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## APPLICATION OF DIGITAL LITERACY PRACTICES IN THE INTRODUCTION OF LITERACY IN EARLY CHILDHOOD

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### Abstract

The purpose of this study is to explore the practice of digital literacy in the introduction of literacy in early childhood. The research methodology used is descriptive qualitative, with literature review techniques sourced from previous journals according to the research topic in the last seven years, 2015-2022, and as many as 20 journals. The findings show that digital literacy has practically been applied in the early childhood learning environment. Digital-based children's learning media are increasingly varied, generally audio-visual, such as Android-based media and game applications to introduce children's literacy learning. The results of this study can be used as information in supporting the early childhood learning environment through the supporting role of parents, teachers, digital-based facilities, and infrastructure to help preschool children advance in spelling skills.

**Keywords:** Digital Literacy; Literacy; Early Childhood

### Abstrak

*Tujuan dari penelitian ini untuk mengeksplorasi praktik literasi digital dalam pengenalan keaksaraan pada anak usia dini. Metodologi penelitian yang digunakan adalah kualitatif deskriptif, dengan teknik kajian literatur yang bersumber dari jurnal terdahulu sesuai dengan topik penelitian dalam kurun waktu tujuh tahun terakhir 2015-2022 sebanyak 20 jurnal. Temuan hasil menunjukkan secara praktis literasi digital telah diterapkan dalam lingkungan pembelajaran anak usia dini. Media pembelajaran anak berbasis digital makin bervariasi umumnya audio visual seperti media berbasis android dan aplikasi games untuk memperkenalkan pembelajaran keaksaraan anak. Hasil kajian ini dapat dijadikan informasi dalam mendukung lingkungan pembelajaran anak usia dini melalui peran pendukung dari orang tua, guru, sarana dan prasarana berbasis digital untuk membantu anak-anak prasekolah maju dalam keterampilan mengeja.*

*Kata Kunci:* Digital; Keaksaraan; Anak Usia Dini

## Introduction

Digitization is felt its influence in everyday life, even in early childhood (Danby et al., 2018; Kumpulainen et al., 2020). Previous research has shown that technology and digital media in learning can shape interactions where children can discover and understand their knowledge (Danby et al., 2018; Erstad, 2010; van Laar et al., 2020). Technology and digital media impact children's early literacy experiences, thus requiring mastery in various modes with various tools and content (Flewitt et al., 2015; Kumpulainen et al., 2020).

There is much talk about risks and vulnerabilities in digital media for children because childhood concerns were engaging in play with spontaneous environments have disappeared (Livingstone et al., 2017). The current concern about the digital divide is no longer only related to devices or the Internet but also to the ability of digital media users to practice meaningful and accountable social practices (Tate & Warschauer, 2017). It is currently known that the use and interaction of children with digital devices as learning media applied at home are still minimal, so this is closely related to literacy practices and literacy learning opportunities. (Kumpulainen et al., 2020; Rapanta et al., 2020 ).

Currently, there is little information about digital device knowledge in early literacy learning, and there is a particular lack of online navigation for children as well as child and parent critical awareness, evaluation of online spaces, and digital content (Teräs et al., 2020). Technology and digital media suggest new possibilities for practice in children's literacy learning (Kumpulainen et al., 2020). The risks of digital technology in children's daily lives are important. Previous research is still unable to explain the implications of using technology and digital media in children's development and learning (Sefton-Green et al., 2016).

Understanding and investigating children's digital literacy defines literacy as a daily social practice that is intrinsically connected to the context in which it occurs (Islas, 2013; Zhao et al., 2018). Digital literacy refers to the diversity of children's literacy practices involving technology and media, which involve reading, writing, and communication practices through digital games or other fun and creative activities (Park, 2019; Sefton-Green et al., 2016). Digital literacy practices can involve access to and use, both orally and in writing (Bliss, 2019; Olofsson et al., 2015).

To get a deep and contextual understanding of children's digital literacy practices, namely how digital technology and media are part of daily life and children's involvement in learning to read, write, and communicate with digital technology at home (Ait et al., 2015). Kucirkova and Flewitt (2020) define the use of digital media for children that allows children to play while learning and take an active and interactive role through digital media. This research is based on digital literacy practice, which requires at least four dimensions: operational, cultural, critical, and creative (N. Galera, R. Brito, M. Bento, J.A. Lancaster, 2016; Sefton-Green et al., 2016 ). As digital technology becomes increasingly pervasive in children's lives, there is a need to expand research

knowledge on children's digital literacy practices at home in literacy recognition (Bliss, 2019; Kumpulainen et al., 2020; Skills et al., n.d.).

Research suggests how children's involvement and interaction with digital technology help children's skills in recognizing letter names, initial writing, communication, and understanding literacy concepts (Kumpulainen et al., 2020; Sefton-Green et al., 2016). The study by Neumann et al. (2017) shows how children with greater access to digitizing technology can develop their literacy, namely letter sounds, and name-writing skills. Another study by (Kumpulainen et al., 2020) found that the use of digital media at home shows that children have varying degrees of opportunity to engage and learn with technology and digital media. The role of parents can frame the use of media and children's interactions with the media. The relationship between children's engagement with learning, digital literacy and education, parental culture, socio-economic background, and digital skills and attitudes (Livingstone et al., 2017). Thus, the explanation informs that there are still not many digital literacy studies in early childhood. Thus, the opportunity to explore the development of the application of digital literacy for early childhood will be more interesting to learn. Therefore, the purpose of this study is to explore the practice of digital literacy in the introduction of literacy in early childhood.

## Methods

This type of research uses qualitative descriptive, which aims to explore the application of digital literacy practices in early childhood learning. This type of research is library research, a series of studies related to library data collection methods or research whose research objects are explored through various library information (books, encyclopedias, scientific journals, newspapers, magazines, and documents) (Luh et al., 2020). This research is entirely based on literature studies. The data collected and analyzed are entirely derived from literature or documentation materials and relevant journal writings. The data collected in this research are primary and secondary types of data. This study prioritizes the use of literature studies that have been carried out and the results of previous studies that focus on digital literacy and literacy in early childhood. The results of previous research were obtained from scientific articles published in the 2015-2022 period, as many as 20 journal articles.

The data collection technique is a library study by looking for data related to relevant problems or discussions. In this research, all relevant data were collected utilizing literature study, literature study, and searching data on the internet. The data analysis technique the author uses is qualitative in a deductive way, namely, things or theories that are general or draw specific conclusions. In addition, it inductively relates to the facts of various special and concrete events and then concludes the specific to the general (Rahayu et al., 2022).

## Results and Discussion

Some of the selected article studies were adapted to the focus of the discussion on digital literacy and the introduction of literacy in early childhood. The study was explored to obtain information on the application of digital literacy practices in the early childhood learning environment for the past few years. Role of digital literacy is currently very much needed (Zhao et al., 2018). However, its application in the early childhood environment is very limited in information in the study of article publications (Kumpulainen et al., 2020). As can be shown below.

### 1. *Digital Literacy Practice through Audio Visual Learning Media*

The role of learning technology is to facilitate and improve performance so that learning objectives can be achieved by "creating, using, and managing," namely by creating, using, and controlling teaching materials that are developed to suit their function and can provide convenience in learning (Fitra, 2021). Technology can support the implementation of digital literacy in schools (Özgür, 2020). However, online learning is detrimental to students, especially those who cannot use supporting facilities during online learning (Abidin et al., 2020). The 2013 curriculum was formed as a school literacy movement that places students as subjects in learning, and teachers act as facilitators (Wright & Domke, 2019).

Digital literacy is very much needed to help children's learning process, besides maximizing optimal school learning goals (Masyhura & Ramadan, 2021). Digital literacy is the competence to know and understand and use information that can be accessed through digital technology (Ait et al., 2015). Students can access, manage, analyze, develop and build new knowledge by communicating with new people to get involved in society (Lafton, 2015). Digital literacy can provide convenience to students and teachers during the learning process and activities at school. (Marsh, 2016). Digital literacy is needed by individuals to know the development of the world and make individuals wiser in understanding all the problems found (O'Doherty et al., 2018).

There are several examples of digital literacy-based learning media, such as smart mobile devices, especially tablets or smart mobiles connected to Android, which can serve as important tools to improve learning and teaching, enabling preschoolers to explore appropriate advanced concepts for their age group. Rahayu et al., 2022). The android application is one of the interactive multimedia types of learning media. Interactive learning can be accessed by users (PAUD children) through information media in the form of audio and visual. One of the uses of technology in learning is to create appropriate teaching materials according to needs (Yalvema Miaz et al., 2019).

Other research, in general, can confirm that the application of digital literacy affects teachers in finding information and learning resources (Azzahra & Amanta, 2019; Daniels et al., 2020). Digital literacy plays an important role in the formation of students' character. Therefore, mentoring not only needs to be done by teachers but

also involves parents. The importance of digital literacy in schools as reinforcement to develop students' abilities and knowledge. Second, increasing the level and diversity of quality learning resources, The use of educational applications during online learning as a learning resource. Third, expanding access to quality learning resources and the scope of learning participants, such as providing computers and internet access in schools; (Nelson et al., 2020; Yustika & Iswati, 2020).

## 2. *Literacy Ability in Early Childhood*

Based on Permendikbud 137 of 2014 concerning the 2013 Early Childhood Education (PAUD) curriculum, in the scope of language development (recognizing literacy), children aged 5-6 years can name the symbols of letters they know and mention the initial letters of the names of objects around them (Busron & Rachmi, 2020). According to Widuroyekti et al. (2017), recognizing literacy, namely the ability or skill to voice letters, syllables, words, and sentences presented in written form into spoken form. One of the skills that must be mastered in early childhood is the basic ability to write and early reading (Listriani et al., 2020).

In the 2013 PAUD curriculum, it is stated that basic writing and early reading skills are termed literacy skills, where children can recognize letters, recognize letter symbols, connect letter sounds and symbols, and write their names and simple words they know (Permendikbud, 2013). Maureen et al. stated. (2018) that literacy is the key to early childhood and the foundation for them to learn reading, writing, and other academic fields. Literacy is also referred to as literacy which is interpreted as literacy, recognizing writing, and being able to read writing (Yusro, 2015).

Early literacy is a basic skill for a child's early ability to read and write (Abrahams et al., 2015). The development of children's early literacy begins when the child is born and continues until the child enters school. In developing early literacy in children, an environment, role models, and facilities are needed that stimulate the development of children's early literacy (Fitria, 2021).

Literacy is expressed as children learning about knowledge and skills using signs and symbols to communicate through interaction with facilitated media tools and social-cultural support (Piatykop et al., 2022). Furthermore, literacy in Widuroyekti et al. (2017) stated that children's learning experiences are to explore their abilities through various children's skills. Literacy ability is one of the critical language skills taught to children from childhood which involves listening, speaking, reading, and writing activities (Izzah et al., 2020). The opinion of Mowafi and Abumuhfouz (2021) that literacy skills continue to be developed, including their application to children aged four and five years as a basis for developing literacy in the future.

Several studies confirm the ability to read in early childhood development. Neumann et al. (2017) revealed that early reading could be taught programmatically to preschoolers. Thus, paying attention to complete, meaningful words in the child's context and teaching materials are conveyed through interesting games and

activities. Rahayu et al. (2022) that literacy skills include 1) recognizing letter shapes, 2) introduction of linguistic elements, 3) recognition of the relationship/correspondence of spelling and sound patterns, and 4) reading speed is slow. Reading also trains children to recognize literacy from an early age. Thus, literacy skills, both orally and in writing, are basic abilities that must be possessed by every child (Jeti & Manan, 2022).

3. *Basic Literacy Competence*

Basic competence of literacy language according to the regulation of the minister of education No 160 of 2014, which essentially means PAUD is obliged to implement the 2013 PAUD curriculum. in the management of PAUD implementation, which is a reference in the development, implementation and evaluation of the PAUD curriculum (Busron & Rachmi, 2020; Permendikbud, 2013). Basic Competencies and Competency Targets can be seen in Table 1.

**Table 1. Basic Competencies of Early Childhood Literacy 5-6 Years**

No.	Age	Kompetensi Dasar (KD) KD Pengetahuan dan Keterampilan	Target KD
3.12	5-6 years	Recognizing early literacy through play	Recognizing early literacy through play
4.12		Demonstrate early literacy skills in various forms of work	Demonstrate early literacy skills in various forms of work

Basic Competencies (KD) which are used as guidelines, can be used and practiced by teachers in the learning environment, which can be applied and practiced by teachers in the learning environment. Table 1 provides clear information that getting to know literacy can be done by intermediary learning media. One of them is children's play media and exhibitions of works that can be taught to children. Currently, these learning media can be integrated with digital-based technology (Fitria, 2021). This is done to motivate students to achieve learning goals in class (Febiharsa & Djuniadi, 2018).

Achievements in introducing basic literacy in early childhood can be described through key indicators for teachers to know so that they can be presented in Table 2 below (Permendikbud, 2013).

**Table 2. Indicators of Achievement in the Development of Children aged 5-6 Years**

No.	Indicators of Early Childhood Development Achievement 5-6 Years
1	Mention familiar letter symbols
2	Recognizing the sound of the initial letters of the names of objects in the vicinity
3	Name a group of pictures that have the same sound/starting letter
4	Understand the relationship between sounds and letterforms
5	Read your own name
6	Write your name
7	Understanding the meaning of words in the story

Children's literacy ability is an ability which in its application aims to develop

skills, obtain information, and get used to reading and writing skills (Listriani et al., 2020). Introducing children to letters in the alphabet, training children skills in converting letters into sounds, and voicing skills that can be practiced when children learn to read further (Afnida & Suparno, 2020).

Christianti (2015) reveals that there are objectives to introduce literacy, namely: a) introducing children to the letters in the alphabet as sounds or sound signs; b) training children's skills to convert letters in words into sounds; c) knowledge of the letters in the alphabet and voicing skills are mandatory to be practiced in a short time when children learn to read further. Another opinion confirmed by Rahayu et al. (2022) is that the process experienced in reading is in the form of restatement and interpretation of activity, starting from recognizing letters, words, expressions, phrases, sentences, and discourses and connecting them with sounds and their meanings.

#### 4. *Introduction to Literacy through digital literacy-based media*

The stages in the introduction of literacy are important to know how best teachers and parents can contribute to implementing what is described by Izzah et al. (2020) below:

##### 4.1. The stage of the emergence of an awareness of writing.

Children begin to learn to use books and realize that books are important;

##### 4.2. The stage of reading the picture.

The child has been able to see himself as a reader and begins to involve himself in reading activities, pretending to read a book, and giving meaning to pictures;

##### 4.3. Reading introduction stage.

Early childhood has been able to use three language systems, such as phonemes (sounds of letters), semantics (the meaning of language), and syntax (rules of words or sentences) together;

##### 4.4. Fluency reading stage.

Children can read various types of books and materials related to letter recognition fluently.

Meanwhile, according to Fatayati and Karlina Ningsih (2020), namely: 1) The fantasy stage (magical stage), children learn using books. Children think that books are important, turn the books and bring their favorite books; 2) The self-concept stage, the child sees himself as a reader and begins to involve himself in reading activities, pretending to read a book, giving meaning to pictures, and using the language of the book even though it does not match the writing; 3) In the picture reading stage, the child becomes aware of the visible print and can find words that are already known, can express words that have meaning by themselves, can repeat the written story, and recognize the alphabet; 4) In the reading recognition stage (take-off reader stage), children begin to use three sign systems (graphophone, semantic, and syntactic) together. Children are interested in reading, begin to recall, try to recognize signs in the environment, and read various signs.

Current technological developments can support the advancement of various information. This is very much needed in the world of education. So that it can be synergized between technology and learning information in the form of material content as a tool or technology-based learning media. This must be done to turn boring and monotonous learning into educative and fun learning based on digital literacy, such as through games or interactive media that are easy to understand for children (Fitria, 2021).

Learning has now shifted to allowing children to study at home without having to go to school daily (Kuhfeld et al., 2020). Digital-based learning has been implemented to meet the needs of early childhood education, including its impact since Covid-19 (Prayoga & Muryanti, 2021). However, this is widely disputed by education practitioners because it can have a negative impact when children have to study for a long time with the help of internet access without substantial assistance and direction from teachers and parents (Drigas et al., 2015). Several studies have tried to review this, looking at children's responses at the beginning of the year in a new learning environment (Piatykop et al., 2022). The interactivity of children and teachers in learning literacy applies digital text-assisted learning media on touch screen tablets by manipulating content on the screen. These activities can interact in a more or less supportive way with dialogue around the story. Research has shown that children's attention to learning can be diverted by using digital media (Oakley et al., 2020).

Another study by Habibah, Hasibuan, and Setyowati (2021) applied the use of audio-visual game media or ICT-based learning, showing that the effectiveness of digital literacy in learning is very influential in increasing the ability to express language in early childhood significantly. Research by Sari et al. (2020) digitizing sandpaper letters media can be used as a variation of Montessori-based learning media to improve early literacy skills. The application can help increase the completeness of early literacy skills, including imitating thickening letters, imitating writing letters, and pronouncing letter sounds. Listriani et al. (2020) showed that children's literacy skills that emerged in the application of the Spalding method were the children's ability to master letter and word knowledge, basic writing skills, and interest in writing. The Spalding method in Indonesia based on limited online searches, the Spalding method in Indonesia has not been widely used.

##### 5. *Advantages of digital literacy-based media*

The advantages of digital literacy-based learning media provide opportunities for children to participate actively in learning. Digital literacy-based media can also be applied to autistic children to learn letters with the help of interactive elements and augmented reality enhancement (Piatykop et al., 2022). Digital literacy-based learning media can be referred to as interactive multimedia, with visual, animation, video, audio, and colorful displays that can be integrated into learning media combined with material content according to the needs of children so that they are



interested and motivated in learning (Nurdin, 2020). Integrating literacy-based visual and audio learning systems does not burden the limited working memory capacity of autistic children, so interactive multimedia is an alternative to assist in learning with autism split attention (Mahayuddin & Mamat, 2019).

Various research results, students who are good at utilizing digital literacy benefit because they have more sources of information and tend to have exemplary achievements in the learning process (Lestari & Santoso, 2019). Digital literacy is a form of independent learning (Kurnia & Astuti, 2017; Nahdi & Jatisunda, 2020). So that students can access various learning resources independently. Excellent learning resources can be accessed by students anywhere and anytime (Irhandayaningsih, 2020; Nahdi & Jatisunda, 2020).

#### 6. *Disadvantages of digital literacy-based media*

Overall, digital literacy-based learning media that can be utilized by early childhood through various application modes only aim to teach the basics of numbers and letters in early literacy (Fitria, 2021). Drill-and-practice style (Gunawan et al., 2020), in children with low levels of thinking skills, thus encouraging rote learning, cannot contribute to a deeper conceptual understanding of certain concepts (Papadakis et al. , 2018).

### **Conclusion**

Practically, digital literacy-based media has been applied in the early childhood learning environment. The various integrations in using literacy-based media are generally audio-visual, such as Android-based media and game applications, to introduce children's literacy learning. Several studies have shown that digital-based media help preschoolers advance in spelling skills, and parents can support children's enjoyment of reading by engaging in digital experiences. Teachers and children show a positive attitude to the developed application, and support proper interaction by adding more multimedia components to the learning object.

The contribution of this research is expected to encourage the digital literacy level of teachers as children's facilitators to be literate in using information technology in their professional activities. Literacy practices are interwoven in daily activities through the family, guided by the rules and values of parents. So that parents can identify various skills and knowledge possessed by children in utilizing digital-based media. The next research can review based on the responsible attitude of early childhood and parents in digital literacy practices that are applied at home.

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