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Digital Literacy as a Support for Child Friendly Education in the Era of Technology Disruption

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Abstract. The development of digital technology has changed the educational landscape, raising the need for digital literacy as a supporter of child-friendly education in the era of technological disruption. Digital literacy is the ability to use, evaluate, and participate in digital culture. However, digital literacy is not only about technical skills, but also about the ability to think critically and solve problems and interact with digital content ethically. The method used is a qualitative literature study research by collecting references from books and scientific journal articles. The research steps included generating a general idea, searching for information, focusing on the topic, identifying data sources, analyzing, and compiling the results. The results and discussion highlight the role of digital literacy in child-friendly education amid implementation challenges and opportunities. Digital literacy is an important foundation in supporting child-centered education in the era of technological disruption. Digital literacy enables children to understand, explore and use technology effectively and responsibly. Child-friendly education promotes a developmentally appropriate approach to children, keeping them safe and well when interacting with technology. Overall, digital literacy is an important pillar in child-friendly education in the era of technological disruption, equipping children with the ability to effectively participate in the digital world, face future challenges, and utilize technology to reach their full potential.

Keywords: digital literacy, child friendly education, era of technology disruption, qualitative method, literature study

INTRODUCTION

The development of digital technology has changed almost every aspect of human life, including education. Children now grow up with digital devices such as computers, tablets and smartphones, so the education system must adapt to these changes through digital literacy. Digital literacy includes the ability to use, evaluate and participate in digital culture, as well as think critically and interact ethically with digital content (Sutrisna, 2020). In primary schools, the importance of digital literacy is increasing as children are exposed to technology from an early age and need to understand how to access information wisely, protect privacy and recognize inaccurate content.

Primary school is a critical early stage for building the foundation of digital literacy (Muflihin & Makhshun, 2020). Digital devices such as smartphones, tablets and computers have become an indispensable part of learning, replacing traditional tools such as books and whiteboards. However, a lack of digital literacy can make it easy for children to get caught up in misinformation or harmful information, as they often do not verify the veracity of information received from social media such as WhatsApp, Facebook and TikTok (Ameliah, 2021).

Digital literacy is not only about technical skills but also involves digital ethics, online safety, and the ability to think critically in evaluating information (Demmanggasa et al, 2023). Education in the era of technological disruption must ensure equitable access to technology, engaging educational content and a safe learning environment. Inequality in access to technology can widen the education gap, so governments and educational institutions must provide adequate access for all children.

Educational content should be relevant and engaging for children, using technology to create interactive learning experiences through educational games, simulations and project-based learning applications. Digital literacy also includes an understanding of digital ethics, online safety and how to avoid online risks such as cyberbullying and fraud. Digital literacy education should train children to protect personal information, recognize fake news and behave ethically online (Syahda et al, 2024).

The role of teachers and parents is crucial in supporting child-friendly education in the era of technological disruption. Teachers must be equipped with knowledge and skills in the use of educational technology, and parents must be actively involved in assisting and supervising the use of technology at home. Education policies should also support digital literacy, provide adequate technology infrastructure and ensure equal access to digital resources.

The implementation of digital literacy policies

in various educational institutions shows the importance of digital skills in the modern era. A concrete example is an initiative at SMP N 3 Colomadu that improves students' digital literacy through activities that teach digital ethics and online safety (Siregar et al., 2023). Strengthening digital literacy is also important in certain communities, such as in Pulo Panjang, which teaches adolescents basic technology skills and digital ethics (Mutaqin et al., 2023).

Apart from digital literacy, character education is also important. Ananda et al. (2022) emphasize that character education helps children develop values such as honesty, responsibility and respect, which are essential in the use of technology and digital interactions. Digital literacy integrated with character education ensures children are not only tech-savvy but also have strong morals.

Digital literacy is an important pillar of child-friendly education in the era of technological disruption. With adequate skills and understanding, children can effectively participate in the digital world, face future challenges and utilize technology to reach their full potential. Digital literacy-focused education equips children with critical thinking, innovation and communication skills, which are essential for success in the 21st century (Chyntia & Sitohang, 2023). It is important for educators and students to understand and master digital literacy to recognize and overcome technological risks, so digital literacy policies in schools and communities are needed to prepare young people for digital development.

This study aims to evaluate digital literacy effectiveness in primary curricula, identify technology access gaps, and determine effective teaching strategies. It also seeks to assess the roles of parents and teachers and provide policy recommendations to enhance digital education. The study will improve educational quality by refining digital literacy curricula, addressing access gaps, and developing better teaching strategies. It will also offer guidance for parents and teachers and provide policy recommendations to create an inclusive and effective learning environment, integrating digital literacy with character education.

METHODS

This research is a qualitative research that is a library study (library research) to collect references about Digital Literacy as a Supporter of Child Friendly Education in the Era of Technological Disruption, using data sources in the form of reference books and scientific journal articles. In this research, the series of activities are related to collecting library data, reading and recording, then processing information that is appropriate and necessary to answer the formulation of the problem to be solved. The procedures carried out in this literature study research include: 1) exploring general ideas about research, 2) searching for information that supports the research topic, 3) emphasizing the focus of research and organizing appropriate materials, 4) searching and finding data sources in the form of main literature sources, namely books and scientific journal articles, 5) reorganizing materials and notes on conclusions obtained from data sources, 6) reviewing information that has been analyzed and is suitable for discussing and answering the formulation of research problems, 7) enriching data sources to strengthen data analysis and 8) compiling research results.

RESULTS AND DISCUSSION

Digital Literacy: Essential Skills in the Modern Era

Digital literacy is an essential skill that involves the ability to use digital technologies to access, manage, understand and communicate information. It includes not only the technical ability to operate devices such as computers, tablets or smartphones, but also a critical understanding of the content accessed and the ethics of its use. According to Nugraha (2022), digital literacy is a complex and multidimensional skill that should be applied since primary education, combining technical skills, critical understanding and digital ethics to use technology wisely and responsibly.

1) Technical skills are the foundation of digital literacy, covering basic to advanced abilities in operating digital devices and applications. At a basic level, this includes using the internet, search engines, email and office applications. At an advanced level, these skills include programming, the use of graphic design software, video editing, and an understanding of computer networks. Strong technical skills enable individuals to utilize technology in various aspects of life, from work to entertainment and learning.
2) Critical thinking involves the ability to critically evaluate digital information sources, identify bias and propaganda, and understand the context and validity of information. In an

era of disinformation and fake news, critical thinking skills are essential to prevent manipulation and misinformation. Critical thinking also includes awareness of privacy and security in the use of digital technology, as well as how personal data can be used by third parties. Awareness of digital footprints and how to protect personal information from cyber threats are also part of critical understanding.

3) Digital ethics governs how individuals behave and interact in the digital world. This includes awareness of copyright, respecting the intellectual property rights of others, and understanding the laws that govern the use of digital technology. Digital ethics also involves responsibility in communicating online, including the impact of words and actions on digital platforms such as social media. Respect for privacy, ethics in sharing information, and awareness of the impact of cyberbullying are all part of digital ethics. With good digital etiquette, technology users contribute to a healthy and safe digital environment.

Effective implementation of digital literacy requires synergy between technical skills, critical understanding and digital ethics, as well as continuous support from various parties such as parents, communities and schools. Amidst the abundant flow of information, digitally literate individuals are able to navigate and utilize technology effectively to improve their productivity, education and quality of life. Collaboration between government, schools and communities is needed to provide equitable access to technology, integrate digital literacy into the curriculum, and train teachers and parents to support children in using technology positively and safely. Thus, digital literacy becomes an important pillar in building a digitally literate society that is ready to face the challenges of the era of technological disruption.

The Role of Digital Literacy in Child Friendly Education

In this era of technological disruption, education can no longer be separated from digital literacy. Digital literacy is an essential ability that helps individuals, especially children, to adapt quickly in the face of various changes brought about by technological advances. Digital literacy includes the ability to use digital technology to access, manage, understand and convey information (Isabella et al, 2023). It is not just a matter of technical skills in operating digital devices, digital literacy also includes a critical understanding of the content accessed and the ethics of its use. In the context of child-friendly education, digital literacy plays an important role in creating an inclusive and interactive learning environment, which in turn supports personalized learning, provides access to diverse learning resources, and develops critical and creative thinking skills in children (Telaumbanua et al, 2024).

Digital Literacy and Inclusive Learning Environments

Child-friendly education emphasizes the importance of creating an inclusive learning environment where every child, regardless of social, economic or physical ability, has equal opportunities to learn and develop (Ekeh & Venketsamy, 2021). Digital literacy plays a key role in realizing this inclusivity. Digital technology enables access to vast and diverse learning resources, which can be tailored to the individual needs of each student. For example, children with special needs can utilize educational software specifically designed to help them learn in the way that is most effective for them. In addition, online learning platforms can be accessed from anywhere, so children living in remote or underserved areas still have the opportunity to get a quality education (Ferri et al, 2020).

Digital technology also enables collaboration between students from different backgrounds. Through digital platforms, students can work together on group projects, share ideas, and learn from each other (Glazunova et al, 2023). This not only enriches their learning experience but also teaches them the importance of diversity and collaboration. Thus, digital literacy helps create a learning environment that is not only inclusive but also dynamic and interactive.

Personalized Learning with Digital Technology

One of the key advantages of digital literacy in child-friendly education is its ability to support personalized learning (Cullata et al, 2022). Personalized learning is an approach where the needs, interests and abilities of each student are accommodated to create a learning experience that suits the individual. Digital technology provides tools that allow teachers to develop and deliver learning materials that can be adapted to different levels of ability and learning styles of students.

Adaptive learning platforms, for example, use

algorithms to analyze student performance and adjust the content delivered based on their progress. This allows students to learn at their own pace, without feeling left behind or burdened by the learning pace of their peers (Orson et al, 2020). In addition, digital technology enables real-time data collection on student progress, which can be used by teachers to identify areas where students need additional support and adjust their teaching strategies accordingly.

With personalized learning, children feel more valued and motivated to learn. They can see the relevance of what they are learning to their personal interests and goals, which in turn increases their engagement in the learning process. Digital literacy, therefore, is not just a tool, but also a catalyst for creating more meaningful and effective learning experiences.

Access to Diverse Learning Resources

One of the challenges in traditional education is limited access to diverse learning resources. Digital literacy overcomes this problem by providing access to various learning resources from around the world. Through the internet, students can access e-books, scientific articles, educational videos and various other learning materials that are not limited to textbooks available in the school library (Alsadoon, 2020). This allows students to explore their topics of interest in depth and gain a broader perspective.

Online learning platforms also offer courses from renowned educational institutions around the world, which students can take without having to leave their homes (Dhawan, 2020). This opens up opportunities for students to learn from experts in certain fields, which may not be available in their schools. Thus, digital literacy opens the door to a richer and more diverse learning experience, which not only broadens students' horizons but also prepares them to face future global challenges.

Development of Critical and Creative Thinking Skills

In the information age, the ability to think critically and creatively is becoming increasingly important. Digital literacy plays an important role in developing these skills in children. With access to various sources of information, students are taught to critically evaluate and analyze that information. They learn to identify credible sources, understand bias, and distinguish between facts and opinions (Nyhan, 2020). These abilities are crucial in an era of disinformation and fake news, where inaccurate information can easily spread and influence public opinion.

In addition to critical thinking, digital literacy also encourages creativity. Digital technology provides a variety of tools that allow students to express themselves in innovative ways. For example, students can use graphic design software to create digital artwork, or use video editing apps to create movie projects. They can also utilize online platforms to share their work with a wider audience, get feedback, and collaborate with others (Mora et al, 2020).

The development of these critical and creative thinking skills is not only important for academic success, but also for everyday life. Children who have these skills are better equipped to deal with various situations and solve problems in innovative ways. Digital literacy, thus, not only helps children in their learning process, but also prepares them to become critical and creative thinking individuals in the future.

Support from Parents, Community and School

Achieving the goal of digital literacy in child-friendly education requires support from various parties, including parents, communities and schools (Sudirman et al, 2022). Parents play an important role in supporting their children in using digital technology wisely and responsibly. They can provide access to digital devices and the internet, monitor children's use of technology and provide guidance on digital etiquette.

Communities also play an important role in supporting digital literacy. Public libraries, for example, can provide access to computers and the internet and offer digital literacy training programs for children and parents. Community organizations can work with schools to organize workshops and seminars on digital literacy.

Schools, of course, have a central role in teaching digital literacy. Teachers need to be trained to integrate digital literacy into the curriculum and use digital technology as a learning tool (Fallon, 2020). They also need to be taught about the importance of digital etiquette and how to teach it to students. Schools can provide adequate digital devices and internet access for all students and create a learning environment that supports the positive use of digital technology.

Digital literacy plays a vital role in creating child-friendly education. By creating inclusive and interactive learning environments, supporting personalized learning, providing access to diverse learning resources, and developing critical and

creative thinking skills, digital literacy helps children to learn and develop in a more effective and enjoyable way. Support from parents, communities and schools is crucial to achieving this goal. While there are challenges in implementing digital literacy, continuous collaboration and innovation can help create a learning environment that supports the development of digital literacy among primary school students. Amidst the abundant flow of information, digitally literate individuals are able to navigate and utilize technology effectively to improve their productivity, education and quality of life (Rusdi, 2024).

Challenges and Opportunities in Digital Literacy Implementation

In today's era of technological disruption, digital literacy is key to creating a more inclusive, interactive and personalized education. However, major challenges such as the digital divide and inadequate infrastructure must be overcome to maximize its benefits. One major challenge is the digital divide, which includes limited access to digital devices and stable internet, especially in rural or remote areas. Children from low economic backgrounds or remote areas often do not have adequate access to these technologies, exacerbating the existing education gap (Harito et al, 2024).

Lack of infrastructure is also a significant barrier. Many schools in remote areas or developing countries face these challenges, including limited access to stable electricity, fast internet connections and hardware such as computers or tablets. This hinders the implementation of digital technology in the curriculum. Online safety is a major concern, especially for children. They are vulnerable to risks such as fraud, identity theft and cyberbullying. Therefore, it is important to integrate training on digital safety and online etiquette into the curriculum, as well as engage parents and communities in supporting children's online safety (Walsh et al, 2022).

However, digital literacy also offers great opportunities. Children can access diverse information and learning resources through the internet, such as e-books, learning videos and interactive simulations. Online learning platforms allow them to learn from leading institutions around the world without geographical restrictions. Digital literacy also helps develop 21st century skills such as critical thinking, creativity, collaboration and problem solving. Digital technologies enable project-based learning, online discussions and cross-cultural collaboration, preparing children for the challenges of an increasingly globally connected real world (Shonfeld et al, 2022).

Digital platforms also increase parental involvement in children's education. Schools use online learning platforms to enable parents to access information about their child's academic progress, track assignments and communicate with teachers. This facilitates collaboration between parents and teachers in supporting children's academic and social development.

To address the challenges and capitalize on the opportunities in digital literacy, a comprehensive and collaborative approach is needed. The government needs to invest in technology infrastructure in schools, especially in remote areas, and work with the private sector to provide affordable internet access and the necessary hardware for students. Training programs for teachers and parents on digital literacy, online safety and 21st century skills are also urgently needed. Schools should integrate digital literacy into their curriculum by adopting flexible and responsive learning approaches. Teachers need to be trained to use technology effectively and creatively, providing meaningful and relevant learning experiences for students (Ulanday et al, 2021).

Parents also have an important role in supporting their children's digital literacy. They need to be empowered with the knowledge and skills to guide children in using technology positively and safely. Collaboration between schools, parents, communities and government will create a supportive education ecosystem that is able to overcome challenges and capitalize on opportunities in digital literacy (Hermawan et al, 2024).

Digital Literacy Implementation Strategy in Child Friendly Education

Implementing digital literacy in child-friendly education requires a comprehensive and structured strategy to ensure effective and safe use of digital technology in learning. Key strategies include training and professional development for teachers, technology-inclusive curriculum development, integrating technology into everyday learning, fostering collaboration among schools, parents, and the community, and continuous evaluation and monitoring.

Training and Professional Development for Teachers is essential. Teachers need to acquire

technical skills for using digital devices and applications, manage online learning platforms, and develop innovative teaching strategies. Training should cover the technical aspects of hardware and software, effective use of online platforms for managing materials and interactions, and creating engaging, technology-enhanced lessons. This includes leveraging project-based learning, online collaboration, and multimedia tools to enrich the educational experience.

Technology-Inclusive Curriculum Development is crucial for embedding digital literacy into education. The curriculum should incorporate basic technology skills, such as operating computers and tablets, using the internet, and productivity applications. It should also focus on developing critical thinking and information evaluation skills, teaching students to assess the credibility of online information and identify reliable sources. Additionally, digital ethics should be emphasized, including respecting privacy, ethical online communication, and protecting oneself from cyberbullying and exploitation.

Integrating Technology in Everyday Learning maximizes the benefits of digital literacy. Teachers should use digital resources like e-books, educational videos, interactive simulations, and games to make learning more engaging and facilitate better understanding. Project-based learning should be supported through technology, enabling students to conduct online research, collaborate virtually, and create multimedia presentations. Formative evaluation and feedback can be enhanced with digital tools, allowing for real-time assessments and tailored interventions based on student progress.

Collaboration Between Schools, Parents, and the Community plays a vital role in successful digital literacy implementation. Schools should offer training sessions for parents to help them support their children's digital skills development at home. Collaborations with community organizations can provide necessary technology and internet access to students from economically disadvantaged backgrounds or remote areas. Utilizing resources from public libraries and community centers can also support digital literacy programs and expand educational opportunities.

Continuous Evaluation and Monitoring is important for assessing the effectiveness of digital literacy strategies. Evaluating student abilities in digital skills, critical thinking, and digital ethics helps measure progress and identify areas for improvement. The impact of technology on student engagement and access to educational resources should be assessed to ensure it enhances learning. Additionally, reviewing the effectiveness of teacher training, curriculum development, and stakeholder collaboration helps refine strategies and address any shortcomings.

By implementing these strategies in an integrated and sustainable manner, schools can create an educational environment that supports the development of comprehensive and sustainable digital literacy for children. Digital literacy is not just about mastering technology, but also about preparing future generations for success in an increasingly global and technologically connected society (Adyanti et al, 2024).

CONCLUSION

Digital literacy is crucial for child-friendly education in the digital age, serving as a foundational skill for students to navigate and thrive in a technology-driven world. It encompasses technical skills, critical thinking, and ethical use of digital tools. Effective implementation of digital literacy involves integrating technology into daily learning, developing inclusive curricula, and ensuring robust support systems for both educators and parents. Despite challenges like the digital divide and infrastructure limitations, leveraging digital tools enhances personalized learning, critical thinking, and creativity. Collaboration among schools, parents, and communities is essential to address these challenges and capitalize on digital opportunities, preparing students for a connected and dynamic future.

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