The Urgency of Digital Literacy for Early Childhood

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Abstract. Young children's lives have been profoundly impacted by the quick growth of digital technology in the age of globalization, especially in light of their easy access to electronic gadgets like computers, tablets, and smartphones. Early childhood education has additional difficulties as a result of this circumstance, particularly with regard to digital literacy. The ability to properly comprehend, use, and critically assess digital information is a crucial component of digital literacy. Lack of this ability puts children at risk for negative effects include exposure to unsuitable content for their age, trouble sifting information, and gadget addiction. This study used a library research approach to investigate the importance of digital literacy for young children. The results showed that in order to enhance children's cognitive, social, and emotional development in the digital age, digital literacy must be ingrained from a young age. Additionally, digital literacy is anticipated to be a key component in preparing Indonesia's Golden Generation of 2045, allowing children to develop into critical, imaginative, and astute tech users.

Keywords Digital Literacy, Early Childhood

1. INTRODUCTION

A group of children in their early age are going through a special stage of growth and development (Rahman, 2020). A person in their early age is going through a quick and significant developmental process that will affect them later in life. Social contact is one of the many areas that are undergoing growth and development during this time (Munisa, 2020). The ever-increasing sophistication of technology now dominates social relationships.

In this age of globalization, the quick advancement of digital technology has an impact on young children as well as adults. Digital gadgets like computers, tablets, and cellphones are becoming more easily accessible to children. Early childhood education now faces additional difficulties, particularly in the area of digital literacy—the capacity to comprehend, apply, and assess digital information in a critical and useful manner.

Given how technology affects children's cognitive, social, and emotional development, the value of digital literacy in early childhood education is becoming more and more obvious. When properly handled, digital literacy can foster more creative thinking, expand perspectives, and facilitate more captivating interactive education. Through educational applications, learning videos, and activities that enhance cognitive abilities, children can enjoyably explore the world of information.

However, it is also impossible to overlook the bad effects. Without proper supervision, excessive use of digital devices can cause speech delays and other social development problems such trouble speaking to people face-to-face. Furthermore, early childhood who lack sufficient

digital literacy abilities may struggle to filter information, comprehend suitable content, and steer clear of harmful outcomes like exposure to age-inappropriate content, gadget addiction, and cyberbullying.

The groundwork for competing on a global scale is literacy. Literacy is the primary component of the 21st century competencies that the World Economy Forum listed in 2015 as being necessary for students to learn (Fadillah and Sofni, 2023). Accordingly, Indonesia is working to get ready for the 2045 golden Indonesian generation. Improving the standard of education is one of the primary goals in achieving this golden generation.

Early childhood education (ECED) is crucial because it establishes the groundwork for children's character development early on, which will subsequently influence their future social and cognitive growth. However, Indonesia's educational system still remains well behind that of advanced nations (Wahyuningsih et al., 2019). Therefore, one of the major initiatives that has to be put into action right now is enhancing early childhood education, particularly in the area of digital literacy.

According to Siti et al. (2021), in order to maximize character and skill development, early childhood education must be packaged as play while learning activities. Additionally, it is now normal to see young children being familiar with technology in a variety of public settings, including homes, parks, shopping malls, and recreation centers. They are frequently spotted occupied with their devices, running different apps or playing games on them (Lindriany et al., 2023). This condition raises questions about how well-equipped children are with digital literacy and how they use digital technology.

Digital literacy for early childhood is a pressing topic that needs to be explored by academics, educational professionals, and parents alike due to the growing complexity of the digital ecosystem. It is anticipated that one way to support children's optimal development in the technological age is through digital literacy, enabling them to develop into critical, creative, and tech-savvy adults. Ultimately, one of the key tools for educating a generation capable of competing in the future—including navigating the Golden Indonesia era of 2045—may be computer literacy.

2.   LITERATURE REVIEW

In addition to reading, writing, counting, and other sciences, digital literacy is a critical skill to acquire in order to engage with the digital world. It's critical to focus on children's digital literacy. According to Anggeraini et al. (2019), the introduction of digital literacy is crucial because it helps students acquire the technical knowledge and skills necessary to use

digital media effectively, solve problems in their daily lives, comprehend social aspects and the impact of digital media on society, and develop positive attitudes toward digital media and the ability to keep up with the advancements of the digitalization era.

By encouraging children's creativity and curiosity, digital literacy in the early childhood education context contributes to the cognitive development of young learners (Yusuf, 2020). In this sense, digital literacy encompasses more than just technology use; it also involves helping children develop responsible behavior when they engage with digital environments.

The findings demonstrate the critical role that digital literacy plays in promoting young children's cognitive, social, and emotional development. The capacity to utilize technology critically, creatively, and safely is known as digital literacy. This is consistent with Suhendri's (2021) assertion that digital literacy encompasses the ability to use digital media, such as the internet and communication tools, as well as the knowledge and abilities to do so. This involves having the capacity to locate, assess, utilize, and produce digital content sensibly and intelligently.

Digitally literate children are better able to comprehend technology, use information, and steer clear of its drawbacks. Here, children who possess digital literacy are better equipped to handle the challenges of the digital age, including the capacity to evaluate information critically, prevent the spread of false information (hoaxes), and foster creativity through digital media (Wijaya & Suryani, 2022). Additionally, providing children with digital literacy helps them develop their communication skills, which are crucial for fostering social interactions both in the real and virtual worlds.

Digital literacy serves as a tool to promote collaborative and active learning. Children's drive to learn can be raised through the usage of digital resources like educational software. Yusuf (2020), for instance, demonstrated how interactive digital media might support enjoyable and instructive play-based learning. However, in order to maintain a healthy and secure environment for technology use, parents and educators must play a significant role in providing supervision and support.

Children that are digitally literate are also encouraged to create content rather than merely consume it. According to Suhendri (2021), students can acquire 21st century abilities including critical thinking, creativity, and teamwork by producing original material, such as brief instructional videos or digital picture stories. As a result, digital literacy not only equips children to thrive in the digital age, but also helps them develop into capable and accountable adults.

3. METHODS

The setting in which the study was conducted ws known as the research technique (Darmalaksana, 2020). In order to review literature, research, and documents pertaining to the topic of digital literacy in early childhood, this study employed a library research methodology. A qualitative method was taken in this investigation. This method enables researchers to thoroughly examine data, evaluate the significance found in the literature, and offer a contextual understanding of the topics covered.

In this study, the researcher served as a crucial tool. Triangulation, which uses a variety of data sources like books, journals, and recent research papers, was used to collect data. Since the focus of this research is on meaning rather than generality, it is pertinent to the conditions under study and contextual.

Using a literature research methodology, this study looked at a variety of previous studies, reports, and literature regarding the value of digital literacy for young children. It is anticipated that the literature review will highlight important ideas, advantages, and difficulties encountered when attempting to raise this age group's level of digital literacy. The literature reviewed includes theories of child development, case studies of the application of technology in early childhood education, as well as guidance from educational and health institutions on the safe and educational use of technology for young children.

4. RESULTS

The Important Role of Digital Literacy

Children that possess digital literacy are able to use technology as learning tools and comprehend how it operates. Understanding information from a variety of digital sources, including instructional videos, educational games, and simulations, is simpler for children who possess strong digital literacy. Children who participate in educational technology-based activities are better able to think critically, solve problems, and comprehend concepts, claimed by Lindriany et al. (2023).

Children's social skills can be strengthened through the appropriate use of technology. Online educational games and other collaboration-based tools, for instance, can teach people how to work together, share responsibilities, and support one another. Additionally, through interactive media like digital stories or interactive simulations that incorporate conversation and facial expressions, technology enables children to learn how to identify emotions.

Given the complexity of the digital age, early childhood education must provide children with the fundamental knowledge they need to comprehend the digital world of the future.

According to the World Economic Forum (2015), digital literacy is not just a learning tool but also a fundamental skill required to meet the challenges of the twenty-first century.

The Positive Impact of Digital Literacy

Digital literacy has numerous advantages for young children when properly managed. Children's creativity can be fostered through the usage of educational games and apps. Apps such as ABC Kids, 384 Puzzles, and KidloLand, for instance, use interactive techniques to let children learn while they play. Children's creativity and problem-solving abilities are also enhanced by education-based digital games, according to a study by Lindriany et al. (2023). Games that require children to solve puzzles or make digital pictures, for instance, might inspire them to be creative, try new things, and think outside the box. Additionally, the creativity fostered by digital apps can extend beyond visual or play activities to include art-based pursuits like drawing, making digital stories, or using programs to compose rudimentary music. This implies that technology has the potential to be an effective instrument for fostering creativity in young children.

Multimedia-based learning is made more interesting by digital technology. Children can become more engaged in learning, particularly in early literacy skills like letter, number, and color recognition, by watching educational movies, engaging animations, and playing educational simulations. Children can learn basic ideas in an engaging way by watching animated videos that provide interactive stories about the alphabet or rudimentary science simulations. Additionally, play-based learning—which Siti et al. (2021) claim is highly successful in boosting early childhood learning interest—is made possible by this technology. By using a variety of media, including music, images, and animation, children are better able to retain the information and comprehend it more readily.

Children are given a solid foundation for letter and number recognition with interactive learning applications like Endless Alphabet and Reading Eggs. Compared to conventional approaches, these apps' child-friendly interfaces help children learn to read and count more quickly. Since early literacy lays the groundwork for future academic success, it is one of the most crucial components of early childhood education. Research by Suhendri (2021) indicates that early childhood technology use that is directed can speed up the introduction of fundamental literacy concepts like phonetics and numeracy and offer a more in-depth learning experience through interactive activities.

Digital literacy in early childhood has significant positive impacts, including:

a. Enhancing Creativity

Children's creativity can be fostered through the usage of educational games and apps. Through interactive approaches, children can learn while playing with apps like ABC Kids, 384 Puzzles, and KidloLand. Children's creativity and problem-solving abilities can be enhanced by educational digital games, according to research by Lindriany et al. (2023). Furthermore, the development of creativity using digital applications can extend beyond visual or recreational activities to include art-based pursuits like painting, making digital stories, or using apps to compose modest music. This demonstrates how effective technology can be in fostering young children's creative thinking.

b. Increasing Interest in Learning through Multimedia-Based Learning

Digital technology allows for more engaging multimedia-based learning. Learning videos, interactive animations and simulations can make children more interested in learning, especially in early literacy such as recognizing letters, numbers and colors. For example, animated videos that present interactive stories about the alphabet or simple science simulations help children understand basic concepts in a non-boring way. This technology also enables play-based learning, which according to Siti et al. (2021), is very effective in increasing children's interest in learning. By involving various media, such as sound, image and animation, children understand the material more easily and improve their memory.

c. Accelerating the Introduction of Early Literacy

Children can learn to recognize letters and numbers with the help of interactive learning applications like Endless Alphabet and Reading Eggs. Compared to traditional approaches, these applications help children learn to read and count more quickly because of their kid-friendly UI. Since it serves as the foundation for the development of future academic skills, early literacy is one of the most crucial components of early childhood education. Directed use of technology in early childhood can speed up the introduction of fundamental literacy concepts, such phonetics and numeracy, and offer a more in-depth learning experience through interactive activities, according to research by Suhendri (2021).

d. Improving Critical Thinking and Problem Solving Skills

Children who are digitally literate are encouraged to use critical thinking skills while assessing the material they come across online. Digital literacy enables students to access a greater variety of material, expand their perspectives, and develop their analytical and critical thinking abilities, according to research by Miranda et al. (2022).

The Negative Impact of Digital Literacy

However, if digital literacy is not managed well, it can be detrimental. Unsupervised children who use digital devices excessively run the danger of developing an addiction. Taufik et al. (2020) claim that children's physical and emotional development may be hampered by device addiction. Children who are addicted to technology typically spend less time engaging in physical activities like playing outside or connecting with their friends and more time in front of a device.

Health issues like obesity brought on by inactivity and sleep disturbances brought on by blue light exposure from screens might result from this condition. On an emotional level, children who are addicted to gadgets may become more agitated and anxious when their access to them is limited.

A child's moral and mental development may be impacted by exposure to age-inappropriate information, such as violent or adult material, if they lack digital literacy abilities. Children may have access to inappropriate content if they are left unsupervised. Children's moral and mental development may be impacted by exposure to violent, pornographic, or inappropriately worded information.

Early childhood is especially susceptible to harmful content since they lack the capacity to filter relevant information, claim Lindriany et al. (2023). Aggressive behavior, fear, or even pathological curiosity can result from exposure to this content. As a result, it's critical that parents and teachers keep an eye on their children's access to digital devices and activate security measures like parental controls.

Children who are overexposed to digital devices may suffer from cognitive overstimulation, a condition in which their brains are compelled to digest a lot of information quickly. Children may feel overburdened by this and struggle to concentrate on other activities, including playing or learning. Children who are regularly exposed to digital devices unsupervised often struggle with attention management, according to research by Suhendri (2021). Because children are exposed to rapid information instead of developing their own ideas through creative play, overstimulation can also impede the development of imagination.

The Efforts to Improve Digital Literacy

It is impossible to overlook the significance of the role that educators and parents play in assisting young children in using digital technology. Parents must keep an eye on their children's screen time and select movies or apps that are suitable for their age. In the digital age, parents' responsibilities extend beyond simply keeping an eye on their children's gadget media usage and content. They also include helping them develop the skills necessary to use

digital media to observe, analyze, and even critique what is going on in their surroundings (Sivrikova et al., 2020).

In this situation, parents ought to be able to put in more effort to comprehend and keep up with the times as digital technology advances and can be utilized to support a variety of everyday communication and information needs. This assertion is consistent with study by Novianti & Garzia (2020), which indicates that parents play a significant role in their children's technology use.

When it comes to using technology in an instructive manner, teachers are also crucial. Early childhood digital literacy development is greatly aided by parents and educators. They ought to monitor children's use of digital gadgets and select age-appropriate apps. Creating engaging instructional materials, including interactive learning videos and educational game-based apps, is another way to raise digital literacy. Parents and teachers who receive digital literacy training are better equipped to help children use technology responsibly.

5. DISCUSSION

The study's findings emphasize how crucial digital literacy is to fostering children's growth in the current technological age. The benefits of digital literacy are numerous and include boosting children's early literacy, encouraging interactive learning, and fostering creativity. However, if digital literacy is not properly managed, it can also lead to dangers like social development disorders, exposure to age-inappropriate content, and device addiction. Therefore, to guarantee that digital literacy can support the best possible early childhood development, collaboration between parents, educators, and education policy makers is required. Children's digital habits are greatly influenced by their parents as the children's initial tech-using friend.

Health organizations like the American Academy of Pediatrics (AAP) advise parents to limit their children's usage of digital devices to no more than an hour a day for children ages 2 to 5. Parents must make sure that the media and apps their children use are age-appropriate and have educational value. In order to keep children from accessing unsuitable content, parental control is also crucial. Children who receive assistance when using digital devices are better able to comprehend the material and steer clear of harmful consequences like addiction or cyberbullying.

Integrating digital literacy into teaching is another crucial duty of early childhood educators. To guarantee that instructors can use technology in the classroom, training and workshops on digital technology must be improved. Early childhood educators can create more

successful and engaging learning experiences by utilizing technology-based simulations, educational movies, and interactive learning applications.

Early childhood education policy should encourage the development of balanced, secure, and useful digital literacy. To guarantee that these abilities are taught in an organized manner, incorporate digital literacy into the early childhood education curriculum. Access to secure and high-quality digital resources and technologies must be made available by the government, particularly in rural areas. Plan efforts to educate the public—parents and educators in particular—about the value of digital literacy for young children.

6. CONCLUSION

As one of the essential skills in the digital age, this study highlights the significance of digital literacy for young children. The cognitive, social, and emotional development of children is greatly aided by digital literacy. Children with digital literacy are better able to use technology as an engaging and effective teaching tool and are more creative and critical thinkers. Additionally, digital literacy expands children's perspectives on the world and helps them develop early literacy abilities like reading and math.

Negative effects including gadget addiction, exposure to improper content, and stunted social development can also result from poorly managed digital literacy. To reduce these risks, parents' and teachers' supervision and direction are therefore essential. The study's conclusions emphasize how crucial parents are in helping children develop digital habits through active mentoring, sensible material selection, and screen time management. It is also the duty of educators to include digital literacy into instructive and interesting learning.

LIMITATION

The limitations of this study include issues such as limited sample size and diversity, which can affect the generalizability of findings. Variability in access to digital resources across different libraries may lead to inconsistent literacy outcomes. Additionally, the subjective nature of assessing digital literacy can result in varied interpretations among researchers. Many studies also focus narrowly on specific age groups, overlooking broader developmental stages. Moreover, the rapid evolution of technology can quickly render research outdated, while potential biases from researchers may influence study design. Environmental factors like socio-economic status and cultural attitudes also play a significant role but are often inadequately controlled. Lastly, ethical considerations in conducting research with young children complicate the methodology further.

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