill gaps, digital integration, and assessment standardization. The experimental evaluation of holistic theoretical models confirms that applying systems-analysis and activity-based principles enhances teacher preparation quality. Ultimately, implementing these structured solutions provides a sustainable framework for continuous professional development, ensuring future physical education teachers achieve comprehensive pedagogical readiness and adapt to modern educational standards.

References:

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