

MENTAL ENLIGHTENMENT SCIENTIFIC – METHODOLOGICAL JOURNAL



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<http://mentaljournal-jspu.uz/index.php/mesmj/index>



ARTIFICIAL INTELLIGENCE AND DIGITAL TECHNOLOGIES IN PRESCHOOL EDUCATION

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ABOUT ARTICLE

Key words: preschool education, artificial intelligence, digital technologies, interactive learning, educational process, child development, pedagogical approach, quality of education.

Received: 27.02.26

Accepted: 01.03.26

Published: 03.03.26

Abstract: This article highlights the significance of using artificial intelligence and digital technologies in the preschool education system. It analyzes the impact of AI-based educational applications, interactive tools, and digital games on children's intellectual, linguistic, and social development. Furthermore, it demonstrates how digital technologies can facilitate a personalized approach to the learning process and strengthen collaboration between parents and educators. The article also briefly discusses potential challenges associated with the use of digital technologies and ways to address them.

Introduction

Today, in an era where the process of digitalization is rapidly developing in all spheres of society, organizing the education system based on modern technologies is one of the urgent tasks. Especially the preschool education stage is the most important and foundational stage of personality development, during which children's mental, linguistic, social, and emotional development is formed. For this reason, the effective use of artificial intelligence and digital technologies at this stage is important in improving the quality of education. Educational programs created on the basis of artificial intelligence make it possible to organize the educational process taking into account the individual abilities and needs of children. Digital

technologies, in turn, serve to conduct the educational process in an interactive, interesting, and effective manner. As a result, children develop skills in independent thinking, problem-solving, and creative approach. This article covers the role of artificial intelligence and digital technologies in the preschool education system, their impact on the educational process, and their practical significance.

Materials and methods

Artificial intelligence technologies make it possible to organize the educational process in preschool education, taking into account the individual development characteristics of children. Educational platforms and mobile applications developed on the basis of AI analyze children's knowledge levels, interests, and learning rates, and offer appropriate activities. This creates conditions for each child to develop according to their capabilities. Artificial intelligence is especially important in speech development. Speech recognition programs analyze children's pronunciation, identify errors, and help reinforce the correct option by repetition. Also, such technologies are an effective tool in developing children's memory, concentration skills, and logical thinking. Digital technologies are used to conduct classes interactively in preschool educational institutions. Educational materials are presented visually and audibly through interactive whiteboards, tablets, and multimedia tools. This has a positive impact on children's faster understanding and retention of the topic. The use of digital games in the educational process ensures children's active participation. Through game-based activities, children's interest in learning increases, and independent decision-making and problem-solving skills are formed. At the same time, team digital games serve the socialization of children. Digital technologies also play an important role in strengthening cooperation between parents and educators in the educational process. Through electronic diaries, mobile applications, and online platforms, parents have the opportunity to regularly receive information about the child's daily activities, development level, and achievements. For educators, AI-based systems facilitate the process of drawing up lesson plans, analyzing children's development indicators, and evaluating. As a result, the efficiency of pedagogues increases and the educational process rises to a new qualitative level. At the same time, there are some problems in the use of digital technologies in preschool education. In particular, children spending too much time in front of screens can negatively affect their health. Therefore, it is important to maintain the norm and balance when using technologies. Digital tools only give the expected result when organized in harmony with live communication, mobile games, and creative activities. The responsibility of educators and parents in this regard is important.

Result and Discussion

In the current era, the introduction of artificial intelligence and digital technologies into the preschool education system is causing fundamental changes in the content and form of the educational process. While traditional educational methods mainly involved the educator playing a leading role, the modern digital approach prioritizes the child's activity and independent participation. This situation strengthens children's internal motivation to learn. Programs based on artificial intelligence technologies make it possible to analyze children's individual development levels. These systems automatically record the child's task completion speed, errors, and achievements. As a result, the development dynamics of each child are clearly monitored, and an appropriate pedagogical approach is chosen by the educator. This process ensures the personalization of education and forms children's self-confidence and a sense of independence. Classes organized on the basis of digital technologies activate children's perception process. The harmony of visual, audio, and interactive elements helps to absorb information more deeply. In particular, information provided through colorful animations, moving images, and audio comments attracts children's attention and is stored in their memory for a long time. This is an important factor in increasing educational efficiency. Also, game-based digital education tools develop children's logical thinking, problem-solving, and creative approach skills. During such activities, children are encouraged not only to accept ready-made knowledge but also to engage in independent research. Collective digital games serve to form children's social communication, cooperation, and mutual assistance skills. However, pedagogical observations and analyses indicate the necessity of adhering to certain restrictions and norms when using digital technologies. Excessive use of technologies can reduce children's physical activity and weaken real-life communication skills. For this reason, digital tools should be used in harmony with traditional forms of education, active games, and creative activities. The results of the analysis show that for artificial intelligence and digital technologies to yield positive results in the preschool education system, the digital literacy and methodical training of pedagogues are important. Only when educators use technologies purposefully and consciously can high efficiency be achieved in the educational process.

In order to organize the use of artificial intelligence and digital technologies in preschool education effectively and safely, it is important to put forward a number of proposals and recommendations. These recommendations are aimed not only at qualitatively improving the educational process but also at ensuring the physical, mental, and social development of children.

1. Gradual introduction of technologies

It is recommended to introduce artificial intelligence and digital platforms in preschool educational institutions step by step. It will be effective to test the technologies in experimental groups, analyze the results, and widely implement them in practice. At the same time, technologies should be appropriate for children's age and psychological characteristics, and should not cause excessive stress and fatigue. This method helps to maximize the positive impact of technologies in the educational process.

2. Providing educators with digital literacy and pedagogical qualifications

It is important to teach educators to use artificial intelligence and digital platforms for pedagogical purposes. For this purpose, it is recommended to organize advanced training courses, seminars, and practical training. The educator's ability to use technologies correctly directly affects the effective formation of children's knowledge and skills.

3. Harmonization of traditional and digital methods

It is important to harmonize digital technologies with traditional pedagogical approaches in the educational process. For example, conducting interactive classes, animations, and digital games together with active games, hands-on creative exercises, and group activities ensures the comprehensive development of children. This approach develops not only intellectual but also social and emotional skills in children.

4. Strengthening close cooperation with parents

Digital technologies provide an opportunity to establish effective cooperation with parents in the educational process. It is recommended that parents are regularly informed about children's daily activities, achievements and difficulties through electronic diaries and mobile applications. At the same time, providing parents with methodical recommendations on the moderate use of technologies at home ensures the healthy and balanced development of children.

5. Ensuring health and safety measures

It is necessary to protect the physical and mental health of children when using digital tools. It is recommended to set norms for the time spent in front of the screen, and to include physical exercises aimed at maintaining eye and spine health in the training process. At the same time, monitoring the safe use of interactive devices by children should be the responsibility of pedagogues and parents.

6. Orienting educational content towards the individual

Through the use of artificial intelligence and digital platforms, it is possible to identify and develop children's individual abilities. Adapting classes to each child's strengths and

weaknesses makes the learning process interesting and effective. This approach increases children's self-confidence and forms independent thinking skills.

7. Innovation development and experience exchange

It is recommended to exchange experiences and introduce innovative projects on the implementation of digital technologies and artificial intelligence between educational institutions. This not only improves the qualifications of educators, but also allows for the systematic improvement of the quality of preschool education. By implementing these recommendations, the preschool education system can be shaped in a modern, effective way, tailored to the individual development of children. At the same time, the conscious and moderate use of technologies increases the responsibility of pedagogues and parents, and serves for the future generation to be harmonious and digitally literate.

Conclusion

In conclusion, the introduction of artificial intelligence and digital technologies in preschool education is causing significant changes in the educational process. These technologies serve as an effective tool in determining the individual development rate of children, strengthening knowledge, and forming attention and speech skills. The opportunity to organize classes in an individual-oriented manner through artificial intelligence-based applications and interactive platforms helps to increase the quality of education. Digital technologies not only ensure faster assimilation of knowledge through visual and audio means, but also develop children's independent thinking, creative approach and problem-solving skills. Also, group and play-based activities help children develop social skills, cooperation and communication skills. Analyzes show that for effective use of technologies, pedagogues' digital literacy, methodical preparation and active cooperation with parents are necessary. At the same time, measures such as protecting children's physical and mental health, and moderately limiting screen time are important. When artificial intelligence and digital technologies are used as innovative and effective tools in the preschool education system, they serve the comprehensive development of children. They make the educational process more interesting, interactive and individual-oriented, which creates an opportunity for the future generation to grow up harmonious and digitally literate. For this reason, the purposeful, conscious and moderate use of technologies is important in improving the quality of preschool education and developing a modern pedagogical approach.

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