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DIGITAL LITERACY SKILLS OF EARLY CHILDHOOD IN USING GADGETS

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ABSTRACT

The rapid development of information technology has brought convenience to various aspects of life, one of which is through the use of gadgets. Gadgets have become part of everyday life and are popular among all age groups, including early childhood, due to their diverse features for accessing information and entertainment. Although gadget use is often viewed negatively, when used appropriately, gadgets also have the potential to enhance children's digital literacy skills. This study aims to explore the extent of digital literacy skills in early childhood in using gadgets functionally, by their developmental stage. A qualitative approach was employed, using primary data. Informants were selected through purposive sampling, including teachers, parents, and children aged 4–5. Data collection methods included interviews, observation, and documentation, with instruments developed based on components of children's digital literacy, namely functional skills and beyond functional skills. Data were analyzed through reduction, display, and conclusion drawing/verification. The results indicate that early childhood learners can operate various applications and features on gadgets, including school-based TV apps such as Kahoot!, Quizizz, Wordwall, and Liveworksheet, as well as smartphone features such as calling, camera, games, WhatsApp, and YouTube. These findings suggest that young children are beginning to demonstrate foundational digital literacy skills that are developing well, although adult guidance and supervision remain essential in their use of technology.

Keywords: *Digital Literacy, Early Childhood, Gadget*

A. INTRODUCTION

The 21st century is marked by the Industrial Revolution 4.0, which emphasizes automation and digital technology, such as gadgets that help make human life more practical through advanced features and applications (Fonna, 2019; Yumarni, 2022). Gadgets like smartphones, TVs, mobile phones, tablets, laptops, and computers offer easy access to information and entertainment that can be used anytime by all age groups, including early childhood (Batubara et al., 2023; Subarkah, 2019). Gadgets serve various functions such as media for relationships, communication, and learning, enabling children to access information; however,

their use in early childhood can have both positive and negative impacts (Hijriyani & Astuti, 2020; Yunia, 2022).

Excessive use of gadgets may negatively affect children, such as increased emotional outbursts, rebellious behavior, laziness in routines, and a decline in discipline and moral values, making parental supervision highly necessary (Ariston & Frahasini, 2018; Syifa et al., 2019; Mimin, 2022). When used appropriately, gadgets can become a medium for stimulation that supports cognitive development, hand-eye coordination, creativity, and digital literacy through positive content such as YouTube (Annisa et al., 2022; Herniawati, 2025; Fauzi, 2020).

Digital literacy in children is an important aspect of education, as it includes awareness and the ability to access, manage, evaluate, and properly use digital media in social life (Gillen, 2018; Handayani, 2022). To measure children's digital literacy skills, there are eight key components: functional skills, creativity, collaboration, communication, information searching, critical thinking, cultural understanding, and digital safety, with stages of understanding including basic competence, usage, and digital transformation (Hague & Payton, 2011; Martin & Grudziecki, 2015; Mayers, 2013).

Digital literacy skills in early childhood are crucial for navigating the digital world through introduction, control, and intensive supervision, providing benefits for digital literacy, social-emotional skills, language, and STEM (Handayani, 2022; Soyoof et al., 2024). Pedagogical activities involving digital interaction, games, and the creation of physical artifacts with visual documentation and reflection can support literacy learning and language development in early childhood (Brinck et al., 2023; Kervin, 2016). Language aspects, including early literacy, can be enhanced through game-based digital media with an effectiveness rate of 77%, while technological advancements also support the information and learning interaction needs of young children (Rahman et al., 2024; Rakimahwati & Ardi, 2019).

China’s EDL model includes three levels of development and two dimensions of devices and goals, which share similarities with other models but have unique cultural characteristics in educational digital literacy (Cao et al., 2024). The importance of digital literacy, such as computational thinking and coding, has become a focus in early childhood education, although most learning remains “unplugged” and its effectiveness remains unclear (Akiba, 2022; García-Zabaleta et al., 2021).

This study aims to examine early childhood digital literacy skills in using gadgets. As technology evolves, children are increasingly exposed to digital devices, which can affect their literacy skills. This research focuses on identifying how effectively children can use gadgets within the context of education and daily activities. The findings reveal that although gadget use can support learning, many children still require guidance to use them wisely. This study offers valuable insights for parents and educators to support children in managing technology in a

healthy and beneficial way.

B. RESEARCH METHOD

This study employed a qualitative approach to explore early childhood digital literacy in the context of gadget use. This approach was chosen because it provides a detailed depiction of children's experiences interacting with technology and an understanding of the social and cultural factors influencing them. The primary data were collected through interviews and direct observation involving children, parents, and teachers. This method enabled the researcher to gather authentic information about the perceptions and experiences of the subjects related to digital literacy. To ensure data validity, triangulation was conducted by comparing information from multiple sources and direct observations. The research subjects consisted of early childhood teachers, parents of children aged 5–6 with access to gadgets, and children actively using gadgets at home and in school settings. Data collection techniques included semi-structured interviews to explore participants' experiences and observations of gadget use during learning activities. The instruments used were interview sheets and observation sheets, validated through preliminary testing with experts in digital literacy. The collected data were analyzed through data reduction, presentation, and conclusion drawing. Data triangulation was used to ensure the findings' validity and provide an objective depiction of early childhood digital literacy.

Table 1. Indicator: Functional Skill and Beyond

Indicator	Sub-indicator	Question Topics
Functional skills and beyond	Ability to use gadgets such as a TV	- Number of gadget features children can use - Types of features used by children - Children's ability to operate each gadget feature - Time and duration of gadget use

C. RESULTS AND DISCUSSION

Table 2. Research Findings

Indicator	Sub-indicator	Digital Skills of Early Childhood
Functional skill and beyond	Ability to use school TV gadgets	- Several applications can be used by early childhood students on school TV gadgets. Each child can operate 1–4 interactive and educational apps at school with teacher guidance. - Features on school TV gadgets that can be used by young children include interactive and educational applications

		such as Kahoot!, Quizizz, Wordwall, and Liveworksheet. - Children's ability to operate each application on the school TV is fairly good. - The duration of use for school TV gadgets is around 30 minutes to 1.5 hours.
	Ability to use smartphones	- Several features and apps can be used by early childhood on smartphones. Each child can operate around 4–8 features or apps. - The features and apps mastered by young children include calling, the camera, WhatsApp, YouTube, and games like Roblox, Geometry Dash, Super Bear Adventures, Sakura, and simulator games. - Children demonstrate good skills in operating each smartphone feature and app. - Daily gadget use duration for early childhood children ranges from 3–6 hours.

Based on Table 1, the research findings on early childhood digital literacy skills in using gadgets, focusing on functional skills and beyond, can be described as follows.

1. Ability to Use Gadgets in the Form of a TV

Gadgets come in various forms, including the television, which can be utilized in learning activities (Batubara et al., 2023). Teachers use school TVs as interactive learning media that engage children in lessons, capture their attention, enhance interest and motivation, encourage participation, and support their conceptual understanding, making the learning process fun and non-monotonous. Furthermore, using school TVs as digital learning media adds excitement to lessons through multimedia and helps improve students' digital literacy skills. Differences in digital literacy among children are also influenced by age, home location, family income, access to digital resources, and parents' age (Cao et al., 2024).

In the classroom, teachers often use various applications to prevent boredom. With repeated exposure to school TVs over time, children's ability to operate educational applications has improved. Each child can now operate 1–4 apps on the school TV. The applications used by early childhood students include Kahoot!, Quizizz, Wordwall, and Liveworksheet. These apps are typically used under teacher guidance, supervision, and instruction—students

do not operate them independently. These applications are designed as educational games to develop children's cognitive skills, presenting interactive and digital learning. Although each child demonstrates varying degrees of ability when using these applications, overall, their proficiency is considered fairly good.

School TV usage during lessons usually lasts around 30 minutes to 1.5 hours, depending on the school schedule and the content being delivered. Teachers' ability to manage information and develop new knowledge contributes significantly to early childhood education digital literacy. Therefore, it is recommended that teachers receive further training in accessing and evaluating information to improve their digital competencies (Hidayati et al., 2020).

2. Ability to Use Gadgets in the Form of Smartphones

Gadgets are highly favored by early childhood children (Subarkah, 2019). Among the various types of gadgets, smartphones are particularly popular. Smartphones offer a wide range of features and applications that are engaging and easy to use (Yumarni, 2022), enabling young children to operate several of them. Early childhood children can typically use 4 to 8 different features on a smartphone, including calling, the camera, WhatsApp, YouTube, and various gaming applications. Playful interaction with technology, the creation of digital artifacts, and visual documentation support effective technology use in early education. This open-ended approach, called *open design pedagogy*, has been proposed as a model for early childhood education (Brinck et al., 2023).

Regarding the calling feature, children can already search for contacts and make calls to specific individuals, often to close family members such as parents. With the camera feature, they can take photos and record videos. Although they can capture images and footage, the quality is generally not optimal. Young children can make calls using the WhatsApp application by selecting names from the top of the contact list. Some children who are already fluent in reading and writing can also send messages to close family members, such as their parents or siblings. As digital technology becomes increasingly integrated into children's lives, disparities in access and quality of use, commonly called the digital divide, persist. Parents play a crucial role in bridging this gap, although the specific mechanisms by which they do so are not yet clearly understood (Cao et al., 2024).

In the YouTube application, early childhood children who have developed reading and writing skills can access desired videos by typing keywords into the search bar and selecting from the available content. Watching videos on YouTube has become popular among young children (Salehudin, 2020). This activity can serve as a medium to instill religious and moral values, spark creativity based on what is viewed, support motor

development, and enrich children's vocabulary (Herniawati, 2025). Furthermore, early childhood children who can independently access and use YouTube on smartphones may experience improvements in their interpersonal communication skills (Putra & Patmaningrum, 2018). Based on these observations, the use of YouTube can have positive effects on early childhood development. However, it may also negatively impact cognitive development, making parental guidance and supervision essential when children access social media platforms, including YouTube (Yunia, 2022).

Regarding the gaming features, young children can play various games such as *Roblox*, *Geometry Dash*, *Super Bear Adventures*, *Sakura*, and different simulation games. On average, each child can play between 2 to 5 games. Some children can even download games independently through ads while watching YouTube videos. They often learn to play these games through trial and error. When they face difficulties, they typically ask for help from parents or other nearby adults. Some children prefer to ask their parents to download the games directly.

The number of features and applications mastered by early childhood children indicates a relatively good level of digital literacy. These abilities do not appear naturally, but are developed through habituation and regular exposure to smartphone use. On average, children use smartphones for 2 to 6 hours per day. This duration reflects the total daily gadget usage, typically after school, in the afternoon, and at night. Such a duration is considered relatively long and may negatively affect child development, as early childhood children are recommended to have no more than one hour of screen time per day (Hasanah, 2019). Therefore, setting a clear schedule and limiting usage duration is crucial (Miranti & Putri, 2021). Parents must be selective in choosing digital activities for their children and are expected to supervise and enforce firm boundaries regarding gadget use (Hasanah, 2019). When used appropriately, gadgets can effectively stimulate and optimize various aspects of child development (Annisa et al., 2022).

D. CONCLUSION

Digital literacy in early childhood can be observed in two categories: the use of gadgets in the form of a school TV and the use of gadgets in the form of a smartphone. The literacy skills of early childhood children in using a school TV are considered quite good. This can be seen from the number of applications that children can use on the school TV. The applications that can be used include Kahoot!, Quizizz, Wordwall, and Liveworksheet. This ability is developed through teachers' habituation using these applications as a learning medium during the learning process. Teachers typically use the school TV as a learning medium for about 30 minutes to 1.5 hours, depending on the allocated learning time at school and the material presented to the children.

Overall, the digital literacy of early childhood children in using gadgets is considered good. This can be seen from the number of features and applications the children can use, ranging from 4 to 8 features or applications. The features and applications that early childhood children use include the phone feature, camera feature, WhatsApp, YouTube, and several game applications such as Roblox, Geometry Dash, Super Bears Adventures, Sakura, and simulator games. Children's literacy skills in using gadgets are not naturally developed but are the result of habituation with gadget usage in their daily lives. Early childhood children can use gadgets for 3 to 6 hours daily, for a total accumulated time of gadget use throughout the day. Usually, children use gadgets after school, in the afternoon, and at night. Therefore, it can be concluded that the digital literacy skills of early childhood children in using gadgets are considered good.

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AUTHOR CONTRIBUTIONS

Author 1	:	Designed the topic, formulated the problem, conducted field observations, interviews, and wrote the introduction and research objectives.
Author 2	:	Reviewed literature, developed the theoretical framework, designed instruments, and assisted with data validation through accurate triangulation techniques.
Author 3	:	Analyzed qualitative data, wrote the results and discussion sections, and connected the findings with relevant theories systematically.

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