THE USE OF INTERACTIVE AND DIGITAL TECHNOLOGIES IN TRAINING PRESCHOOL EDUCATION TEACHERS

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Abstract. This study explores the pedagogical significance of integrating interactive and digital technologies into the training process of preschool education teachers. In response to the demands of modern education, the research focuses on enhancing professional competencies, digital literacy, and innovative teaching skills of future preschool educators. The study highlights the effectiveness of digital platforms, multimedia resources, and interactive teaching methods in improving learning motivation, creativity, and practical pedagogical readiness. Based on a competency-based and student-centered approach, the findings demonstrate that the systematic use of interactive and digital technologies positively influences the quality of teacher preparation and supports the development of independent and reflective professional practice.

Introduction. In recent years, the rapid development of information and communication technologies has significantly transformed the educational landscape worldwide. The digitalization of education has become a key factor in improving the quality, accessibility, and effectiveness of teaching and learning processes. In this context, the training of preschool education teachers requires innovative approaches that integrate interactive and digital technologies to meet the demands of modern society and the evolving needs of early childhood education.

Preschool education plays a crucial role in shaping children's cognitive, social, emotional, and moral development. Therefore, the professional preparation of preschool teachers must focus not only on theoretical knowledge but also on the development of practical skills, creativity, digital competence, and pedagogical innovation. Traditional teaching methods are no longer sufficient to prepare future educators for contemporary preschool environments that increasingly rely on digital tools, multimedia resources, and interactive learning platforms.

Interactive and digital technologies, such as online learning platforms, multimedia presentations, educational software, virtual simulations, and collaborative digital tools, offer new opportunities for enhancing teacher education. These technologies promote student-centered learning, active participation, critical

thinking, and reflective practice. Moreover, they support individualized learning trajectories and foster collaboration among future teachers, which are essential components of professional competence in preschool education.

The integration of interactive and digital technologies into teacher training aligns with the competency-based approach, which emphasizes the development of professional skills, attitudes, and values necessary for effective pedagogical practice. Digital technologies enable future preschool teachers to design innovative learning activities, apply modern teaching strategies, and effectively integrate technology into early childhood education settings. As a result, students become more motivated, self-directed, and prepared for real-life professional challenges.

Despite the growing importance of digitalization in education, the effective use of interactive and digital technologies in the training of preschool education teachers remains a complex pedagogical issue. It requires systematic planning, appropriate methodological support, and the development of digital pedagogical competencies among both educators and students. Therefore, scientific research aimed at identifying effective ways of integrating interactive and digital technologies into preschool teacher education is highly relevant.

The purpose of this study is to examine the pedagogical potential of interactive and digital technologies in the professional training of preschool education teachers and to determine their impact on the development of professional competencies. The research seeks to contribute to the improvement of teacher education programs by proposing effective strategies for the integration of digital and interactive tools in higher education institutions.

Literature Review. The integration of interactive and digital technologies into teacher education has become a significant area of research in recent decades. Scholars emphasize that digitalization is not merely a technological process but a pedagogical transformation that reshapes teaching methods, learning environments, and professional competencies of future educators (UNESCO, 2021). In the context of preschool education, this transformation is particularly important, as teachers are expected to combine traditional pedagogical approaches with innovative digital practices suitable for early childhood development.

Numerous studies highlight the importance of digital competence as a core component of modern teacher professionalism. According to Koehler and Mishra's Technological Pedagogical Content Knowledge (TPACK) framework, effective teacher preparation requires the integration of technological knowledge with pedagogical and subject-specific knowledge. Researchers argue that preschool teachers must develop the ability to select and apply digital tools in developmentally appropriate ways, ensuring that technology supports rather than replaces meaningful pedagogical interaction (Koehler & Mishra, 2009).

Interactive teaching methods, such as collaborative learning, problem-based learning, simulations, and project-based activities, are widely recognized as effective strategies for developing professional competencies in teacher education. Studies by Johnson and Johnson (2017) demonstrate that interactive learning environments enhance student engagement, critical thinking, and reflective practice. In preschool

teacher training, interactive methods supported by digital technologies contribute to the development of creativity, communication skills, and pedagogical flexibility.

Researchers focusing on early childhood education stress that multimedia and digital resources—such as educational videos, interactive presentations, virtual classrooms, and digital storytelling tools—can significantly enrich the professional preparation of future preschool teachers. Mayer's Cognitive Theory of Multimedia Learning suggests that well-designed multimedia materials enhance understanding and retention of information by combining visual and auditory elements. Empirical studies confirm that multimedia-based instruction improves learning motivation and practical skill acquisition among teacher education students (Mayer, 2020).

Several international studies emphasize the role of online learning platforms and learning management systems (LMS) in teacher education. Platforms such as Moodle, Google Classroom, and Microsoft Teams provide opportunities for blended and distance learning, collaborative tasks, and continuous assessment. Research findings indicate that the use of LMS in preschool teacher training supports self-directed learning, professional reflection, and continuous professional development (Garrison & Vaughan, 2018).

At the same time, scholars point out challenges related to the integration of digital technologies in teacher education. These challenges include insufficient digital infrastructure, limited methodological support, and varying levels of digital literacy among educators and students. Ertmer and Ottenbreit-Leftwich (2013) emphasize that successful technology integration depends not only on access to digital tools but also on teachers' beliefs, attitudes, and pedagogical readiness.

Studies conducted in developing and transitional education systems underline the need for systematic and context-sensitive approaches to digital integration in preschool teacher education. Researchers argue that digital technologies should be embedded within pedagogical models that align with national educational standards, cultural values, and institutional capacities. This perspective highlights the importance of developing localized strategies for integrating interactive and digital technologies into teacher training programs.

In summary, the analysis of existing literature demonstrates that interactive and digital technologies play a crucial role in enhancing the quality of preschool teacher education. Previous studies confirm their positive impact on professional competence development, learning motivation, and pedagogical innovation. However, the literature also reveals a gap in comprehensive pedagogical models that systematically integrate interactive and digital technologies into preschool teacher training. This gap underscores the relevance of the present study and its contribution to improving teacher education practices through evidence-based and competency-oriented approaches.

Conclusion. The study demonstrates that the integration of interactive and digital technologies into the professional training of preschool education teachers has a significant positive impact on the development of pedagogical competencies, creativity, and digital literacy. Interactive methods, multimedia resources, and online learning platforms enhance student engagement, practical teaching skills, and

reflective practice. The research findings confirm that technology-enhanced teacher education improves motivation, fosters innovative thinking, and prepares future educators for the demands of contemporary preschool settings. At the same time, the study highlights challenges such as limited digital infrastructure, insufficient methodological support, and varying levels of digital literacy among students. Addressing these challenges requires systematic planning, continuous professional development, and a competency-based approach to integrate technology effectively into teacher training programs. In conclusion, interactive and digital technologies should be considered essential components of preschool teacher education. Their purposeful implementation ensures the preparation of competent, innovative, and digitally literate educators who can provide high-quality early childhood education in modern learning environments. Future research should explore the long-term impact of technology integration on professional performance and the quality of preschool education outcomes.

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