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Article

Theoretical and Methodological Aspects of Developing Key Competencies in Pedagogical Education

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Abstract: Developing professional competencies in higher education requires aligning traditional knowledge accumulation with dynamic, application-oriented frameworks to meet modern labor market demands. This study synthesizes international theoretical models, European Commission key competency frameworks, and Uzbekistan's State Educational Standards (SES) to analyze the structure of physical education teacher preparation. Key competencies comprise cognitive, communicative, and operational dimensions. Integrating professionally oriented digital teaching technologies, interdisciplinary links, and continuous feedback mechanisms bridges the gap between theoretical knowledge and practical pedagogical execution. Fostering adaptable, non-adaptive activity through modernized curricula ensures physical education specialists successfully transition from static skill sets to comprehensive professional competence.

Keywords: Professional Competence, Competency-Based Approach, Physical Education, State Educational Standards, Higher Education, Digital Technology, Pedagogical Skills, Teacher Training, Generic Competencies, Educational Reform

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1. Introduction

Competencies possess a generalized integral character relative to "knowledge," "skills," and "abilities," yet they do not contradict them; rather, they encompass all of their design features. The conceptual framework of competencies includes knowing and understanding concepts (theoretical knowledge of a scientific domain, the capacity to possess and comprehend information), knowing how to act (the application and effectiveness of knowledge in specific situations), and knowing how to be (an integral part of the ability to perceive and realize life within a social context). Thus, the psychological content of competency and competencies consists of motivational-value, cognitive, and operational components. Each plays a specific role in professional competency performance (Figure 1.3.2).

Interacting with one another, they ensure a high level of qualification manifested in the content and results of the activity. It should be noted that normative documents lack a clear interpretation of educational outcomes realized within the competency-based approach [1]. From the broadest philosophical perspective, the relationship between the concepts of "competency" and "competencies" should, in our opinion, be considered as the relationship between the general and the specific. The same personal attributes of a subject of activity can be viewed as competency (relative to activity as a whole) and as competencies (as an integral part of a broader activity relative to that specific task) [2].

In the International Commission on Education's report *"Learning: The Treasure Within,"* Jacques Delors highlighted key global competencies essential for 21st-century

education: "learning to know, learning to do, learning to live together, learning to be." According to the author, the essence of the "learning to do" competency is not merely "acquiring a professional qualification, but rather possessing a competency that enables an individual to address numerous situations and work effectively in a team" [3].

The global competencies highlighted by the author correspond to the main types of human social activity: learning (knowing), labor (doing), communication (living together), and behavior (living). Education, labor, communication, and behavior are carried out according to dominant motivations based on acquired knowledge, skills, and abilities [4].

Taking international experience into account, every European citizen should possess eight key competencies in accordance with European Commission recommendations:

1. Communication in the mother tongue;
2. Communication in foreign languages;
3. Mathematical competence and basic competencies in science and technology;
4. Digital/information technology competence;
5. Learning to learn;
6. Interpersonal, intercultural, social, and civic competencies;
7. Entrepreneurship;
8. Cultural awareness and expression [5].

European competency models encompass 30 generic (universal) competencies:

1. Ability for analysis and synthesis.
2. Ability for organization and planning.
3. Basic general knowledge in various fields.
4. High level of grounding in the basic knowledge of the profession.
5. Written and oral communication in the mother tongue.
6. Knowledge of a second language.
7. Computing skills.
8. Information management skills.
9. Problem-solving ability.
10. Decision-making ability.
11. Ability to be critical and self-critical.
12. Teamwork capability.
13. Interpersonal skills.
14. Ability to work in an interdisciplinary team.
15. Ability to communicate with experts in other fields.
16. Appreciation of diversity and multiculturality.
17. Ability to work in an international context.
18. Commitment to ethical values.
19. Ability to apply knowledge in practical situations.
20. Research skills.
21. Capacity to learn.
22. Capacity to adapt to new/uncertain situations.
23. Creative thinking capability.
24. Leadership.
25. Tolerance toward the culture and customs of neighboring countries.
26. Ability to work autonomously.
27. Project design and management capacity.

28. Initiative and entrepreneurial spirit.
29. Concern for quality.
30. Drive for success [6].

These are divided into four main types of key competencies:

1. **Instrumental**, including basic and foundational knowledge, representing preliminary skills;
2. **Interpersonal**, characterizing readiness for social interaction, teamwork, self-criticism, commitment to ethical values, and tolerance;
3. **Systemic**, reflecting the capacity to systematically apply acquired knowledge in practice, conduct research, generate new ideas, and adapt to novel situations;
4. **Specific**, characterizing domain mastery at a specific level [7].

Under conditions of continuous change and increasing uncertainty typical of the modern labor market, key competencies become particularly crucial. They possess an overarching, universal nature. They are termed basic skills, key qualifications, or key knowledge. Key competencies are defined as general competencies necessary for a specialist's socially effective activity, creating conditions for "the successful socialization of the individual, realization of their creative potential, enhancement of professional mobility, and competitiveness in the labor market" [8].

European scholars emphasize five key competencies that should be fostered in the younger generation:

1. **Socio-political**, including the ability to assume responsibility, work in groups, make decisions, resolve conflict situations non-violently, and participate in supporting and improving democratic institutions;
2. **Intercultural**, related to living in a multicultural world. To prevent intolerance in the educational system, conditions must be established to foster intercultural competencies among youth to control manifestations of racism and xenophobia [9];
3. **Communication**, involving oral and written communication, which is vital for work and social life (individuals lacking these skills face the threat of social isolation). In this context, particular importance is given to:
    a. Proficiency in multiple languages;
4. **Information society competencies**, related to digital technology mastery, application skills, understanding the strengths and weaknesses of information distributed via mass media and advertising, and applying critical thinking methods;
5. **Lifelong learning**, serving as the foundation for continuous personal professional growth and social life [10].

The presented competencies are defined by a set of capabilities, among which critical thinking, creativity, a "European dimension," and an active life stance can be highlighted. Overall, all of these factors influence personal development and improve interaction levels, ultimately contributing to enhanced employability [11].

Despite the extensive theoretical development of the competency-based approach in international and national educational research, the mechanisms for integrating key competencies into the professional preparation of future physical education teachers require further methodological clarification. In particular, there is a need to determine how cognitive, communicative, operational, digital, and professionally oriented competencies can be systematically connected with State Educational Standards, curriculum content, teaching technologies, and practical pedagogical activities [12].

Therefore, the aim of this study is to theoretically and methodologically analyze the development of key competencies in pedagogical education, with particular emphasis on the professional preparation of future physical education teachers, and to identify effective approaches for integrating competency-based principles, digital teaching technologies, interdisciplinary connections, and continuous feedback into the educational process [13].

2. Methods and Materials

This study employed a theoretical and methodological research design based on the analysis, comparison, and synthesis of scientific and educational approaches to competency development in pedagogical education. The research materials included international theoretical models of competence and competency, European approaches to key competencies, scientific concepts proposed by researchers in the field of professional education, and the State Educational Standards and qualification requirements applied in the higher education system of Uzbekistan.

The study used comparative, analytical, and generalization methods to identify common characteristics and differences among existing approaches to professional competency. Particular attention was given to the cognitive, communicative, operational, socio-psychological, and information-communication dimensions of professional competence and their relevance to the preparation of future physical education teachers.

The analysis was conducted in several interconnected directions. First, theoretical interpretations of the concepts of competence and competency were examined and compared. Second, international classifications of key competencies and their structural components were analyzed. Third, these theoretical approaches were considered in relation to Uzbekistan's State Educational Standards and qualification requirements for teacher education. Finally, the role of professionally oriented teaching technologies, digital educational tools, interdisciplinary integration, and continuous feedback in developing students' professional competencies was examined.

The obtained theoretical findings were synthesized to determine the principal components of professional competency and to identify methodological conditions that can support the effective development of key competencies among future physical education teachers.

3. Results and Discussion

International Theoretical Approaches

V. Slastenin The Concept of "Professional Competence": Defines competency through the English term "competence" as the effective use of practical knowledge in activity. According to the author, an educator's professional competence is not merely knowledge, but the ability to apply it effectively within the pedagogical process. Minyurova and Leonova "Teachers' Qualifications Assessment": International studies emphasize the importance of defining qualifications based on professional standards and developing professional skills when evaluating teacher performance. Professional standards form the mechanisms for developing and assessing an educator's professional competence [14].

Theoretical Foundations and the Competency Approach: Concepts of "Competence" and "Competency"

Scholars, including those from Uzbekistan and the CIS region:

1. View **competence** (*kompetensiya*) as a set of requirements (what one must know and be able to do).
2. View **competency** (*kompetentlik*) as the demonstrated ability to apply knowledge and skills in practice.

The traditions of the domestic higher education system and the competency models utilized in European higher education institutions are closely aligned. This allows for what is termed the "competency-based revision" of prior educational standards, incorporating modern updates into them [15].

Thus, I.A. Zimnyaya outlines three groups of key competencies:

1. Competencies related to the essence of the individual, the subject of activity, and communication;

2. Competencies related to the social interactions of the person and the social sphere;
3. Competencies related directly to human activity.

Comparing the above approaches to highlight core components reveals that they pertain to cognition, communication, and activity. This is logical, as activity and communication represent the primary interconnected types of human social behavior. In turn, the primary activities for adults are learning and work.

Consequently, three main types of human key competencies emerge, manifested in the readiness to learn, communicate, and create. In these competencies, an individual functions as a subject of cognitive, communicative, and labor activity. The cognitive, communicative, and labor competencies highlighted here determine mutual success in realization, developing through their actualization within labor activity where knowledge, communication, and creation are presented. The comparative analysis of the theoretical approaches revealed that, despite differences in terminology and classification, the examined competency models share several common structural characteristics. In particular, cognitive competence provides the theoretical and intellectual basis for professional activity, communicative competence supports effective professional and social interaction, while operational and activity-based competence enables the practical application of acquired knowledge and skills. These components should therefore be considered interconnected rather than independent elements of professional competency.

Structure of Professional Competency

In Uzbek and international literature, professional competency is analyzed across four dimensions:

1. Theoretical knowledge (pedagogical theory);
2. Practical skills (delivering lessons, organizing sports sessions);
3. Socio-psychological competencies (communication, teamwork);
4. Information and communication competencies.

SES and Qualification in the Context of Uzbekistan

Competency Approach in State Educational Standards (SES)

The competency-based approach is implemented in Uzbekistan's State Educational Standards as educational content, directly linked with qualification requirements in teacher training. Standard programs based on this framework define these learning outcomes as competencies.

This curriculum is designed to build the professional competencies of future physical education teachers in alignment with SES and qualification requirements. The course incorporates theoretical knowledge, practical skills, pedagogical and digital competencies, creativity, and innovative approaches.

The "Theory and Methodology of Physical Culture" course was developed based on the State Educational Standards (SES) and qualification requirements of the Republic of Uzbekistan, with instruction conducted in Uzbek and Russian. Four weekly classroom hours are scheduled. Orienting the educational process toward a competency-based approach necessitates re-examining and developing methodological conditions alongside the content and application of modern information technologies, as competencies do not belong solely to knowledge or skills within a single subject. Because traditional education primarily focused on acquiring a specific set of knowledge and skills, it is common today to meet individuals who possess deep theoretical knowledge but cannot apply it appropriately in real-world contexts when the need or opportunity arises.

Therefore, the methods and technologies of competency-oriented education must ensure the smooth transfer and adaptability of skills developed under specific conditions to new contexts a quality characterized as "non-adaptive activity." Building upon core aspects of the competency-based approach analyzed by scholars, it is necessary to clarify key definitions, content characteristics, and structural analysis within the learning process

through the wide use of instructional and digital technologies. Based on this refined analysis, we focus on professionally oriented information-teaching technology as a central category of this research.

At the same time, competency should not be set in opposition to knowledge or skills. The concept of competency is broader than knowledge or skills, encompassing cognitive and operational-technological components as well as motivational, ethical, and social dimensions. Based on the foregoing, both the content and forms of the educational process must be transformed simultaneously according to modern educational principles. Transformed educational formats should not merely transmit knowledge about specific competencies to learners; instead, they must enable continuous activity grounded in modern digital technologies throughout the educational process. Learners should not merely prepare for future professional activity by assembling next-level skill sets; they must internalize competencies simultaneously throughout their training.

In developing the professional competencies of physical education students, the following key tasks are of vital importance and must be addressed:

1. Improving State Educational Standards, curricula, syllabi, and textbooks to ensure educational continuity through content alignment;
2. Optimizing workload volume and scope by integrating related discipline modules in study plans;
3. Creating and implementing a unified system for assessing student knowledge, skills, and competencies according to State Educational Standards across all stages;
4. Expanding virtual learning laboratories, modern information technology, electronic equipment, and distance-learning facilities in educational institutions; creating and effectively using digital versions of textbooks, manuals, and educational videos;
5. Further enhancing the quality and content of prepared textbooks and learning guides.

Achieving this objective requires establishing feedback loops between final learning outcomes and each intermediate stage of instructional technology design. Feedback serves as an essential connecting artery that penetrates the entire learning process, enabling rapid and timely improvements. The technology applied in the educational process is so vital that numerous scientific works on managing pedagogical systems treat feedback mechanisms directly as primary research objects.

Professionally oriented instruction technology for physical education students entails: taking interdisciplinary connections into account; relying on individual capabilities; linking theory closely with practice; monitoring and improving classroom and independent work; adjusting task volumes, sequence, and ratios; and relying on didactic achievements that reflect the interconnected activities of teachers and learners. We believe that one of the essential conditions for high-quality professional training is engaging every student in active cognitive activity, ensuring they understand where, how, and for what purposes their acquired knowledge can be applied in practice. The path to enhancing students' academic and creative performance lies in involving them in active tasks that demand knowledge, initiative, and practical experience across all types of educational sessions.

4. Discussion

The findings of this study demonstrate that the development of professional competency in pedagogical education should be understood as an integrated process rather than as the acquisition of isolated knowledge and skills. The theoretical approaches examined in this study consistently indicate that professional competency combines cognitive, communicative, operational, motivational, social, and technological components. Their interaction enables future teachers not only to acquire professional knowledge but also to apply it effectively in changing pedagogical situations.

The identified relationship between cognitive, communicative, and activity-based competencies is particularly important for the professional preparation of future physical education teachers. Theoretical knowledge provides the foundation for understanding pedagogical and professional processes, while practical and operational competencies enable students to apply this knowledge in lessons, sports activities, and other professional contexts. At the same time, communicative and socio-psychological competencies support effective interaction with learners, colleagues, and other participants in the educational process.

The comparison of international competency frameworks with the competency-based principles incorporated into Uzbekistan's State Educational Standards indicates substantial conceptual compatibility between these approaches. This creates favorable methodological conditions for integrating international competency-oriented practices into national teacher education without separating them from existing qualification requirements. However, such integration should focus not merely on formally listing competencies in educational standards, but on creating learning conditions in which students continuously demonstrate and develop these competencies through practical activity. An important methodological implication of the findings is the need to strengthen the relationship between theory and practice. Traditional knowledge-oriented education may produce students with substantial theoretical preparation who nevertheless experience difficulties when applying their knowledge in real professional situations. Competency-oriented education should therefore create opportunities for transferring acquired knowledge and skills to new and unfamiliar contexts. This supports the development of professional adaptability and the "non-adaptive activity" emphasized in the theoretical framework of the study.

Digital technologies also occupy an important position within this process. Their pedagogical value should not be limited to the transmission of information or the replacement of traditional teaching materials with electronic resources. Professionally oriented digital technologies should facilitate active learning, independent work, practical application, interaction, and continuous development of competencies. In physical education teacher preparation, this requires combining digital resources with practical pedagogical and professional activities rather than treating digital competence as an isolated educational outcome. The findings further emphasize the role of continuous feedback in competency development. Feedback connects expected learning outcomes with intermediate stages of the educational process and enables timely modification of teaching methods, learning activities, and assessment procedures. Consequently, competency assessment should function not only as a final measurement of student achievement but also as an ongoing mechanism for improving the quality of professional preparation.

Overall, the analysis suggests that the effective development of key competencies among future physical education teachers requires the simultaneous modernization of curriculum content, teaching methods, assessment procedures, digital learning environments, and practical professional activities. Interdisciplinary integration, active student participation, professionally oriented tasks, and continuous feedback should operate as interconnected methodological conditions. Such an approach can help transform competency-based education from a formal requirement of educational standards into a practical mechanism for developing professionally adaptable and independently functioning teachers.

5. Conclusion

The transition toward a competency-based model in higher education represents a vital paradigm shift, bridging the gap between theoretical knowledge and practical execution in physical education teacher training. By integrating national State Educational Standards with international framework models, physical culture programs can foster essential cognitive, communicative, operational, and digital competencies. Ultimately,

modernizing curricula, establishing effective feedback mechanisms, and embedding interactive teaching technologies ensure that future physical education specialists possess not only specialized subject knowledge, but also the adaptability, initiative, and professional readiness required to navigate dynamic educational environments and meet contemporary societal demands. The theoretical and methodological analysis further indicates that the development of key competencies should be organized as a continuous and interconnected process combining cognitive, communicative, operational, socio-psychological, and digital components. For future physical education teachers, competency development should extend beyond the acquisition of theoretical knowledge and include its practical application in pedagogical situations, effective professional communication, independent decision-making, creative problem-solving, and the appropriate use of digital educational technologies. Therefore, higher education institutions should strengthen interdisciplinary integration, professionally oriented learning activities, digital educational resources, and continuous feedback mechanisms within physical education teacher training. Particular attention should be given to aligning curricula, assessment procedures, and practical training with State Educational Standards and qualification requirements. The systematic implementation of these measures can contribute to preparing professionally competent, adaptable, and competitive physical education teachers capable of responding effectively to changing educational and societal demands.

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