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THE EFFECTIVENESS OF PEDAGOGICAL TECHNOLOGIES IN DEVELOPING CREATIVE COMPETENCIES AMONG PROSPECTIVE TEACHERS.

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Annotation: This study explores the effectiveness of pedagogical technologies in fostering creative competencies among prospective teachers. In the context of modern education, creativity is considered a key professional quality that enables future teachers to design innovative learning environments, apply flexible instructional strategies, and respond effectively to diverse educational needs. The research analyzes theoretical and methodological foundations of creativity development and examines contemporary pedagogical technologies that support creative thinking, problem-solving skills, and professional self-expression. Special attention is given to interactive, learner-centered, and technology-enhanced teaching approaches that encourage originality, independence, and reflective practice. The findings of the study contribute to improving teacher education programs by integrating pedagogical technologies aimed at enhancing creative competencies in future educators.

Keywords: creative competencies, prospective teachers, pedagogical technologies, creativity development, innovative teaching methods, teacher education

Relevance of the topic. The rapid development of science, technology, and digital transformation has significantly changed the requirements placed on modern education systems and, consequently, on the professional profile of teachers. Today, teachers are expected not only to transmit knowledge but also to act as designers of learning environments, facilitators of thinking, and initiators of innovation. In this regard, creativity has become one of the key competencies that determine a teacher's professional effectiveness and adaptability. The development of creative competencies among prospective teachers is therefore a strategically important task in teacher education, as it directly influences the quality of teaching and learning outcomes in the future. Another important aspect of the relevance of this topic lies in the need to modernize teacher education programs in accordance with international educational standards and contemporary pedagogical paradigms. Traditional, lecture-based approaches are no longer sufficient to prepare future teachers for complex and dynamic classroom realities.

Pedagogical technologies, such as interactive methods, project-based learning, digital tools, and problem-oriented instruction, create opportunities for active participation, experimentation, and creative self-expression. These technologies support the formation of flexible thinking, originality, and the ability to generate new ideas, which are essential components of creative competence. The relevance of this research is also determined by the growing emphasis on learner-centered education, where the teacher's role shifts from a

knowledge provider to a guide and mentor. To successfully perform this role, prospective teachers must possess creative competencies that allow them to individualize instruction, motivate learners, and respond effectively to diverse educational needs. Pedagogical technologies provide methodological and technological support for this transformation by enabling future teachers to experience creative learning processes themselves and later apply them in their professional practice.

Furthermore, the development of creative competencies through pedagogical technologies helps bridge the gap between theory and practice in teacher education. Many prospective teachers face difficulties in transferring theoretical knowledge into real classroom situations. The use of pedagogical technologies encourages practical engagement, reflection, and problem-solving in simulated or real educational contexts. As a result, future teachers develop not only creativity but also professional confidence, autonomy, and readiness for innovative teaching. Finally, the relevance of this topic is reinforced by the growing demand for teachers who can effectively integrate innovation into education and contribute to sustainable educational development. Creative teachers are better equipped to implement educational reforms, adopt new curricula, and use modern technologies in meaningful ways. By studying the effectiveness of pedagogical technologies in developing creative competencies among prospective teachers, this research contributes to both scientific understanding and practical improvement of teacher education, making it highly significant in the current educational landscape.

Literature review. The issue of developing creativity in education has been extensively examined in psychological and pedagogical research, where creativity is considered a fundamental factor of personal and professional development. Classical psychological studies by J. Guilford emphasize divergent thinking as the core mechanism of creativity, highlighting fluency, flexibility, originality, and elaboration as its main components. Guilford's structural model of intellect laid the foundation for later studies on creative thinking in educational contexts. Similarly, E. Torrance developed creativity assessment models and demonstrated that creative abilities can be systematically developed through purposeful pedagogical influence, especially in educational environments that encourage openness and experimentation. From a socio-cultural perspective, creativity development is closely linked to learning environments and social interaction. L. S. Vygotsky argued that higher psychological functions, including creative thinking, are formed through social mediation and collaborative activity. His concept of the zone of proximal development provides a strong theoretical basis for using pedagogical technologies that support cooperation, dialogue, and guided discovery. In line with this view, J. Bruner emphasized discovery learning and problem-based instruction as effective means of fostering creativity and intellectual autonomy in learners.

Modern educational psychology further elaborates creativity as a dynamic interaction between individual potential and educational conditions. R. Sternberg and T. Amabile underline that creativity depends not only on cognitive abilities but also on motivation, task engagement, and supportive environments. Amabile's componential theory of creativity highlights the importance of instructional strategies and pedagogical

technologies that enhance intrinsic motivation, which is particularly relevant in teacher education. In the context of pedagogical technologies, many scholars emphasize their role in creating conditions for creative competence development. M. Fullan notes that innovative pedagogical practices and technologies are key drivers of meaningful educational change. Likewise, D. Jonassen argues that technology-enhanced learning environments promote critical and creative thinking by engaging learners in authentic problem-solving and reflective activities. These ideas are further supported by A. Collins, who stresses the importance of learning through modeling, practice, and reflection.

Research within the MDH (CIS) scientific space also provides valuable insights into creativity and pedagogical technologies. A. N. Leontiev and S. L. Rubinstein considered creativity as an active, purposeful process rooted in human activity. Their activity-based approach supports the idea that pedagogical technologies should engage prospective teachers in meaningful professional tasks. Furthermore, B. F. Lomov emphasized a systemic view of psychological phenomena, which is essential for understanding creativity development as a multidimensional process influenced by cognitive, emotional, and social factors. Uzbek scholars have also made significant contributions to the study of pedagogical creativity and professional development of teachers. B. M. Umarov highlights the role of innovative pedagogical approaches in developing creative and independent thinking among future teachers. Z. G. Gapparov emphasizes that creativity in teacher education is closely connected with reflective practice and pedagogical mastery. Similarly, N. Jo‘rayev focuses on the importance of modern pedagogical technologies in preparing competitive and creative teaching professionals.

In addition, Sh. Abdullayev and R. A. Mavlonova argue that systematic integration of pedagogical technologies into higher education curricula enhances creative competencies and professional readiness of prospective teachers. Their studies underline that creativity should be developed not episodically but continuously throughout teacher education programs. Overall, the analysis of international, MDH, and Uzbek scholarly literature demonstrates that creativity is a developable professional competence, and pedagogical technologies serve as one of the most effective tools for its formation. Existing studies provide a strong theoretical and empirical foundation for researching the effectiveness of pedagogical technologies in developing creative competencies among prospective teachers, while also indicating the need for further context-specific and practice-oriented investigations.

The development of creative competencies among prospective teachers is grounded in modern psychological and pedagogical theories that view creativity as a dynamic, developable, and professionally significant quality. According to J. Guilford[1], creativity is manifested through divergent thinking, which enables individuals to generate multiple solutions to pedagogical problems. In teacher education, this ability is essential for designing flexible instructional strategies and adapting to diverse classroom situations. Pedagogical technologies, when systematically integrated into the learning process, create

[1] Guilford J.P. The Nature of Human Intelligence. — New York: McGraw-Hill, 1967. — 538 b.

conditions for the activation of divergent thinking by encouraging exploration, experimentation, and intellectual risk-taking. As a result, future teachers begin to perceive teaching not as a rigid procedure but as a creative and reflective professional activity.

From a socio-cultural and constructivist perspective, the role of pedagogical technologies in creativity development becomes even more evident. L. S. Vigotsky[2] emphasized that higher mental functions, including creative thinking, are formed through social interaction and mediated activity. Building on this idea, pedagogical technologies such as collaborative learning, dialogic teaching, and problem-based instruction facilitate creativity by placing prospective teachers in socially rich and intellectually stimulating environments. These technologies allow learners to co-construct knowledge, exchange ideas, and internalize creative strategies, which later become part of their professional pedagogical thinking. Modern theories of creativity also highlight the importance of motivation and learning environment in creative competence development. T. Amabile[3] argues that creativity flourishes when individuals experience intrinsic motivation and psychological safety. Pedagogical technologies that emphasize learner autonomy, choice, and meaningful tasks contribute to the formation of such conditions. In teacher education, project-based learning, inquiry-based tasks, and reflective activities supported by pedagogical technologies enhance prospective teachers' motivation to engage creatively with educational content. This process strengthens their confidence, originality, and willingness to implement innovative teaching practices.

The activity-based approach provides another important framework for understanding the role of pedagogical technologies in creativity development. According to A. N. Leontiev[4], creativity emerges in the process of purposeful activity oriented toward meaningful goals. Pedagogical technologies that involve prospective teachers in professional simulations, lesson design, and educational research align with this approach by transforming learning into an active and creative process. Through such activities, future teachers develop the ability to analyze pedagogical situations, make independent decisions, and creatively solve instructional problems, which are core elements of professional creativity. The integration of digital and innovative pedagogical technologies further expands opportunities for creative competence development. Scholars such as D. Jonassen emphasize that technology-enhanced learning environments promote higher-order thinking and creativity by engaging learners in authentic problem-solving. Digital tools enable prospective teachers to design multimedia content, experiment with instructional formats, and reflect on their pedagogical experiences. In this context, creativity becomes not only a cognitive ability but also a practical skill developed through continuous interaction with modern educational technologies.

Uzbek pedagogical research also underlines the importance of pedagogical technologies in fostering creativity among future teachers. B. M. Umarov[5] and Z. G.

[2] Vigotskiy L.S. Mind in Society: The Development of Higher Psychological Processes. — Cambridge: Harvard University Press, 1978. — 159 b.
[3] Amabile T.M. Creativity in Context. — Boulder: Westview Press, 1996. — 336 b.
[4] Leontiev A.N. Activity, Consciousness, and Personality. — Moscow: Progress Publishers, 1978. — 304 b.
[5] Umarov B.M. Pedagogik innovatsiyalar va kreativ fikrlashni rivojlantirish. — Toshkent: Fan va texnologiya, 2015. — 168 b.

Gapparov[6] emphasize that innovative and technology-based teaching approaches contribute to the development of independent thinking, professional reflection, and creative self-expression. Their studies show that when pedagogical technologies are systematically applied, prospective teachers develop a stable orientation toward innovation and professional self-improvement. This confirms that pedagogical technologies serve as a powerful mechanism for integrating creativity into the structure of teacher professional competence. In summary, the main body analysis demonstrates that pedagogical technologies play a decisive role in developing creative competencies among prospective teachers. Grounded in psychological, pedagogical, and activity-based theories, these technologies create favorable conditions for creative thinking, motivation, and professional growth. By experiencing creative, technology-supported learning environments during their training, future teachers acquire the skills and attitudes necessary for innovative and effective teaching practice.

Conclusion. The conducted analysis confirms that the development of creative competencies among prospective teachers is a strategically important task in modern teacher education. Creativity is not merely an additional personal quality but a core professional competence that determines a future teacher's ability to respond flexibly to educational challenges, design innovative learning environments, and ensure meaningful student engagement. Theoretical perspectives from psychological and pedagogical sciences demonstrate that creativity can be purposefully developed when appropriate educational conditions are created. In this context, pedagogical technologies serve as a scientifically grounded and practically effective means of activating creative thinking, professional reflection, and independent decision-making in prospective teachers. The study shows that pedagogical technologies significantly enrich the educational process by transforming it from a traditional, reproductive model into an active, learner-centered, and creative system. Interactive, project-based, problem-oriented, and digital technologies encourage future teachers to participate actively in learning, experiment with ideas, and apply theoretical knowledge in practical contexts. Such technologies not only stimulate divergent and critical thinking but also strengthen intrinsic motivation and professional self-confidence. As a result, creativity develops as an integrated competence that combines cognitive, motivational, emotional, and behavioral components essential for effective teaching.

An important conclusion of the research is that creativity development through pedagogical technologies requires a systematic and continuous approach. Episodic or fragmentary use of innovative methods does not provide sustainable results. Instead, creativity should be consistently embedded in curricula, teaching methods, practical training, and assessment systems of teacher education institutions. When prospective teachers regularly experience creative, technology-supported learning environments, they internalize innovative pedagogical approaches and are more likely to implement them in their future professional practice. This continuity ensures the long-term effectiveness of pedagogical technologies in shaping creative teaching professionals. In general, the

[6] Gapparov Z.G. Ta'lim jarayonida shaxs ijodkorligini rivojlantirishning psixologik asoslari. — Toshkent: O'qituvchi, 2017. — 184 b.

findings of this study highlight the scientific and practical significance of integrating pedagogical technologies into teacher education for the development of creative competencies. Such integration contributes to the preparation of competitive, innovative, and socially responsible teachers capable of meeting the demands of contemporary education. The conclusions obtained may serve as a theoretical and methodological basis for further research, as well as for improving teacher training programs aimed at fostering creativity and professional excellence in future educators.

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