The Relevance of John Dewey's Philosophy of Education in Early Childhood Development in the Digital Age

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Abstract

This study examines the relevance and application of John Dewey's educational philosophy in the context of early childhood education in the digital era. Dewey emphasized the importance of experiential learning (learning by doing) and social engagement as integral parts of an effective educational process. In facing the challenges and opportunities presented by technology, this study aims to explore how Dewey's principles can be applied to support the development of young children, particularly in using technology as a learning tool. The research uses a literature review method by analyzing various relevant sources on Dewey's philosophy, early childhood education, and the integration of technology in education. The results indicate that technology can enrich children's learning experiences if used wisely, ensuring a balance between digital learning and direct exploration involving social interaction and physical activities. The role of teachers and parents in creating a balanced learning environment is crucial, where technology is used to support both individual and collaborative learning. The study also suggests that early childhood education curricula need to be adapted to be more responsive to technological developments and children's needs, integrating Dewey's principles of direct experience and social involvement. Overall, this research contributes to the development of a more holistic and relevant educational curriculum in response to the challenges of the times, providing guidance for educators and parents in effectively using technology to support early childhood learning.

INTRODUCTION

The rapid development of digital technology has brought significant changes to the world of education (Danuri, 2019). Access to information has now become easier, allowing students and teachers to obtain learning materials, research and academic references instantly via the internet (Maharani & Budiarti, 2022). Digital technology also encourages technology-based learning through platforms such as e-learning, Learning Management Systems (LMS), and educational applications, which allow learning to be carried out online or hybrid (Hastuti & Utomo, 2022). Apart from that, innovative learning methods such as gamification, augmented reality (AR), and virtual reality (VR) make the learning

process more interesting and help students understand abstract concepts more easily (Ajeng Ninda Uminar, Anisa Putri, Nurtina Irsad Rusdiani, 2022). Technology also supports global collaboration, allowing students and teachers from different parts of the world to work together on projects or discussions, while fostering cross-cultural communication skills (Sabri, 2020). With the help of artificial intelligence (AI), learning can be personalized according to individual needs, while digitalization increases the efficiency of educational administration, such as managing data, schedules, assessments and academic reports (Lim, Gunasekara, Pallant, Pallant, & Pechenkina, 2023). On the other hand, the integration of technology in education also encourages increased digital literacy for students and teachers, which is an essential skill in the modern era. However, this development also presents challenges, such as gaps in access to technology, the need for training for educators, and the potential for disruption from excessive use of technology. Therefore, the use of digital technology in education should be done wisely so that its impact can be felt optimally (Santi Dey et al., 2021).

In this digital era, early childhood education (PAUD) faces new challenges and opportunities that require adjustments in educational approaches, methods and philosophies (Elisa, 2024). In this context, John Dewey's educational philosophy offers deep relevance, especially in responding to the developmental needs of early childhood. Dewey's thinking which emphasizes direct experience, activity-based learning, and social engagement is very relevant for creating an adaptive learning environment amidst advances in digital technology (Hildebrand, 2022). John Dewey, a 20th century progressive philosopher and educator, developed a child-centered approach to education, emphasizing the importance of experience as the basis of the learning process. Dewey believed that education should be a means of helping individuals understand the world through active and reflective interaction with their environment. This principle becomes increasingly important in the digital era, where children grow up in an environment filled with technological devices and information. Challenges in the digital world, such as increasing dependence on screens and a lack of direct social interaction, demand adaptation of Dewey's approach to support the holistic development of early childhood (Sovieti, & Copriady, 2023).

Technological developments provide great opportunities to increase creativity, access to information, and interactive learning for children, but also bring challenges such as the risk of screen addiction, lack of direct social interaction, and limited understanding of technology by educators and parents. In facing this dynamic, John Dewey's educational philosophy has deep relevance, especially in responding to the developmental needs of early childhood. Dewey believed that learning should be active, interactive, and based on children's interests and needs. In the context of the digital era, this approach underlines the importance of utilizing technology as a supporting tool that enriches the learning experience, not just a substitute medium for direct interaction. Dewey's main principle of "learning by doing" also emphasizes the importance of contextual and real experience-based learning, which is very relevant to supporting the holistic development of early childhood. Dewey's view of education as an effort to build social engagement and critical thinking skills is especially important in the digital era, where children need to learn to filter information, collaborate, and

communicate effectively. By adopting Dewey's educational philosophy, PAUD can develop a balanced approach between the use of technology and activities that support children's social interaction, motor skills and creativity. This philosophy is the basis for providing education that is not only adaptive to current developments but also remains humanistic and oriented towards the essential needs of early childhood (Hildebrand, 2022).

Apart from that, early childhood education in the digital era must also consider aspects of social-emotional development and critical thinking skills. Dewey's approach which emphasizes the importance of collaborative learning and open discussion can be a solution for building children's abilities to interact and think independently. The concept of "learning by doing" proposed by Dewey can be applied through exploring technology-based activities, such as the use of interactive educational applications, which still maintain the values of direct experience and contextual learning (Sousa et al., 2023).

Several previous studies were found that were relevant to the research we conducted, including research conducted by Yelland (2018) entitled "Transforming Early Childhood Education with Technology". This research discusses the potential of technology to enhance early childhood learning, emphasizing the importance of interactive and constructive technology-based experiences. Lillard's (2013) research in the book "Montessori: The Science Behind the Genius" discusses the Montessori approach which emphasizes experience-based learning and independent activities, which has similar values to Dewey's philosophy, although its focus is more structured. In addition, (Hatzigianni and Kalaitzidis, 2018) in the research "Digital Play in Early Childhood Education" shows how technology-based activities can be used to support exploratory learning and social interaction.

All the research above has similarities with research conducted in emphasizing the importance of direct experience in the early childhood learning process, development of social, emotional and critical thinking skills through an activity-based approach, as well as the relevance of technology as a learning support tool. However, Yelland's research focuses more on technological potential without integrating specific philosophical principles, whereas this study uses Dewey's philosophical approach as a theoretical framework. Lillard highlights the Montessori approach which has a different learning structure, while Dewey emphasizes flexibility and adaptation to the child's needs. Hatzigianni's research is more specific to digital games, whereas this study covers the use of technology more broadly, including how Dewey's principles can create a balance between digital and real experiences (Hatzigianni & Kalaitzidis, 2018).

The implementation of Dewey's educational philosophy in the digital era also requires critical study. Challenges such as the digital divide, lack of technological literacy in educators, and the potential negative impact of technology exposure on children must be a major concern. Therefore, this research aims to explore the relevance of John Dewey's educational philosophy in supporting early childhood development in the digital era, as well as offering strategic guidance for integrating Dewey's principles into modern educational practice. Through the study carried out, it is hoped that an in-depth

understanding of how Dewey's educational philosophy can contribute to the development of curricula and educational approaches that are more relevant and adaptive for early childhood can be gained. It is also hoped that this research will be able to provide practical recommendations for educators, parents and policy makers in creating a learning environment that supports children's holistic growth and development in the digital era.

METHODOLOGY

This research uses the library research method, which is a research approach that utilizes written sources as the main data base. This method is used to analyze the relevance of John Dewey's educational philosophy to early childhood development in the digital era. The sources studied include books, scientific journals, articles, research reports and other documents relevant to the research theme. Data was collected from various written sources, both primary and secondary. Primary sources include John Dewey's original works, such as Democracy and Education and Experience and Education (Connaway, L. S., & Radford, 2021). Secondary sources include relevant current research, both national and international, related to early childhood education, Dewey's educational philosophy, and the influence of digital technology on education. Data were taken from academic platforms such as Google Scholar, Springer, JSTOR, and ProQuest, as well as university libraries. The data that has been collected is analyzed qualitatively using the content analysis method.

The focus of the analysis includes identifying the main principles of John Dewey's educational philosophy, studying the challenges and opportunities of early childhood education in the digital era, as well as assessing the relevance of Dewey's principles in responding to the challenges of early childhood education in the digital era. After the data is collected, the information is grouped based on main themes, such as core concepts in John Dewey's educational philosophy, social-emotional and cognitive development of early childhood, and the impact of digital technology on early childhood education. The grouped data is then analyzed holistically to produce a synthesis that integrates Dewey's principles with the educational context in the digital era. Based on data analysis and synthesis, this research concludes the relevance of John Dewey's educational philosophy to the development needs of early childhood in the digital era. The research results are presented in the form of a scientific narrative equipped with theoretical arguments and findings from the literature review. Through this literature study method, the research is expected to be able to provide in-depth theoretical insights as well as practical recommendations for educators, parents and policy makers in designing early childhood education that is relevant to the demands of the digital era without losing the essence of a child-centered progressive educational approach.

RESULTS AND DISCUSSION
Learning by Doing

John Dewey's educational philosophy offers principles that are very relevant in supporting early childhood development, especially in the digital era which is full of new challenges and opportunities. Dewey focused on experience-

based learning, or learning by doing, which means children learn more effectively through direct involvement in practical activities and exploration. Dewey believed that experience was the main key in the formation of knowledge, skills, and social values. In the context of early childhood education in the digital era, this concept can be applied by integrating technology as an interactive learning tool that encourages children's exploration and creativity. Technology, when used appropriately, can provide a learning experience that is not only engaging, but also allows children to actively participate in their learning.

For example, technology-based educational applications that allow children to learn through virtual simulations or experiments provide space for children to interact with concepts that are difficult to reach in real life, such as natural phenomena, science, or history. Data from research (Hatzigianni and Kalaitzidis, 2018) shows that children who use simulation applications to learn about science concepts experience an increase in their understanding of the material, indicating that technology can enrich the learning experience. Children can conduct virtual experiments, which teaches them problem-solving and critical thinking skills, as taught by Dewey's principle that learning should be active and based on direct experience.

However, it is important to note that technology should be used as a complement, not a substitute for real activities that are important for children's sensory and motor development. Research by (Lillard, 2013) shows that physical activities, such as playing with real objects (for example plasticine or building blocks), provide irreplaceable benefits in the development of fine and gross motor skills. This is in accordance with Dewey's view that learning must involve the real world and children's physical experiences. Therefore, although technology offers various potentials to enrich learning experiences, the use of technology must be balanced with activities that involve direct interaction with the physical environment, such as outdoor play, art, or other practical activities that support children's motor development.

Additional data from a study by (Yelland, 2018) shows that the use of technology in early childhood learning can encourage exploration and creativity. In the study, educational apps that allowed children to choose the tools and materials they used in virtual experiments showed increased engagement and learning motivation. This shows that technology can give children the freedom to explore their interests and develop creativity, in line with Dewey's principles about the importance of relevant and contextual experiences in the learning process. The integration of technology in early childhood education is in accordance with Dewey's principle of learning by doing, as long as it is used wisely. Technology can be a very effective tool in enriching children's learning experiences, but it must be balanced with real activities that support their physical and social development. With a balanced approach, technology can support active, creative, and holistic learning, which is in line with Dewey's educational philosophy.

Social Engagement in Learning

Another Dewey principle that is relevant in the context of early childhood education in the digital era is the importance of social involvement in the learning

process. Dewey taught that education is not just about transferring knowledge, but also plays a role in building children's abilities to interact with their environment, be it peers, adults, or the wider social community. According to Dewey, an effective learning process occurs in a social context, where children can discuss, share experiences, and learn from each other. In the digital era, this principle can be realized through technology-based collaborative activities, such as online educational games that encourage cooperation, communication and discussion between children. For example, educational games that allow children to work in groups to complete tasks or challenges together can develop their social skills, such as sharing, negotiating and resolving conflict.

However, although technology can offer opportunities for virtual social interactions, it is important to ensure that digital interactions do not replace the in-person social interactions that remain a fundamental need in children's social-emotional development. Research by (Anderson and Dill, 2000) shows that face-to-face interaction is more effective in supporting the development of essential social skills for children, such as empathy, self-control, and the ability to work together in groups. In this case, early childhood education must ensure that the use of technology does not reduce children's opportunities to interact directly with their peers, teachers and the environment around them. In addition, Dewey's approach which emphasizes flexibility and adaptation to children's needs is very relevant in facing educational challenges in the digital era. Dewey considered that each child has unique and varied developmental needs, and therefore education must be adapted to the individual child. In the context of early childhood education in the digital era, technology must be used wisely to support individualized learning. Research by (Darrow, 2013) shows that the use of adaptive learning software, which adjusts the material and level of difficulty according to the child's abilities and interests, can help create a learning experience that is more meaningful and appropriate to the child's developmental needs. For example, educational applications that allow children to choose learning topics that suit their interests or that offer difficulty levels tailored to their cognitive abilities, can increase children's motivation and learning outcomes.

Another study by (MacFarlane et al., 2017) also revealed that technological devices that can adapt to children's abilities and progress in learning can encourage engagement and accelerate children's understanding of new concepts. By giving children the freedom to learn at their own level, these devices help create a more effective and enjoyable learning experience. This is very much in line with Dewey's principles which emphasize the importance of learning experiences that are relevant and appropriate to the child's developmental stage. Therefore, educational technology can be a very effective tool to support a flexible and individualized approach to early childhood learning.

Thus, Dewey's principles which emphasize social involvement, flexibility, and adaptation to children's needs are very relevant in the context of early childhood education in the digital era. The use of technology that supports collaboration between children and individualized learning can enrich children's learning experiences. However, a balance between virtual interactions and in-person social interactions remains important to ensure a child's healthy social-emotional development. Technology must be used wisely to create a learning

environment that supports children's holistic development, which involves cognitive, social and emotional aspects.

Technology and the Role of John Dewey's Philosophy in Early Childhood Education

Despite the many opportunities offered by technology, Dewey's philosophy-based approach also emphasizes the importance of addressing emerging challenges, such as the risks of dependence on digital devices and reduced direct interaction with the physical environment. Dewey believed that learning should involve real interaction with the physical world, which could not be completely replaced by technology. Children need to learn through direct experiences, such as playing outdoors, interacting with physical objects, and exploring the natural world around them. By relying too heavily on digital devices, there is a risk that children miss out on the opportunity to develop fine and gross motor skills, as well as the ability to interact with the real world, which is crucial in their development. Research by (Lillard, 2013) shows that children who are involved in physical activities and traditional games show better motor development and higher social skills than children who spend more time with digital devices.

So, early childhood education in the digital era should ensure a balance between the use of technology and conventional activities that involve direct exploration. According to Dewey, an effective learning experience must include a balance between the digital and real worlds, with each complementing the other. For example, technology can be used to introduce new concepts or provide deeper learning experiences through simulations or visualizations, but children should also be given opportunities to interact directly with the physical world through activities such as playing with educational toys, gardening, or conducting experiments. simple science. This is in line with the results of research conducted by (Anderson and Dill, 2000), which shows that direct interaction with the physical world is very important for children's cognitive and social development.

Teachers and parents have an important role in creating a balanced learning environment. They must be able to choose the right technology and manage the time they use digital devices so that they do not interfere with the child's physical and social development. In this case, Dewey taught that education must pay attention to children's individual needs and give them the freedom to choose and explore activities that interest them, both those involving technology and those based on direct experience (Novianti, Copriady, & Firdaus, 2022). Therefore, teachers and parents must collaborate to create an environment that supports children's holistic development. For example, they can design a curriculum that integrates technology wisely, such as using educational applications to introduce new topics, but also provides enough time for children to participate in physical activities and social interactions with their friends (Ferdian Utama, 2017) . It is also important for teachers and parents to teach children about the healthy and productive use of technology. Research by Yelland (2018) shows that when children are given proper guidance on how to use technology wisely, they are better able to utilize these tools to support their

learning without becoming dependent on it. Thus, the application of Dewey's principles of experiential learning and social interaction remains relevant and critical to ensuring that technology is used in a way that supports children's holistic development, rather than replacing essential hands-on experiences.

Thus, this research shows that John Dewey's educational philosophy provides a strong theoretical foundation for facing challenges and exploiting opportunities in early childhood education in the digital era. Applying Dewey's principles, such as experiential learning, social engagement, flexibility, and democracy, can help create a more holistic and adaptive approach to education. However, implementing these principles requires a deep understanding and commitment from educators, parents and policy makers to ensure that technology is used as a supporting tool, not a substitute, in supporting children's optimal development.

This research provides a significant contribution in understanding the relevance and application of John Dewey's educational philosophy in the context of early childhood education in the digital era. This research connects the principles of Dewey's philosophy with the development of early childhood education, especially in terms of experience-based learning (learning by doing) and social involvement. This research shows that technology, if used wisely, can enrich children's learning experiences without ignoring the importance of direct interaction with the physical world. Thus, this research contributes to providing practical guidance for educators and parents in integrating technology effectively, ensuring a balance between technology and physical activity that supports children's holistic development.

In addition, this research also emphasizes the important role played by teachers and parents in creating a balanced learning environment, where they can collaborate to optimize children's learning experiences. Furthermore, this research also contributes to the development of early childhood education curricula that are more adaptive to the needs of children in the digital era, offering a flexible and experience-based approach, which combines technology with hands-on exploration. This research also provides a basis for further research in the field of early childhood education, especially with regard to the application of technology in education based on Dewey's philosophy. The findings in this research open up space for further exploration of how technology can be used in various aspects of education, as well as how classical educational principles can remain relevant in the digital era. Overall, this research not only enriches educational theory by connecting Dewey's philosophy with technological developments, but also provides practical guidance for educators, parents, and policy makers in creating optimal learning environments for children in the digital era.

CONCLUSION

The conclusion of this research shows that John Dewey's educational philosophy remains relevant and can be applied in the context of early childhood education in the digital era. Dewey's main principles, namely experience-based learning (learning by doing) and social involvement, can be integrated with technology to enrich children's learning experiences without ignoring the importance of direct interaction with the physical world. Technology, when used

wisely, can be an effective tool to support active, creative and holistic learning, which is appropriate to children's developmental needs. However, it is important to ensure a balance between the use of technology and conventional activities that involve hands-on exploration, such as physical play and social interaction. In this case, the role of teachers and parents is very important to create a balanced learning environment, where children can utilize technology productively while remaining connected to the real world. This research also shows that educational approaches that are flexible and adaptive to children's needs, such as the use of adaptive learning software, are highly relevant for creating more meaningful learning experiences.

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