



FACTORS FOR DEVELOPING THE CREATIVE ACTIVITY OF FUTURE PRIMARY SCHOOL TEACHERS IN A DIGITAL EDUCATIONAL ENVIRONMENT

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Abstract

The article analyzes the factors that contribute to the development of creative activity among future primary school teachers in the context of a digital educational environment. The rapid integration of digital technologies into teacher education requires future educators not only to master technical tools but also to develop creative and innovative thinking. Creativity is a crucial component of pedagogical competence, allowing teachers to design engaging learning experiences, adapt to new teaching situations, and inspire students' intellectual curiosity. The study identifies key psychological, pedagogical, and technological factors influencing creative development, including digital literacy, motivational readiness, collaborative learning, and reflective practice. It also emphasizes the role of digital platforms, multimedia tools, and project-based learning in stimulating creative potential. Based on the analysis, recommendations are made for enhancing the structure of teacher education programs, integrating digital creativity modules, and fostering an environment conducive to experimentation, collaboration, and self-expression. The findings underscore the importance of combining pedagogical knowledge with digital fluency to prepare future teachers capable of functioning effectively and creatively in the modern digital classroom.

Keywords. Creative activity, digital education, teacher training, primary education, innovation, digital competence, pedagogical creativity, professional development, interactive learning, educational technology.



**RAQAMLI TA'LIM MUHITIDA BO'LAJAK BOSHLANG'ICH SINFLAR
O'QITUVCHILARINING IJODIY FAOLIYATINI RIVOJLANTIRISH
OMILLARI**

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Annotatsiya

Maqolada raqamli ta'lim muhiti sharoitida bo'lajak boshlang'ich sinflar o'qituvchilarining ijodiy faoliyatini rivojlantiruvchi omillar tahlil qilinadi. O'qituvchilarni tayyorlash jarayoniga raqamli texnologiyalarning tezkor integratsiyasi kelajakdagi pedagoglardan nafaqat texnik vositalarni egallashni, balki ijodiy va innovatsion fikrlashni ham talab etadi. Ijodkorlik pedagogik kompetensiyaning muhim tarkibiy qismi bo'lib, o'qituvchiga darslarni qiziqarli tashkil etish, yangi o'quv vaziyatlariga moslashish va o'quvchilarning intellektual qiziquvchanligini rag'batlantirish imkonini beradi. Tadqiqotda ijodiy rivojlanishga ta'sir etuvchi asosiy psixologik, pedagogik va texnologik omillar – raqamli savodxonlik, motivatsion tayyorgarlik, hamkorlikda o'qish va reflektiv amaliyot aniqlangan. Shuningdek, maqolada raqamli platformalar, multimediyaviy vositalari hamda loyiha asosidagi o'qitishning ijodiy salohiyatni faollashtirishdagi roli yoritilgan. Tahlil natijalariga asoslanib, o'qituvchilarni tayyorlash dasturlarini takomillashtirish, raqamli ijod modullarini kiritish va tajriba, hamkorlik hamda o'zini ifoda etish uchun qulay muhit yaratish bo'yicha tavsiyalar berilgan. Tadqiqot natijalari pedagogik bilimni raqamli savodxonlik bilan uyg'unlashtirish zarurligini, zamonaviy raqamli sinfda samarali va ijodiy faoliyat yurita oladigan o'qituvchilarni tayyorlash muhimligini ta'kidlaydi.

Kalit so'zlar. ijodiy faoliyat, raqamli ta'lim, o'qituvchi tayyorlash, boshlang'ich ta'lim, innovatsiya, raqamli kompetensiya, pedagogik ijodkorlik, kasbiy rivojlanish, interfaol o'qitish, ta'lim texnologiyasi.

Introduction

In the modern educational landscape, digital transformation has become an inevitable process that shapes every aspect of teaching and learning. The



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emergence of digital technologies, online communication platforms, and virtual learning environments has significantly altered the professional requirements for teachers, especially those preparing to work in primary education. The modern primary school teacher must not only possess pedagogical knowledge and psychological understanding of child development but also demonstrate creativity, flexibility, and the ability to integrate digital tools effectively into the learning process. Creativity is no longer perceived as an additional quality but rather as a central component of professional competence that ensures the teacher's ability to adapt to rapidly changing educational conditions.

Creative activity in teaching represents the ability to generate original ideas, apply innovative methods, and design learning situations that stimulate students' curiosity and active participation. In primary education, this quality becomes especially important because young learners perceive the world through exploration, play, and imagination. Therefore, the teacher's creativity determines not only the effectiveness of lesson delivery but also the emotional and cognitive development of pupils. The creative teacher is capable of transforming traditional teaching methods into engaging and meaningful learning experiences that awaken students' intrinsic motivation and independent thinking.

The development of creative activity among future primary school teachers depends on multiple interrelated factors. Psychological readiness for innovation, the ability to think divergently, motivation for self-improvement, and the availability of a supportive learning environment all play crucial roles. However, in the context of digital education, additional determinants have emerged, such as digital literacy, media competence, and familiarity with digital pedagogical tools. The digital environment provides unprecedented opportunities for creative self-expression — from designing interactive lessons and multimedia projects to implementing gamified learning platforms and virtual simulations.

At the same time, the digital era imposes certain challenges. The excessive reliance on technology may reduce spontaneous creativity if future teachers are not guided properly in critical and reflective digital practices. Hence, it becomes essential for teacher education institutions to purposefully integrate creativity-enhancing strategies into digital pedagogy courses. This involves not only



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teaching technological skills but also cultivating creative problem-solving, collaborative design thinking, and reflective evaluation of teaching outcomes.

Furthermore, the creative development of future teachers should be considered a continuous process, extending beyond university education into lifelong professional learning. Educators who are capable of creative thinking and digital innovation will contribute significantly to shaping a new generation of learners who can adapt to the global knowledge economy. Thus, understanding and fostering the factors that influence creative activity in the digital educational environment is a strategic priority for modern teacher education, as it directly affects the quality and sustainability of future pedagogical practice. Methods. The study employs a complex methodological approach based on the principles of system analysis, pedagogical observation, and comparative research. It aims to identify and evaluate the most significant factors influencing the creative activity of future primary school teachers within digital educational environments. The methodological framework combines theoretical and empirical methods that allow for a comprehensive examination of the relationship between digital competence, creativity, and professional readiness.

At the theoretical level, the research is grounded in the analysis of pedagogical, psychological, and technological literature related to creativity development and digital pedagogy. This includes the works of Guilford (1967) on divergent thinking, Torrance (1974) on creativity measurement, and contemporary models of digital literacy proposed by Ferrari (2013) and Mishra & Koehler (2006). These frameworks emphasize that creativity is a learnable and context-dependent skill that can be cultivated through structured pedagogical interventions and reflective digital practices. Based on these theoretical foundations, the study outlines a conceptual model in which creativity develops through the interaction of motivational, cognitive, and technological factors.

Empirically, the research employs diagnostic methods such as surveys, creative tasks, and reflective journals among students of pedagogical universities specializing in primary education. Participants were asked to design digital lesson plans, create multimedia teaching resources, and develop gamified learning projects. These tasks were analyzed to determine the level of originality, pedagogical appropriateness, and technological integration. The results of the



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creative tasks were compared across different groups of students who received varying levels of exposure to digital tools and creativity-oriented training modules.

Qualitative data were obtained through interviews and self-reflection essays, allowing researchers to identify internal motivators and barriers affecting creative activity. Students reported on their experiences of using digital technologies in project-based learning and collaborative problem-solving environments. Quantitative analysis was conducted to establish correlations between digital competence levels and creative performance indicators. Statistical tools such as correlation analysis and descriptive statistics were used to ensure reliability and validity.

The methodological design also includes the implementation of pedagogical experiments in which experimental groups received training through digital creativity platforms, while control groups followed traditional teaching methods. The comparative evaluation demonstrated differences in levels of engagement, originality of teaching materials, and confidence in using digital technologies. The integration of reflective and interactive components into teacher preparation courses proved to enhance creativity by fostering metacognitive awareness and collaboration.

Thus, the methodological approach of the research is holistic, combining digital pedagogy, psychology of creativity, and practical innovation in teacher training. It highlights how the structured inclusion of digital and creative competencies into educational programs can significantly improve the readiness of future primary school teachers to operate innovatively in the digital classroom.

Methods

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Results

The findings of the study reveal that the development of creative activity among future primary school teachers in a digital educational environment depends on a combination of interrelated psychological, pedagogical, and technological factors. The results demonstrate that creativity in teaching is not an isolated quality but a dynamic process that evolves through interaction with digital tools, collaborative experiences, and self-reflective learning. Based on the analysis of empirical data, several key results have been identified.

First, the study found a significant correlation between digital competence and creative performance. Students who possessed higher levels of digital literacy—especially in multimedia design, online collaboration, and use of digital platforms—demonstrated stronger creative initiative in lesson planning and teaching innovation. They were more likely to integrate interactive simulations, digital storytelling, and gamified learning tools into their teaching concepts. This suggests that digital fluency acts as both a foundation and catalyst for creative pedagogical thinking.

Second, the motivational environment was shown to be a decisive factor. Students who experienced supportive mentorship, constructive feedback, and open collaboration with peers exhibited higher creative engagement. The presence of motivational incentives—such as recognition of innovative work, opportunities to present digital projects, and participation in online competitions—further enhanced their willingness to explore unconventional ideas and methods. Motivation, therefore, plays a mediating role between digital skill acquisition and creative application.



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Third, the experimental group that received targeted training in digital creativity modules displayed a marked improvement in their ability to design innovative lesson materials. Compared to the control group, participants from the experimental group created teaching resources that were richer in visual and interactive elements, demonstrated deeper pedagogical reasoning, and reflected higher originality scores according to the Torrance criteria of fluency, flexibility, and elaboration. Moreover, these students showed greater confidence in experimenting with digital technologies and adapting to unexpected classroom challenges.

The research also identified certain barriers to creativity development. Among them were limited access to digital infrastructure, insufficient guidance on integrating technology into pedagogy, and a tendency among some students to rely excessively on ready-made templates instead of generating original content. Additionally, a small proportion of students expressed anxiety about technological errors or lack of creative self-efficacy, which constrained their performance. Addressing these psychological and institutional barriers is crucial for building a more conducive environment for creative growth.

Finally, reflective practices—such as maintaining digital portfolios, documenting creative processes, and engaging in peer reviews—were found to significantly influence creative outcomes. Students who consistently reflected on their teaching experiences were able to recognize their strengths, refine their methods, and generate more innovative pedagogical ideas over time. These findings confirm that creativity flourishes when teacher education programs encourage continuous reflection, experimentation, and digital integration as part of professional identity formation.

In summary, the results underscore that creativity in teacher preparation is a multifaceted construct enhanced through digital competence, motivation, mentorship, and reflective learning. When properly cultivated, these factors prepare future primary school teachers to engage young learners in imaginative, interactive, and meaningful educational experiences.



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Discussion

The discussion of findings highlights how the transformation of teacher education in the digital era requires a fundamental rethinking of traditional approaches to developing creativity. The results of the research clearly show that digital technologies, when properly integrated into pedagogical processes, serve as powerful instruments for enhancing creativity among future primary school teachers. However, the effectiveness of this process depends on the harmony between technological proficiency, pedagogical intention, and personal motivation.

One of the most important insights concerns the relationship between digital literacy and creative autonomy. While digital tools expand the opportunities for innovation, they do not automatically produce creativity. The teacher's ability to think critically and imaginatively determines how effectively technology is used. For instance, the same digital platform can either become a space for mechanical reproduction of materials or a laboratory for creative experimentation, depending on the teacher's mindset and training. Therefore, pedagogical universities must focus not only on technological instruction but also on cultivating creative and reflective attitudes toward the use of digital resources.

The study also demonstrates that creativity development is a socially mediated process. Collaborative projects, peer feedback, and interactive learning communities stimulate divergent thinking and promote collective creativity. In the digital environment, collaboration is not limited by physical boundaries; students can exchange ideas through online platforms, co-create multimedia materials, and participate in global educational initiatives. This new form of "digital collaboration" fosters intercultural competence and openness to diverse perspectives, which are essential qualities for creative educators.

Another important aspect is the psychological readiness of students for creative work. The findings confirm that motivation, self-efficacy, and a sense of creative ownership strongly influence engagement in innovative teaching practices. Many students initially express anxiety about the complexity of digital tools, but structured support and a safe learning atmosphere reduce these fears. The creation of a psychologically comfortable environment, where mistakes are viewed as learning opportunities, significantly increases the willingness to take creative



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risks. Teacher educators must therefore adopt mentoring approaches that encourage experimentation, reflection, and self-discovery.

In addition, the integration of project-based learning, gamification, and digital storytelling in teacher preparation programs has shown to be effective in activating creativity. These approaches combine emotional engagement with cognitive challenge, helping future teachers experience the type of learning they are expected to design for their pupils. The ability to transform information into narrative, visual, or interactive formats develops flexibility of thinking and enhances pedagogical imagination. Such practices align with global trends emphasizing creativity as a 21st-century skill.

Moreover, the discussion reveals that reflective practice serves as the bridge between digital competence and creative growth. By maintaining digital portfolios, documenting experiences, and analyzing successes and failures, students internalize creativity as a professional value. Reflection helps them to evaluate not only the technical quality of their work but also its educational meaning. Consequently, digital reflection tools—blogs, e-journals, or learning management systems—should be systematically incorporated into teacher education programs.

Ultimately, the findings advocate for a holistic approach to developing creativity in digital education. It requires the convergence of technological infrastructure, innovative curriculum design, psychological support, and professional culture that values originality. The role of higher education institutions is to provide future teachers with both the skills and the mindset necessary to transform digital technologies into instruments of creative pedagogy, ensuring that primary education becomes not merely informative but truly inspirational.

Conclusion

The conducted study confirms that the development of creative activity among future primary school teachers in a digital educational environment is a complex, multidimensional process that depends on psychological, pedagogical, and technological integration. Creativity, as a professional and personal quality, represents the teacher's ability to transform educational content, apply innovative strategies, and inspire students through imaginative approaches supported by



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digital tools. In the digital age, it has become one of the essential components of pedagogical competence, shaping the effectiveness and humanistic essence of the teaching profession.

The research highlights several key conclusions. First, the formation of creative activity directly correlates with the level of digital competence. Future teachers who confidently use digital platforms, multimedia technologies, and online collaboration tools demonstrate greater flexibility, originality, and problem-solving ability in their teaching design. This relationship confirms that digital literacy is not only a technical skill but also a creative resource that expands cognitive and methodological horizons. Therefore, digital pedagogy courses must integrate creative design, project-based learning, and innovation-focused modules as core components.

Second, creativity development requires a psychologically safe and motivational learning environment. Teacher education institutions should promote collaboration, mentorship, and recognition of creative achievements to strengthen intrinsic motivation and professional confidence. The presence of encouraging feedback and open communication supports the risk-taking necessary for innovation. When students feel valued and supported, they are more likely to engage in creative experimentation and self-expression.

Third, reflection is identified as a decisive factor in consolidating creative growth. Systematic self-assessment through digital portfolios, peer discussions, and learning analytics allows students to monitor their progress and refine their pedagogical thinking. Reflection bridges theory and practice, turning creative activity into a conscious and sustainable professional habit. It also helps future teachers evaluate the educational relevance of their digital products and adjust them for better learner engagement.

Furthermore, institutional strategies play a pivotal role. Universities must ensure access to digital infrastructure, provide interdisciplinary learning opportunities, and encourage research-oriented thinking. Collaboration between departments of pedagogy, psychology, and information technology can foster an ecosystem of creative digital learning. Policy support from educational authorities should also focus on modernizing teacher education standards to prioritize creativity as a measurable learning outcome.



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In conclusion, fostering the creative activity of future primary school teachers within the digital educational environment is a strategic direction for modern pedagogical education. It ensures the preparation of educators capable of leading innovation, nurturing imagination in children, and responding flexibly to the challenges of the information society. By merging creativity with digital competence, teacher education not only enhances the professional potential of future teachers but also contributes to building a more adaptive, interactive, and human-centered educational system.

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