



## FORMATION OF DIGITAL EDUCATION SKILLS IN FUTURE PRIMARY SCHOOL TEACHERS BASED ON MODERN APPROACHES

*Begisheva Nailya Rinadovna*

*Doctoral student at Chirchik State Pedagogical University, Uzbekistan*

### ABOUT ARTICLE

**Key words:** Digital education skills, Primary school teachers, Modern pedagogical approaches, Blended learning, Artificial intelligence (AI), Virtual and augmented reality (VR/AR), Teacher training, Digital literacy.

**Received:** 21.12.2023

**Accepted:** 26.12.2023

**Published:** 31.12.2023

**Abstract:** The rapid evolution of technology in education necessitates equipping future primary school teachers with robust digital education skills. This article examines the integration of modern approaches to foster these competencies effectively. The study focuses on building digital literacy, adopting innovative pedagogical practices, and addressing challenges such as the digital divide and resistance to change. Key strategies include a step-by-step implementation of blended learning, community engagement, and tailored training programs. Additionally, the role of advanced technologies such as artificial intelligence (AI), virtual and augmented reality (VR/AR), and gamification in enhancing teaching practices is explored. The article provides actionable insights for teacher training programs to prepare educators for a technology-driven educational environment.

### INTRODUCTION

The 21st-century classroom is increasingly shaped by digital technologies, transforming traditional teaching and learning processes into dynamic, interactive, and adaptable experiences. The integration of digital tools has shifted the focus of education from rote memorization to skills such as critical thinking, problem-solving, and digital literacy, all of which are vital for preparing students for a technology-driven world. This evolution has placed a significant responsibility on educators to not only adopt these technologies but also to model their effective use for learners. For future primary school teachers, developing digital education skills is particularly critical. Primary education lays the foundation for lifelong learning, and young learners are highly receptive to engaging, interactive, and visual methods of instruction. The ability to effectively leverage digital tools empowers

teachers to create inclusive and innovative learning environments that cater to diverse learning needs. For example, adaptive learning platforms can help address individual student challenges, while collaborative tools can foster teamwork and communication skills from an early age.

Moreover, the demand for digital proficiency in teaching has been amplified by global events, such as the COVID-19 pandemic, which accelerated the adoption of remote and hybrid learning models. Teachers with strong digital skills were better equipped to manage the transition and ensure continuity in education, highlighting the urgency of integrating these competencies into teacher training programs. However, the integration of digital tools goes beyond mere survival during crises—it is a strategic move toward a future where technology will continue to redefine education.

This article delves into modern approaches to developing digital education skills among future primary school teachers. It emphasizes the importance of structured mechanisms in teacher training programs to ensure sustainability and scalability. By exploring the integration of digital literacy, innovative pedagogical practices, and cutting-edge technologies such as artificial intelligence (AI), virtual and augmented reality (VR/AR), and gamification, this study aims to provide actionable insights for creating effective, future-ready educators. Additionally, it addresses key challenges, such as the digital divide and resistance to change, and outlines strategies to overcome these barriers, ensuring that digital skill development is equitable, inclusive, and impactful.

By preparing primary school teachers with these essential competencies, educational systems can ensure that the next generation of learners is equipped with the skills and mindset required to navigate and thrive in an increasingly digitalized world.

Digital literacy serves as the cornerstone of digital skill development, enabling educators to effectively navigate and utilize a wide range of technological tools. Beyond basic proficiency, digital literacy encompasses the ability to critically evaluate the reliability and relevance of digital resources, ensuring that the tools and content used in classrooms are pedagogically sound and contextually appropriate. Teacher training programs must prioritize equipping future educators with knowledge of emerging digital platforms, including collaborative tools like Google Workspace, virtual learning environments, and subject-specific applications that enhance instructional delivery.

Furthermore, fostering critical thinking and problem-solving skills is essential for educators to adapt to evolving digital landscapes. Teachers should be encouraged to experiment with new technologies, troubleshoot issues independently, and design innovative solutions for integrating digital tools into their teaching practices. This also involves understanding digital ethics, privacy, and security to create a safe learning environment for students. Workshops, hands-on practice sessions, and peer collaboration in teacher training programs can significantly enhance digital literacy development.

Blended learning has emerged as a highly effective approach for integrating digital skills into education, combining the best aspects of traditional and online learning. By leveraging digital tools, blended learning allows educators to create personalized and adaptive learning experiences that cater to diverse student needs. For example, data from learning management systems (LMS) can help teachers monitor student progress and identify areas requiring additional support.

Teacher training programs should focus on equipping educators with the skills needed to implement various blended learning strategies. Flipped classrooms, where students review digital content such as videos or readings at home and engage in interactive problem-solving activities during in-person sessions, exemplify one such strategy. Another effective model is station rotation, where students cycle between different learning modalities, including computer-based activities, group discussions, and teacher-led instruction.

Blended learning also enhances collaboration and engagement by incorporating tools like discussion forums, real-time polling, and virtual breakout rooms. These methods encourage active participation and peer interaction, making learning more dynamic and inclusive. Training educators to design and deliver blended learning lessons ensures they can seamlessly integrate digital tools into traditional teaching, fostering an enriched learning environment.

Modern educational technologies are redefining how knowledge is imparted and skills are developed. Artificial intelligence (AI) has revolutionized personalized learning by tailoring educational content to individual student needs. For instance, AI-driven platforms like adaptive learning systems can analyze a student's performance and provide customized resources or recommendations, enabling teachers to offer targeted support. AI can also streamline administrative tasks, such as grading and attendance tracking, allowing teachers to focus more on instructional activities.

Virtual and augmented reality (VR/AR) are transforming education by offering immersive, hands-on experiences that were previously impossible in traditional settings. For example, VR can transport students to historical sites, outer space, or microscopic cellular structures, while AR overlays interactive digital elements onto real-world environments to enhance understanding. These technologies are particularly valuable in teaching complex or abstract concepts, such as scientific experiments or architectural design.

Gamification, which incorporates game elements such as rewards, challenges, and leaderboards into educational activities, has proven to be highly effective in engaging students. Gamified lessons not only motivate students to participate actively but also foster problem-solving, critical thinking, and teamwork. For example, digital platforms that use game-like interfaces can turn mathematical problem-solving or language learning into an enjoyable and competitive activity, making complex tasks feel more achievable.

To adopt these technologies successfully, teacher training programs must go beyond theoretical instruction and provide hands-on experience with tools like AI-powered learning platforms, VR headsets, and gamified educational software. Educators should also be encouraged to explore how these innovations can be adapted to suit different teaching styles, subjects, and age groups.

For these modern approaches to be sustainable, they must be supported by ongoing professional development, collaborative communities of practice, and access to updated technological resources. Institutions must ensure that educators have the infrastructure and technical support needed to implement these innovations effectively. Regular assessments and feedback mechanisms can help refine and improve the application of these modern approaches in real-world educational settings.

By embedding these approaches into teacher training programs, educational systems can prepare future primary school teachers to leverage digital tools confidently and creatively, ensuring they are well-equipped to meet the demands of a technology-driven educational landscape.

Despite the benefits, several challenges hinder the development of digital education skills. The digital divide remains a significant barrier, with unequal access to technology and internet connectivity affecting many teacher candidates. Additionally, resistance to change, particularly among educators accustomed to traditional teaching methods, slows the adoption of innovative practices. Addressing these challenges requires targeted policies and investments in infrastructure and professional development programs.

A step-by-step approach is essential for effective implementation. Initial phases should focus on building basic digital literacy through workshops and hands-on training. As teacher candidates gain confidence, more advanced topics such as using AI-powered tools and designing VR/AR-based lessons

can be introduced. Community involvement is also crucial; engaging parents, local organizations, and technology companies can provide additional support and resources. Certification programs validating digital competencies offer a tangible way to motivate and recognize teachers' efforts.

Preparing future primary school teachers with digital education skills is not merely an academic requirement; it is a societal need. The ability to integrate modern technologies into teaching will shape the next generation of learners, equipping them with the skills necessary for a technology-driven world. Institutions must prioritize these efforts to ensure that education remains relevant, inclusive, and future-ready.

#### REFERENCES

1. UNESCO (2021). Digital Learning: Policy and Practice. Retrieved from <https://unesco.org>
2. World Economic Forum (2020). The Future of Jobs Report.
3. Selwyn, N. (2016). Education and Technology: Key Issues and Debates. Routledge.
4. Hwang, G. J., & Fu, Q. K. (2019). Advances in Educational Technology: AI and AR in Education. *Computers & Education*, 135, 1-3.
5. European Commission (2020). Digital Education Action Plan 2021-2027. Retrieved from <https://ec.europa.eu>
6. Microsoft Education (2021). Transforming Education with AI and Technology. Retrieved from <https://education.microsoft.com>
7. International Society for Technology in Education (ISTE) Standards.