



THE NECESSITY OF SMART TECHNOLOGIES IN THE TRAINING OF FUTURE PRIMARY SCHOOL TEACHERS IN THE MODERN ERA

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Abstract

In an age where knowledge flows faster than rivers in spring, teacher education cannot remain anchored in yesterday. This study examines the essential role of smart technologies in preparing future primary school teachers, highlighting how digital tools enhance pedagogical readiness, cognitive flexibility, and classroom innovation. The analysis reveals that smart devices, cloud platforms, AI-assisted learning systems, and multimodal digital resources create a multisensory environment that aligns with children's developmental needs. These technologies not only modernize instructional approaches but also cultivate reflective, data-literate, and creatively empowered teachers. The research concludes that smart technologies are no longer optional; they are the pulse of contemporary teacher preparation.

Keywords: Smart technologies; teacher education; primary school training; digital pedagogy; future teachers; ICT integration; 21st-century skills.

The world is moving with the speed of a restless comet, and education—especially teacher preparation—must keep pace. In the training of future primary school teachers, smart technologies now stand not as decorative tools but as vital instruments of pedagogical transformation. Today's learners grow up surrounded by screens, sensors, and interactive digital ecosystems; therefore, tomorrow's teachers must be fluent in these environments. Smartboards, tablets, AR/VR modules, adaptive learning software, and cloud-based collaboration platforms redefine how young children explore, interact, and understand the world. Preparing teachers who can navigate these tools with confidence is not merely an academic preference—it is an educational necessity.



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This research is built upon a mixed-method design intertwining qualitative insights and empirical observations. Literature analysis focuses on global and regional studies exploring digital pedagogy, smart classrooms, ICT readiness, and teacher competencies. Survey data from teacher-training students and instructors highlight attitudes toward smart technologies and reveal gaps in practice. Experimental micro-teaching sessions using smart tools (interactive whiteboards, mobile apps, AI-based feedback systems) provide real-time evidence of pedagogical gains and challenges. The methodological approach centers on understanding not just what technologies are used, but how they reshape teaching behaviors, problem-solving strategies, and classroom dynamics.

Findings show that smart technologies significantly enhance instructional clarity, lesson engagement, individualized learning, and formative assessment. Pre-service teachers using smart tools demonstrate greater creativity, faster lesson planning, and improved ability to visualize concepts for young learners. The data also indicate that smart technologies strengthen analytical skills: teachers can track learners' progress instantly, adapt instruction, and provide differentiated support. However, the results also uncover a digital readiness gap—many students need structured training to fully exploit the potential of smart technologies.

Smart technologies have become the quiet heartbeat of modern teacher education. They sharpen pedagogy, expand imagination, and prepare future primary school teachers for classrooms where digital fluency is as essential as literacy itself. For teacher-training programs, the path forward is clear: integrate smart technologies not as occasional supplements, but as foundational components of professional preparation. Only then can new teachers step into their classrooms ready not just to teach, but to inspire in a world shaped by innovation.

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