FEATURES OF THE DIGITAL LEARNING ENVIRONMENT AND ITS IMPACT ON PEDAGOGICAL PRACTICE

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Absrtact: *This paper examines the features of the digital learning environment and its impact on pedagogical practice in preschool education. The study highlights the growing necessity of digital transformation driven by global educational reforms and the accelerated adoption of technologies during the COVID-19 pandemic. Findings reveal that digital tools not only modernize management processes within preschool institutions but also enhance educators' professional competencies, promote the use of artificial intelligence in organizational tasks, and foster a learner-centered approach. Furthermore, the digital environment expands opportunities for interactive learning, creativity, gamification, personalized educational trajectories, and the development of children's cognitive and socio-emotional skills. Overall, the research emphasizes that digital technologies have become a strategic component of contemporary education, contributing to quality improvement, transparency, flexibility, and environmental sustainability in pedagogical processes.*

Key words: *digital learning environment; digital literacy; preschool education; pedagogical practice; artificial intelligence; gamification; personalized learning; professional competence.*

In the context of global transformations associated with the advancement of digitalization and information technologies around the world, fundamental reforms are being carried out to improve the education system, the quality of educational services, and the accessibility of these services.

From this perspective, the development of digital technologies within the preschool education system and the need for their integration into educational processes stand among the contemporary challenges.

In the Republic of Uzbekistan, the ongoing targeted and accelerated reforms in various spheres of society have significantly increased the relevance of improving modern preschool education, which, in turn, influences the evolving requirements for the professional competencies of preschool institution managers and methodologists.

Today, the digital literacy of methodologists and educators constitutes one of the key professional competencies that directly affects the quality of education.

One of the key components of the United Nations Sustainable Development Agenda for 2030 is the provision of quality education.

This initiative is aimed at ensuring inclusive and equitable quality education for all. Digital technologies have become an essential tool for achieving this goal. These technologies make it possible to identify sources of environmental pollution, increase energy efficiency, promote the use of low-carbon alternative fuels, prevent additional ecological damage, and eliminate excess greenhouse gases from the environment.

The current stage of preschool education reform requires the introduction of innovative approaches to management and methodological activities. Traditional management models established in previous periods demonstrate low adaptability to socio-economic changes and are unable to fully meet the digital requirements of the modern educational environment.

Therefore, within the process of digital transformation, it is becoming increasingly necessary to update existing management systems, adapt them to emerging challenges, and elevate them to a qualitatively new level. In this process, digital technologies serve not only as tools for optimizing procedures but also as a crucial strategic management resource.

They expand the opportunities for methodologists and administrators to implement innovative management practices, analyze data flows, and make timely decisions.

The role of digital technologies in the modern education system has become so significant that they are deeply integrated into nearly all areas of pedagogical activity.

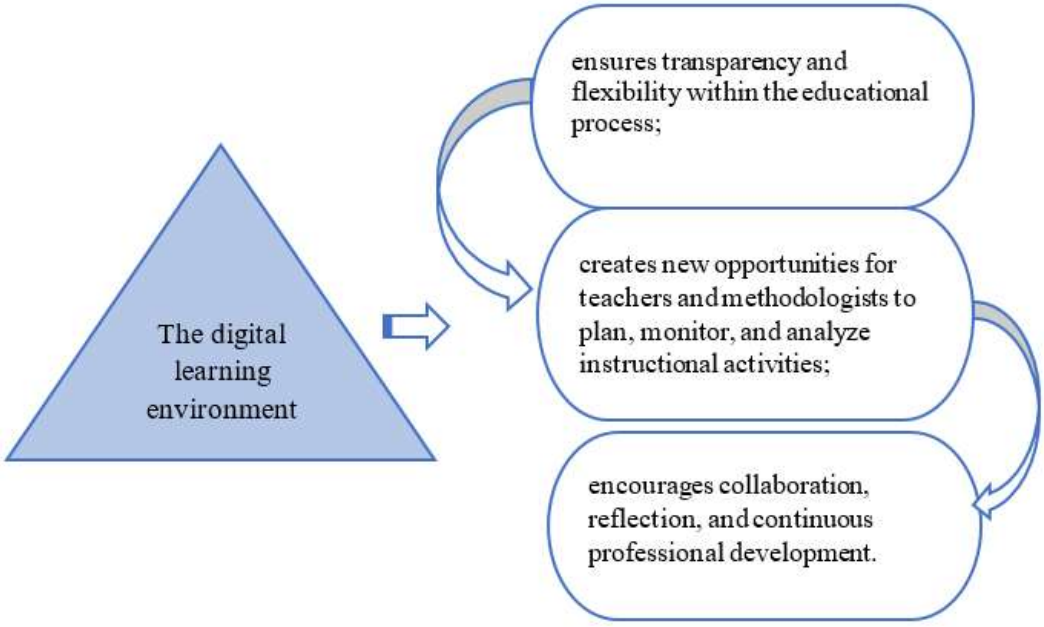

Figure 1.2.1. The impact of the digital environment on the educational process.

The implementation of digital systems is aimed at improving the quality of preschool institutions' performance, simplifying organizational processes, and enhancing

management efficiency. For example, the "Smart School Pro" system contributes to achieving the following outcomes[7]:

1. Eliminating digital underdevelopment in preschools by introducing innovative solutions and focusing on improving quality indicators.

2. Optimizing attendance and staff registration through automated tracking of children's attendance schedules and employees' working hours.

3. Automating business processes, which helps streamline key organizational activities and, consequently, increase overall efficiency.

4. Creating user-friendly conditions by simplifying information exchange among educators, methodologists, and parents.

One of the most significant features of this system is the integration of artificial intelligence (AI). AI expands the system's functionality and ensures its alignment with the real needs of preschool educational institutions. For instance: Personalized meal planning: AI autonomously generates individualized menus based on children's health conditions, allergies, or special needs. Acceleration of document workflow: Procedures related to completing and processing documents required for child admission are automated, saving time. Improvement of managerial efficiency: Statistical data essential for administrators and methodologists are analyzed promptly, facilitating decision-making. The system can also integrate with other digital platforms—such as electronic journals, video surveillance systems, and mobile applications.

This creates a unified digital ecosystem that ensures transparency in the educational process and strengthens parental trust. In the future, such systems may include predictive modules. Based on data analytics, they will forecast the institution's upcoming needs—regarding resources, staffing, or supplementary educational programs.

Additionally, the system will be able to adapt to work with children requiring special educational support. The application of information technologies optimizes management processes, saves time, and enhances quality control of institutional performance. As a result, the administrative workload of methodologists and administrators is reduced, as processes such as contract management, orders, medical records, and child development monitoring become automated. Moreover, the system enables methodologists to analyze teachers' performance, monitor the implementation of educational programs, and evaluate overall effectiveness. The user-friendly interface ensures efficient information exchange among administrators, methodologists, educators, and parents.

In such conditions, the issue of developing digital competence among methodologists becomes highly relevant, requiring them not only to possess skills in using technology but also to be capable of applying digital tools to enhance the quality of education.

[7] Smart School Pro. (n.d.). Digital platform for preschool education management. Retrieved December 7, 2025, from https://smartschool.pro/

The COVID-19 pandemic accelerated this process and stimulated the active implementation of digital technologies in pedagogical practice. Consequently, digital technologies have now transformed from being merely supportive instruments into an integral component of pedagogical activities. One of the key advantages of digital technologies is their contribution to environmental sustainability. This is achieved through the reduction of printed materials (books, handouts), saving time and resources, as well as expanding accessibility and research opportunities[8]. As a result, the impact of the digital learning environment is increasing not only in preschool educational institutions but also in the professional development of methodologists themselves. In the global educational process, the use of digital technologies has become a necessity. Online platforms have enabled the organization of lessons, resource sharing, assessment procedures, and the management of daily institutional activities. Initially, the use of such platforms was optional, but the COVID-19 pandemic made their implementation mandatory. While developed countries were technically and infrastructurally prepared for this shift, developing nations faced significant challenges and required substantial adaptation efforts. Under these circumstances, digital technologies served as a crucial support mechanism for the education system[9]. This global crisis demonstrated the vital importance of international integration in the field of education. Digital technologies help children develop problem-solving, logical thinking, analytical skills, and independent decision-making abilities, all of which are essential for their future professional success. Moreover, digital learning tools enable methodologists and educators to organize the learning environment in a more interactive and motivating manner. Each educational institution is now able to adapt its programs based on children's needs. This facilitates the personalization of methodologists' activities and supports the development of innovative approaches tailored to children's interests, knowledge levels, and overall development.

Modern children are increasingly accustomed to actively using electronic devices. Therefore, the integration of technologies into the educational process enhances their interest in lessons and encourages active participation. Through the use of projectors, computers, and other modern tools, children's engagement in learning is strengthened by means of games, project-based activities, oral presentations, and group work. Such activities enable teaching not only through verbal interaction, but also via visual and kinesthetic approaches, thereby improving learning effectiveness. The use of digital tools and devices in preschool education allows children to become active participants in the learning process. In this context, the educator takes on a guiding role, supporting children's

[8] Camilleri, M. A., & Camilleri, A. C. (2017). Digital learning resources and widely used technologies in education (pp. 65–82). Saint Petersburg: Piter.
[9] Javaid, M., Haleem, A., Vaishya, R., Bahl, S., Suman, R., & Vaish, A. (2020). Industry 4.0 technologies and their applications in combating the COVID-19 pandemic. Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 14(4), 419–422.

autonomy in learning. Digital resources such as interactive presentations, audiovisual materials, and multimedia tasks help children acquire knowledge in an enjoyable and engaging manner. Teachers also foster children's creativity and communication by collaboratively creating images and videos, recording audio, and implementing short animation projects with children's involvement. Digital technologies facilitate the application of gamified learning and flipped learning approaches in simple and engaging forms. In preschool institutions, individualized learning pathways can be developed based on each child's interests and developmental pace through the use of digital tools. This makes the educational process more meaningful and inspiring for children.

A number of foreign researchers have conducted significant studies concerning the integration of digital technologies into early childhood education. For example, N. Kucirkova explores the design of digital books and applications for children, as well as the potential for developing personalized reading experiences[10]. She is recognized as an expert who has contributed theoretical foundations for digital literacy and personalized learning. M. Umaschi Bers, co-creator of the Scratch Jr programming language, focuses on developing algorithmic thinking and coding skills in preschool children through digital tools[11]. Her studies support socio-emotional growth and cognitive development via technological engagement. L. Guernsey investigates the impact of screen-based media on children's development, conducting fundamental research on digital media culture, early digital reading, and children's introduction to technology in the early years[12].

In conclusion, the digital learning environment represents an integral component of contemporary education, fundamentally transforming the content, forms, and methods of pedagogical practice. This environment introduces flexibility, interactivity, transparency, and technological convenience into the educational process, thereby advancing the professional activities of teachers and methodologists to a new level. In particular, the implementation of digital technologies in early childhood education fosters the intellectual and creative potential of children, enhances their interest in learning, and supports the development of personalized, learner-centered educational content.

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