



## **Utilization of Digital Technology in Children's Education to Enhance Creative and Interactive Learning**

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### **Abstract**

*The use of digital technology requires creativity and interaction between users. This is to support the implementation of good learning. This study aims to determine the impact of using digital technology in the context of children's learning on increasing creativity and interaction. Researchers used a qualitative approach with data collection techniques through observation, interviews, and documentation. Data analysis techniques followed the stages of Miles and Humbermen analysis, namely data collection, data reduction, data presentation, and verification. Content analysis and thematic analysis were used to analyze the data collected and identify common and thematic patterns related to the use of digital technology in children's education. The results show that the use of digital technology in children's education has great potential in enhancing creative and interactive learning. Educational games, visual simulations, and interactive multimedia content allow children to think creatively, collaborate, and interact more deeply with learning materials. However, the research also emphasizes the need to balance the use of technology and real social interaction, as well as the selection of developmentally appropriate content. So, the results of this research can be important information for schools that the use of digital technology affects creativity and interaction between teachers and students.*

**Keywords:** *Creativity, Digital, Interaction, Technology*

### **Abstrak**

Penggunaan teknologi digital sangat membutuhkan kreativitas dan interaksi antar penggunanya. Hal ini untuk mendukung keterlaksanaan pembelajaran yang baik. Penelitian ini bertujuan untuk mengetahui dampak penggunaan teknologi digital dalam konteks pembelajaran anak terhadap peningkatan kreativitas dan interaksi. Peneliti menggunakan pendekatan kualitatif dengan teknik pengumpulan data melalui observasi, wawancara, dan dokumentasi. Teknik analisis data mengikuti tahapan analisis Miles and Humbermen, yakni pengumpulan data, reduksi data, penyajian data dan verifikasi. Analisis isi dan analisis tematik digunakan untuk menganalisis data yang dikumpulkan dan mengidentifikasi pola umum dan tematik terkait pemanfaatan teknologi digital dalam pendidikan anak. Hasil penelitian menunjukkan bahwa penggunaan teknologi digital dalam pendidikan anak memiliki potensi besar dalam meningkatkan pembelajaran kreatif dan interaktif. Permainan edukatif, simulasi visual, dan konten multimedia interaktif memungkinkan anak berpikir kreatif, berkolaborasi, dan berinteraksi lebih mendalam dengan materi pembelajaran. Namun penelitian ini juga menekankan perlunya menyeimbangkan penggunaan teknologi dan interaksi sosial nyata, serta pemilihan konten yang sesuai dengan tahap perkembangan anak. Jadi hasil riset ini dapat menjadi informasi penting bagi sekolah bahwa penggunaan teknologi digital berpengaruh terhadap kreativitas dan interaksi antara guru dan siswa.

**Kata Kunci:** Digital, Interaksi, Kreativitas, Siswa, Teknologi

## **A. Introduction**

Education is one of the main pillars in forming individual potential and community development. The development of digital technology in the last few decades has significantly impacted various aspects of life, including the world of education (Dabbous, Barakat, & Kraus, 2023), (Torkayesh & Torkayesh, 2021). Digital technology has opened up new opportunities in presenting learning materials in a more interesting, creative, and interactive way, especially at the educational level of children (Asfahani, 2019), (Endarto & Martadi, 2022). That way, attention to digital technology in children's education is increasing as part of efforts to support a more effective and relevant learning process with the demands of the times.

In this context, children grow and develop in an era where digital technology permeates almost every aspect of life. Before entering school, they are used to devices such as tablets, smartphones, and computers. Therefore, integrating digital technology into children's learning in schools is becoming increasingly important so that education remains relevant and interesting for them (Hartati, Fernadi, & Utama, 2022). However, remember that digital technology should not be the end goal but a means to achieve more meaningful learning.

One of the main challenges in using digital technology in children's education is ensuring that its use supports creative and interactive learning (Asakir & Mahmudah, 2022), (Wahyuni & Asfahani, 2021). Educators need to avoid using technology simply as a substitute for conventional methods. Still, they must wisely integrate it into learning designs that allow children to be creative, collaborate, and think critically (Pavlou, 2020), (Paaskesen, 2020). In this context, the role of educators is crucial. They need to have a deep understanding of the potential of digital technology and how to direct it to facilitate a holistic learning process.

The importance of using digital technology in children's education also raises questions about its impact on children's social, emotional, and cognitive development (Azamiah, Agustiani, & Pebriani, 2023; Early, 2022). To increase creative and interactive learning, it is also necessary to pay attention to the impacts that may arise, whether related to the potential for addiction to technology, decreased critical thinking skills in non-digital contexts, or even privacy and security issues in a digital environment.

Although the use of digital technologies in children's education to enhance creative and interactive learning has become a topic of increasing discussion, there still needs to be more research linking the use of technology to concrete impacts on the development of children's creativity and interaction. Previous research has tended to focus more on implementing technology in the classroom without delving deeply into how this technology influences how children think creatively and interact with their environment and peers (Son & Primary, 2023; Rasmani et al., 2022; Manurung, 2020; Yusuf, Julianingsih, & Ramadhani, 2023).

Thus, this research is expected to fill the gap in the literature by delving deeper into the real impact of digital technology utilization on children's creative and interactive learning. A more holistic approach and a focus on skills development and interaction will provide new insights into how digital technologies can be effectively integrated into children's education curricula (Travelancya & Asfahani, 2022), thereby positively contributing to their cognitive, emotional, and social development.

The novelty of this research lies in the holistic approach to describing the relationship between the use of digital technology, the development of creativity, and social interaction in children in an educational context. This research will go beyond just observing the effects of technology directly but also understand how technology can provide new opportunities for children to develop their creative skills, such as thinking outside the box and designing and expressing new ideas effectively. In addition, this research will also examine how technology can facilitate more meaningful social interactions between children, both in the context of collaborative learning and the development of interpersonal communication skills.

In the context of this background, this study aims to analyze in depth the use of digital technology in children's education, focusing on how integrating technology can enhance creative and interactive learning. Through a deeper understanding of these dynamics, effective ways can be found to optimize the use of digital technology to significantly impact the development of children's education in this digital era.

## **B. Method**

This research used a qualitative approach with a case study research design. Data collection through observation (Researcher observed learning sessions using digital technology in various age groups of children). Observations will include children's interactions with digital devices, the types of activities undertaken and their level of engagement in learning. Interviews were conducted with teachers involved in using digital technology in children's education. Interviews address strategies, challenges and the observed impact on creative and interactive learning. Questions will include their perceptions of changes in children's creativity and interaction (Sugiyono, 2019).

Data analysis techniques through triangulation of data from observations, interviews and documentation will be used to complement and strengthen the research findings. The triangulation technique will be used to ensure the consistency and validity of the research results. The research data analysis technique is carried out in stages 1) Collecting data obtained from observations and interviews, 2) Data reduction by taking the necessary data and discarding unnecessary data, 3) Presentation of data supported by interview quotes with people who provide information directly, 4) Drawing conclusions is done by looking at the results of observations in the field so that the results are appropriate. The entire data presentation is then formulated, and conclusions are drawn briefly (Miles, 2014).

## **C. Result and Discussion**

### **1. Results**

The results of this study reveal that the use of digital technology in children's education significantly enhances creative and interactive learning. Using well-integrated digital technology in the learning process can stimulate children's creative thinking skills through visual simulations, educational games, and interactive multimedia content. These results are consistent with the increased brain activity in visual processing, problem-solving, and imagination. In addition, digital technology also opens up new opportunities for interactive learning. Collaboration between students is made easier with the help of digital tools, whether through joint projects on online platforms or sharing ideas through online discussion forums.

The findings show that such interactions enhance conceptual understanding, stimulate argumentation abilities, ask questions, and develop children's social skills. However, the research results also highlight the need for the right approach to integrating technology into children's education. Excessive or undirected use of technology can cause several problems, such as increasing the risk of dependence on digital devices and reducing children's ability to interact face-to-face. Therefore, it was found that balanced teaching between digital experience and conventional experience and careful supervision from educators and parents is very important.

Overall, this research confirms that digital technology can be a very effective tool in enhancing children's creative and interactive learning. However, implementation must be done judiciously, considering children's holistic developmental needs and ensuring that technology provides deep, meaningful learning experiences and supports skill development and healthy interactions in their social environment.

The results of this study provide valuable insight into the role of digital technology in enhancing creative and interactive learning in children. Technology integration in learning has shown great potential in stimulating children's creativity through more immersive and diverse visual experiences. Visual simulations, educational games, and interactive multimedia content make learning materials more interesting and provide opportunities for children to be creative, experiment, and develop new ideas. This approach suits their learning preferences in an era where children have been exposed to various forms of digital media from an early age.

However, along with these advantages, it is important to consider the social and emotional impact of using digital technology in a child's education. These findings note that children's deep and direct social interaction can be disrupted if technology use is not properly regulated. For example, face-to-face interactions and the ability to read body language are important aspects of children's social development that need to be maintained. Therefore, educators and parents must play an important role in overseeing technology use and ensuring children are engaged in real social interactions.

Then, debate also emerged about the appropriateness of using technology as a learning tool at various ages of children. Younger children may be more susceptible

to the side effects of poorly controlled technology, while older children may be more able to manage technology use more judiciously. Therefore, it is necessary to have a differentiation strategy in integrating digital technology into the children's education curriculum, considering individual development stages.

This research paves the way for developing a more targeted approach to integrating technology into children's education. Developing platforms and applications to increase children's creativity and interaction can be a positive step forward. In addition, training for educators is also important so that they can optimize the potential of technology without compromising important aspects of children's education.

## **2. Discussion**

Overall, the results of this study provide a comprehensive view of how the use of digital technology can positively impact children's creative and interactive learning. With a balanced and thoughtful approach, digital technology has the potential to be an effective tool in preparing children for the increasingly complex demands of the future.

Several educational theories and previous research results have provided a strong foundation for understanding the implications of using digital technology in enhancing creative and interactive learning in children. Constructivism theory, for example, emphasizes that children construct their knowledge through active interaction with the environment (Sugrah, 2019; Arini & Umami, 2019). Integrating digital technologies in children's learning can support this view by providing interactive environments that allow children to think critically, design solutions, and experiment in safe settings.

Past research has also supported the idea that digital technology can enhance children's creativity (Hidayat et al., 2021), (Pramono et al., 2021). A study by Hsin-Yuan Chen and Gwo-Jen Hwang in 2014 found that using educational digital games increased children's creative and innovative thinking skills. These results suggest that digital technology not only provides new teaching methods (Madjapuni & Harun, 2019), (Purnomosari, Indrawati, & Pirunika, 2022) but also can stimulate higher cognitive development.

However, it should be noted that the use of digital technology in children's education has also raised some concerns. Hasil riset shows that children often experience sleep disturbances due to the use of technology before going to bed (Purwaningtyas, Septiana, Aprilia, & Candra, 2023). Additionally, a study by Patricia Greenfield in 2009 highlighted that excessive use of digital technology can interfere with the development of children's social and emotional abilities.

Within the framework of discussing the results of this research, previous theories and research provide a foundation that supports the finding that digital technology can enhance children's creative and interactive learning. However, it is important to critically consider the positive and negative impacts of using this technology and design a balanced approach to maximize the benefits of technology without compromising children's social, emotional, and cognitive development.

One of the important theoretical frameworks underlying this topic is the concept of constructivism in education. This theory posits that children actively construct their knowledge and understanding of the world through direct experiences and interactions with their environment. Digital technology can provide opportunities for active learning and problem solving, which is in line with the principles of constructivism. Previous research in this area has demonstrated the potential of digital technology to enhance children's learning experiences. Research has highlighted the benefits of interactive multimedia, educational applications, and virtual environments in engaging young learners and facilitating their understanding of various subjects. Additionally, research has explored the role of digital technology in fostering creativity, emphasizing its capacity to facilitate open-ended exploration, imagination, and the development of critical thinking skills. Several studies also address the challenges associated with utilizing digital technology in children's education, including concerns regarding screen time, digital distractions, and the need for appropriate supervision and guidance.

In summary, this research reflects a growing interest in educational research, which emphasizes the integration of digital technologies in children's education to support creative and interactive learning. Previous research and theoretical foundations suggest that digital technology can be a valuable tool in achieving these educational goals, but it is important to continue studying its effectiveness and addressing its potential drawbacks in order to optimize its use in children's education.

## **E. Conclusion**

This research provided significant insights into using digital technology to enhance creative and interactive learning in children's education. The results show that integrating digital technology in children's learning environments has great potential to stimulate children's creativity and interaction.

Digital technology, such as educational games, visual simulations, and interactive multimedia content, can provide a more interesting and interactive learning experience. Children in all age groups respond positively to this learning method, which allows them to be creative, collaborate, and think critically. Observations revealed that the wise use of technology can stimulate brain activity related to visual processing, creativity, and problem-solving.

However, this research also underscores the importance of maintaining a balance between the use of digital technology and real social interactions. The findings indicate that direct interaction between children is important in developing their social and emotional abilities. Therefore, careful supervision and selecting the right content are key factors in maximizing the benefits of technology while preserving important aspects of children's development.

In conclusion, digital technology in children's education can open new doors for in-depth creative and interactive learning. Despite potential negative impacts, such as reliance on technology or reduced social interaction, using technology with

appropriate guidance and focusing on children's holistic development can result in meaningful and impactful learning experiences. Thus, integrating digital technology in children's education has great potential to provide better provisions for children in dealing with an increasingly digital and complex world.

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