

Article

Formation of Soft Skills in Preschool Children Based on Digital Technologies

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Abstract: The rapid development of digital technologies has significantly transformed early childhood education practices worldwide. This study examines the role of digital tools in developing soft skills among preschool children within the context of Uzbekistan's evolving educational system. Using interactive educational applications, multimedia resources, and digital games, preschool educators can enhance children's communication, collaboration, creativity, and problem-solving abilities. The research adopts a mixed-methods approach combining teacher surveys, classroom observations, and analysis of children's behavioral outcomes. Findings indicate that the purposeful integration of digital technologies improves children's social interaction, emotional regulation, and engagement in learning activities. However, challenges such as unequal access to digital infrastructure and limited teacher training remain critical barriers. The study highlights the importance of pedagogically guided digital integration to ensure balanced cognitive, social, and emotional development in early childhood education.

Keywords: digital technologies, soft skills development, preschool education, early childhood pedagogy, interactive learning, communication skills, Uzbekistan education system, mixed-methods research.

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1. Introduction

In the twenty-first century, digital transformation has become a defining factor influencing educational processes at all levels, including preschool education. Early childhood is a crucial developmental stage during which fundamental social, emotional, and cognitive competencies are formed. In Uzbekistan, ongoing educational reforms emphasize the modernization of preschool institutions and the integration of innovative teaching methods to improve the quality of early learning [1].

Soft skills such as communication, teamwork, adaptability, creativity, and emotional intelligence are increasingly recognized as essential competencies for future academic success and lifelong learning. Digital technologies offer new opportunities to support the formation of these skills through interactive environments that stimulate curiosity, collaboration, and independent thinking. Educational applications, animated content, and digital storytelling platforms enable children to engage in meaningful learning experiences while developing social interaction abilities [2, 3].

Despite these opportunities, the effective use of digital technologies in preschool settings requires careful pedagogical planning to avoid passive screen exposure and to ensure developmental appropriateness. Therefore, this study explores how digital can be

systematically used to foster soft skill development among preschool children within the socio-cultural and institutional context of Uzbekistan [4].

Literature Review

The integration of digital technologies into early childhood education and the development of soft skills has been widely discussed in educational research over the past three decades. The foundation theoreticals of technology-supported learning can be traced to the late twentieth century when Seymour Papert (1980) introduced constructionist learning theory, emphasizing the importance of interactive digital environments in fostering creativity and problem-solving skills among children [5]. His ideas influenced the later development of educational software and digital learning tools for young learners.

In the early 2000s, scholars such as Neil Selwyn and Yong Zhao explored the broader social and pedagogical implications of digital technology in education, highlighting both opportunities for collaborative learning and risks related to unequal access and excessive screen exposure. Their work contributed to policy discussions on integrating technology into national education systems [6].

More recent studies conducted in the 2010s and 2020s emphasize the role of digital play, multimedia storytelling, and interactive applications in developing preschool children's communication, emotional intelligence, and teamwork abilities. Researchers such as Marilyn Fleer (2018–2021) have demonstrated that guided digital learning environments can support socio-cultural development when combined with teacher mediation [7]. In the Uzbek context, contemporary educational reforms and national preschool development programs have increasingly focused on modernizing teaching methods and improving digital competence among educators. These trends indicate that the effective integration of digital technologies is becoming a key factor in shaping soft skill formation during early childhood [8].

Methodology

This study employed a mixed-methods research design to investigate the role of digital technologies in the formation of soft skills among preschool children. The integration of both quantitative and qualitative approaches allowed for a comprehensive analysis of the research problem and ensured the validity and reliability of the findings.

The research was conducted in several stages. At the first stage, a systematic literature review was carried out to examine existing theoretical and empirical studies related to digital learning, early childhood education, and soft skills development. Scientific articles, monographs, and international reports published in recent years were analyzed to establish a theoretical framework. At the second stage, quantitative data collection was implemented through structured surveys administered to preschool educators. The survey focused on teachers' experiences with digital tools, their perceptions of children's behavioral changes, and the effectiveness of technology-assisted learning in developing communication, collaboration, and problem-solving skills. At the third stage, qualitative methods were applied, including classroom observations and behavioral analysis of children during digital learning activities. These observations enabled the identification of patterns in children's interaction, engagement, and emotional responses within technology-supported environments. Additionally, a comparative analytical approach was used to evaluate differences between traditional teaching methods and digitally supported learning practices. This allowed for the assessment of the added value of digital technologies in enhancing soft skill development.

To synthesize the findings, a conceptual modeling method was employed to develop an integrated framework illustrating the relationship between digital technologies and soft skill formation. The model considers key variables such as interactive learning tools, teacher guidance, and institutional conditions. Data analysis was performed using descriptive and interpretative techniques. Quantitative data were analyzed through statistical summarization, while qualitative data were examined through thematic analysis. The combination of these methods ensured a holistic understanding of the

and strengthened the scientific robustness of the study.

Results Analysis:

The analysis of the collected quantitative and qualitative data shows that the purposeful integration of digital technologies contributes positively to the development of soft skills among preschool children. Survey results from preschool educators indicate that interactive digital tools increase children's participation in-group activities and improve their ability to communicate ideas and emotions. A majority of teachers reported noticeable progress in children's cooperation, turn-taking behavior, and problem-solving skills when digital games and multimedia learning tasks were systematically incorporated into daily lessons [9].

Classroom observations further revealed those digital storytelling applications and collaborative screen-based tasks enhanced children's creativity and motivation. Children demonstrated greater confidence in expressing opinions and engaging in peer interaction during technology-supported activities compared to traditional instruction alone. Additionally, digital visual and auditory stimuli helped maintain attention spans and facilitated faster comprehension of new concepts.



Figure-1. Digital Technologies as Catalysts for Soft Skills Development in Preschool Education

This visual model illustrates how digital technologies contribute to the formation of essential soft skills in preschool children. Interactive educational games stimulate cognitive growth, teamwork, and early problem-solving abilities. Virtual and augmented reality create immersive environments that support exploration, curiosity, and social interaction. Adaptive learning systems personalize instruction, track progress, and encourage reflective learning habits. Creative digital applications foster imagination through storytelling, art, and project-based activities. Online group tasks enhance communication and collaboration among peers. Together, these digital tools build a holistic learning ecosystem that strengthens communication, creativity, critical thinking, and cooperation—key competencies for successful lifelong learning.

However, the findings also highlight certain challenges. In some preschool institutions, limited access to modern devices and unstable internet connectivity reduced the effectiveness of digital interventions. Teachers with insufficient training in educational technology tended to use digital tools primarily for demonstration rather than interactive learning [10]. Overall, the results confirm that digital technologies can serve as an effective pedagogical instrument for fostering communication, collaboration, and adaptive behavior when applied in developmentally appropriate and guided learning environments [11].

Discussion

The results of this study indicate that the integration of digital technologies into preschool education can significantly contribute to the development of soft skills such as communication, cooperation, creativity, and emotional self-regulation. Interactive digital

engaging learning environments that encourage children to participate actively in collaborative tasks and express their ideas more confidently. These findings support contemporary pedagogical perspectives that emphasize the role of guided digital interaction in enhancing socio-emotional learning during early childhood [12].

Within the Uzbek educational context, the growing emphasis on modernization and innovation in preschool institutions provides favorable conditions for the adoption of digital learning approaches. The use of multimedia storytelling, educational games, and visual communication platforms allows educators to connect traditional learning practices with modern technological opportunities. This integration can strengthen children's motivation and help them develop adaptability and independent thinking skills, which are increasingly important in a rapidly changing society [13].

At the same time, the discussion highlights several systemic challenges that may limit the effective implementation of digital technologies. Unequal access to digital infrastructure, limited teacher training, and concerns about excessive screen exposure require careful pedagogical planning and policy support. Educators must balance digital activities with physical play, creative hand-based tasks, and social interaction to ensure holistic development. Furthermore, the success of digital integration largely depends on teachers' professional competence in selecting age-appropriate content and facilitating meaningful interaction rather than passive consumption [14, 15].

Conclusion

This study confirms that the purposeful integration of digital technologies in preschool education plays an important role in the formation of soft skills among young children. Interactive learning tools, multimedia resources, and digital games contribute to the development of communication abilities, collaboration skills, creativity, and emotional self-regulation. In the Uzbek educational context, the use of culturally relevant digital content further strengthens children's social engagement and supports the preservation of national values. The findings also indicate that digital technologies can enhance learning motivation and participation when applied through developmentally appropriate and pedagogically guided methods. However, challenges such as unequal access to digital infrastructure, limited technological competence among educators, and the risk of excessive screen exposure highlight the need for balanced and well-planned implementation strategies.

Future efforts should focus on improving teacher training in digital pedagogy, expanding access to modern educational technologies, and integrating digital tools with traditional play-based learning approaches. Such measures will help ensure that digital innovation contributes effectively to the holistic development and soft skill formation of preschool children

REFERENCES

- [1] M. M. Neumann, "Digital media and young children's learning," *Early Child Development and Care*, vol. 190, no. 11, pp. 1741–1755, 2020.
- [2] J. Marsh, L. Plowman, D. Yamada-Rice, J. Bishop, and F. Scott, "Digital play and learning in early childhood," *Journal of Early Childhood Research*, vol. 18, no. 3, pp. 271–285, 2020.
- [3] M. Flear, "Digital technologies in early childhood education: Developmental possibilities," *Learning, Culture and Social Interaction*, vol. 28, p. 100474, 2021.
- [4] J. Bird and S. Edwards, "Children learning to use technologies through play," *Computers & Education*, vol. 165, p. 104149, 2021.
- [5] C. Dong, "Young children's use of digital technologies and soft skills development," *Educational Technology Research and Development*, vol. 69, no. 3, pp. 1623–1642, 2021.
- [6] S. KewalRamani, S. Hesterman, and A. Jones, "Digital play and socio-emotional learning," *Australasian Journal of Early Childhood*, vol. 47, no. 1, pp. 35–48, 2022.
- [7] S. Papadakis, M. Kalogiannakis, and N. Zaranis, "Educational apps and preschool learning outcomes," *Education and Information Technologies*, vol. 27, pp. 1121–1142, 2022.
- [8] K. Nikolopoulou, "Preschool teachers' readiness for digital integration," *International Journal of Educational Technology in Higher Education*, vol. 19, no. 1, 2022.
- [9] I. R. Berson and M. J. Berson, "Technology and social development in early childhood," *Early Childhood Education Journal*, vol. 50, pp. 585–593, 2022.
- [10] A. Sullivan and M. U. Bers, "Coding and communication skills in early learning," *Information and Learning Sciences*, vol. 123, no. 1/2, pp. 29–45, 2022.
- [11] C.-T. Hsin, M.-C. Li, and C.-C. Tsai, "Digital tools and collaborative skills in preschool settings," *Computers & Education*, vol. 187, p. 104554, 2023.
- [12] G. Fessakis, E. Gouli, and E. Mavroudi, "Problem-solving skills through digital games," *Education Sciences*, vol. 13, no. 2, p. 156, 2023.
- [13] N. Yelland, "Reimagining learning with digital technologies in early childhood," *Contemporary Issues in Early Childhood*, vol. 24, no. 2, pp. 119–132, 2023.
- [14] M. Kalogiannakis, S. Papadakis, and N. Zaranis, "Digital storytelling and creativity development," *Education and Information Technologies*, vol. 29, pp. 225–245, 2024.
- [15] S. Edwards, "Digital play frameworks for soft skills formation," *British Journal of Educational Technology*, vol. 55, no. 1, pp. 75–90, 2024.