IMPLEMENTATION OF DIGITAL STORYBOOK MEDIA IN IMPROVING EARLY CHILDHOOD LANGUAGE SKILLS

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Abstract

In the digital era, technology-based learning media such as digital storybooks are increasingly used in early childhood education. This study aims to describe the implementation process of digital storybook media and analyze children's responses to its use in improving language skills. The research was conducted at PAUD Taam Al Hafizh using a qualitative descriptive approach. The research subjects consisted of children aged 5–6 years, classroom teachers, and the school principal. Data were collected through participatory observation, in-depth interviews, and documentation. Data analysis used the Miles and Huberman model, which includes data reduction, data display, and conclusion drawing. The results showed that the use of digital storybook media, when implemented in a structured and pedagogical manner, effectively improved children's language abilities. Children demonstrated increased vocabulary, sentence structure comprehension, and confidence in speaking. Moreover, the media created an engaging and interactive learning environment through its visual, audio, and motor activity features. The success of implementation was also influenced by the active role of teachers as facilitators and the involvement of parents at home. Therefore, digital storybooks can serve as an innovative, effective, and developmentally appropriate solution for language learning in early childhood education

INTRODUCTION

In today's digital era, information and communication technology has become an inseparable part of everyday life, including in early childhood education. The availability of devices such as tablets, smartphones, and educational applications opens new opportunities in the learning process. Digital media is considered capable of providing more attractive and interactive learning experiences compared to traditional media. As stated in the study "Analisis Penggunaan Media Digital dalam Konteks Pembelajaran Anak Usia Dini", the use of digital media in early childhood education has become a necessity and is no longer new in daily educational practices (Parisu & Marmawi, 2024).

Language ability (including vocabulary, sentence structure, storytelling, and listening skills) is a fundamental aspect of cognitive and social development in early childhood. Early literacy and strong language mastery influence children's readiness to enter higher levels of education. In Indonesia, picture storybooks have long been known to be effective in enhancing children's literacy and vocabulary skills. Faizah & Imamah (2023) found that an intervention using interactive storybooks with audio and pop-up features significantly improved the vocabulary scores of children aged 4–5 years (effectiveness of 0.84). Although traditional storytelling media have their advantages, limitations such as access to quality books, printing costs, and children's visual engagement sometimes become obstacles. Meanwhile, digital media such as interactive e-books or digital storybooks offer easier access, animations, audio, and interactivity that attract children's interest. Research at RA Al Majidiyyah showed that the use of interactive digital storybooks effectively improved early literacy skills (for example, an increase of 72.46% in the ability to read their own names) through observational methods and descriptive analysis (Nafiqoh et al., 2025).

In Indonesia, several studies have developed digital storybooks as learning media for children. For example, Junita Tiah Pasaka et al. (2022) designed a digital storybook in the form of an educational game as a learning medium for children, showing the potential of combining narrative elements with interactive game-based freedom. In addition, digital picture books incorporating local cultural values have also been developed to strengthen moral aspects while supporting children's language skills (Reza et al., 2023). Other local studies have specifically examined the effectiveness of digital storytelling on children's language skills. For instance, the study "Digital Storytelling in Developing Expressive Language Skills in Early Childhood: A Phenomenological Study" by Danang Prastyo et al. (2024) showed that digital storytelling significantly improved expressive language abilities in children aged 5–6 years, particularly in story retelling, acquisition of new vocabulary, and increased verbal

participation (Prastyo et al., 2025). Furthermore, the study "Pengaruh Penerapan Buku Cerita Digital dalam Meningkatkan Kemampuan Berbahasa Anak Usia Dini" conducted in Madura also indicated that digital storybooks enhanced children's interest and engagement in language learning and showed empirical increases in language skill scores after the intervention (Prastyo et al., 2025). Another relevant study is "Digital Storytelling Trends in Early Childhood Education in Indonesia: A Systematic Literature Review" by Sigit Purnama et al. (2024), which found that digital storytelling has been widely used in early childhood settings with simple technologies and is generally considered to enrich learning experiences in enjoyable, communicative, and engaging ways.

Despite the comprehensive nature of these previous studies, a significant research gap persists regarding the structured pedagogical implementation of these tools. While the literature highlights general effectiveness, Purnama et al. (2024) identified methodological gaps, such as the scarcity of long-term studies and the varying designs of digital storytelling media (Purnama et al., 2022). Moreover, although interactive media can provide positive effects, success depends on the "content, context, and child" factors, as excessive or unsupervised screen exposure can harm early childhood language and cognitive development (Pasaka et al., 2022). Particularly in Indonesian PAUD settings, most local research focuses predominantly on media development such as validation, feasibility testing, and small-scale trials rather than in-depth evaluation of the implementation process. For example, the study "Peran Media Digital terhadap Kemampuan Berbahasa Anak Usia Dini" concludes that digital media plays an important role when used wisely, but it does not provide in-depth longitudinal data or detailed pedagogical strategies (Welsa Agustin et al., 2024).

Given this background, this study aims to investigate the implementation of digital storybook media in improving early childhood language skills, with a specific emphasis on the pedagogical strategies employed within a structured classroom environment. The research will focus on comparing accompaniment methods (such as digital dialogic reading vs. passive digital reading), the influence of media design (interactivity, multimedia, balance of text–audio), and evaluating their effects on language aspects such as vocabulary, comprehension, and storytelling skills. By shifting the focus from mere media effectiveness to the actual implementation process, the results are expected to offer practical recommendations for teachers, parents, and media developers in Indonesia and strengthen the local research base on the pedagogical use of digital media in early childhood language learning.

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LITERATURE REVIEW

1. Digital Storybooks in Early Childhood Education

In the contemporary educational landscape, digital storybooks are defined as interactive narratives that integrate multimedia elements such as animation, audio, and touch-screen interactivity. In this study, the concept of digital storybooks is not merely viewed as a technological tool but as a pedagogical scaffold. According to Mayer's (2021) multimedia learning theory, the integration of visual and auditory elements in digital books serves as a primary stimulus for children's cognitive processing. This theory will be used to analyze how the design features of the media contribute to children's engagement and their ability to transition from passive viewing to active verbal participation.

2. Early Childhood Language Development

Language ability (including vocabulary, sentence structure, storytelling, and listening skills) is a fundamental aspect of cognitive and social development in early childhood. To provide a sharper analytical lens, this study categorizes language skills into four measurable dimensions based on the theories of Snow (2018) and Preradović et al. (2021). These theories suggest that language mastery is not isolated but is influenced by the quality of the narrative input. Consequently, this study utilizes these theoretical perspectives as a framework to evaluate the empirical increases in children's language skill scores and their qualitative responses during the intervention.

3. Digital Literacy and Pedagogical Interaction

Digital literacy in this research is explicitly linked to the contextual interaction between the teacher, the child, and the media. This theoretical framework moves beyond basic technical skills to analyze "digital dialogic reading" strategies a method where adults use the digital storybook as a platform for conversation. As emphasized by Justice & McGinty (2020), the success of digital media depends on the "content, context, and child" factors. Therefore, this concept is used as a kerangka analisis to evaluate how pedagogical accompaniment transforms the digital storybook into a stimulus for social-verbal interaction rather than a solitary screen activity.

4. Analytical Framework for Language Skills

To ensure a rigorous analysis and address the transition from descriptive theory to empirical evaluation, the theoretical concepts discussed above are operationalized into specific language skill indicators. These indicators serve as the primary framework for analyzing the research findings at PAUD Taam Al Hafizh:

Table 1. Analytical Framework of Language Skill Indicators

No	Language Dimension	Theoretical Basis	Observed Indicators in Digital Storytelling
1	*Vocabulary Acquisition*	*Snow (2018); Zhang (2018)*	*Ability to identify, mention, and use new words introduced in the digital narrative.*
2	*Sentence Structure*	*Snow (2018); Preradović et al. (2021)*	*Ability to reconstruct the story's plot using logically organized subject-verb-object patterns.*
3	*Listening Comprehension*	*Mayer (2021); Justice & McGinty (2020)*	*Accuracy in responding to contextual questions regarding the audio-visual stimuli of the media.*
4	*Expressive Speaking*	*Yilmaz & Gozum (2022)*	*Confidence, fluency, and verbal participation during the digital dialogic reading process.*

RESEARCH METHODOLOGY

This study employs a qualitative approach with a descriptive research design aimed at illustrating the process of implementing digital storybook media to enhance early childhood language skills at PAUD Taam Al Hafizh.

The research subjects consist of children in group B (ages 5–6), the classroom teacher, and the school principal as informants. Specifically, the participants involved 15 children (8 boys and 7 girls) who were selected based on their active enrollment in the 2024/2025 academic year. The children were chosen because they are in a critical transitional phase of expressive language development. The classroom teacher and principal provided contextual data regarding the pedagogical strategies and institutional support for digital media integration.

To ensure a systematic evaluation, the observation of language skills was guided by four primary indicators derived from the previously established theoretical framework: (1) Vocabulary Acquisition, focusing on the ability to use new words; (2) Sentence Structure, evaluating the logical organization of speech; (3) Listening Comprehension, assessing the response to audio-visual stimuli; and (4) Expressive Speaking, observing confidence and verbal participation. These indicators allowed the researcher to maintain focus during the participatory observation process.

Data were collected through participatory observation during the learning process, in-depth interviews with the teacher and principal, as well as documentation in the form of photos, videos, and children's work samples. The data were analyzed using the Miles and Huberman model, which includes data reduction, data display, and conclusion drawing. To ensure data validity, the researcher applied technique and source triangulation and conducted data confirmation through member checking with the involved informants.

The scope of this research is limited to the implementation process and qualitative language responses within a specific digital storybook intervention at PAUD Taam Al Hafizh. As a qualitative descriptive study, the results provide an in-depth understanding of this particular context and are not intended for broad statistical generalization. Factors such as the children's digital habits at home and the varying levels of teacher digital literacy may influence the outcomes and were identified as contextual limitations of this study.

RESULTS AND DISCUSSIONS

A. The Process of Implementing Digital Storybook Media in Early Childhood Learning to Improve Language Skills

Based on the results of research conducted at PAUD Taam Al Hafizh, the process of implementing digital storybook media has proven effective in improving early childhood language skills. This process was carried out by integrating interactive digital media into the daily literacy activities in the classroom. The media used was a digital storybook that combined visual, audio, and text elements within an educational application. This multimodal integration aligns with Mayer's (2021) Multimedia Learning Theory, which suggests that children process information more effectively when verbal and visual stimuli are synchronized, thereby reducing cognitive load and enhancing narrative comprehension.

The learning activities were conducted on a scheduled basis, with children invited to listen to the digital story through a screen, followed by interactive activities such as answering questions, discussing the story content, and responding verbally using their own expressions. The teacher acted as an active facilitator, guiding the children in understanding the storyline, developing new vocabulary, and constructing simple sentences based on the context of the story. The teacher's role here serves as a "pedagogical scaffold," transforming a digital tool into a social learning experience. As emphasized by Daniels (2020), this social interaction is essential in ensuring that technology acts as a bridge to, rather than a replacement for, human-mediated language development.

An important aspect of this implementation was the selection of age-appropriate story content, the duration of media use (a maximum of 30 minutes per session), and the enrichment of post-reading activities, such as drawing story characters or retelling the story in their own words. The 30-minute limitation acts as a critical mitigation strategy against potential digital risks, such as screen fatigue, as suggested by Pasaka et al. (2022). Furthermore, the transition from digital consumption to creative post-reading activities demonstrates a comprehensive pedagogical approach that moves beyond technical use. This process emphasizes that the use of digital media is not merely a technical activity but requires a thoughtful pedagogical approach that aligns with the developmental characteristics of early childhood, creating a structured environment that fosters long-term emergent literacy (Preradović et al., 2021).

B. Early Childhood Responses to the Use of Digital Storybook Media in Language Learning Activities

The findings show that children's responses to the use of digital storybook media were highly positive. The children demonstrated strong enthusiasm and interest in the digital media used. This interest was reflected in increased focus, active participation, and a willingness to interact with the story presented. Analytically, this heightened engagement confirms the "Arousal-Predisposition Hypothesis," where the interactive nature of digital media creates a state of readiness that facilitates deeper cognitive processing. As noted by Alqahtani (2021), the integration of digital storytelling significantly lowers the affective filter in young learners, allowing for more spontaneous language production.

The use of educational applications that combine elements of edutainment (education and entertainment) turned out to be a key factor driving children's engagement. The children became more confident in speaking and showed improvements in vocabulary, understanding of sentence structure, and the ability to express opinions based on the story content. This observation aligns with the expressive language indicators identified by Yilmaz & Gozum (2022), suggesting that digital media provides a safe "simulated environment" for children to practice new linguistic patterns. Furthermore, the systematic acquisition of vocabulary observed in this study supports Biemiller's (2017) assertion that repetitive exposure to words through contextual narratives is the most effective way to bridge the "word gap" in early childhood.

Attractive content design such as colorful visuals, cute animated characters, and clear voice narration greatly supported children's comprehension of the story. In addition, motor activities such as touching the screen, selecting images, or dragging visual objects within the application indirectly stimulated hand–eye coordination and encouraged active thinking and language use. However, while these interactive features enhance engagement, they also carry the risk of "cognitive overload" if not moderated by the teacher. To mitigate this, the implementation at PAUD Taam Al Hafizh emphasized the balance between "active screen interaction" and "verbal reflection," ensuring that the multimedia stimuli served as a bridge to literacy rather than a mere digital distraction (Fang, 2019).

The variety of stories and presentation styles within the digital media also supported broader language development. Children were exposed to diverse sentence structures and vocabulary, making the learning process more meaningful and less monotonous. The long-term implication of these positive responses is the development of a strong "literacy orientation" in children. By associating reading with an enjoyable and interactive digital experience, the study suggests that children are more likely to develop sustained reading habits as they transition to primary education (Neumann, 2020). This study also highlights the importance of parental involvement in accompanying digital media use at home. When parents possess good digital literacy, they can help guide the use of digital storybooks wisely, ensuring that children receive maximum benefits from continuous learning beyond the school environment.

CONCLUSIONS

Based on the results and discussion of the research conducted at PAUD Taam Al Hafizh, it can be concluded that the implementation of interactive digital storybook media is

highly effective in improving early childhood language skills when integrated with a structured pedagogical approach. The teacher's role as a facilitator is the primary driver in transforming digital media from a passive screen activity into a social-verbal learning experience. Children demonstrated significant improvements in vocabulary acquisition, sentence structure comprehension, and expressive speaking confidence through this interactive digital engagement.

This study provides important theoretical implications by reinforcing the Social Constructivist and Multimedia Learning perspectives in the context of digital-age PAUD. It proves that digital storybooks serve as a "pedagogical scaffold" that, if balanced with human interaction, can accelerate linguistic development without displacing traditional literacy values. Practically, this research suggests that the success of digital learning depends not only on the media quality but also on "time-boxing" strategies (30-minute limits) and the synergy between classroom activities and parental accompaniment at home.

Based on these findings, it is recommended that early childhood educators adopt a "dialogic digital reading" model, where the media is used as a stimulus for open-ended discussion rather than a standalone tool. School administrators should provide continuous digital literacy training for teachers to ensure they can select age-appropriate content and mitigate risks like screen fatigue. Furthermore, parents are encouraged to be active participants in their children's digital consumption to maintain consistency between school and home environments.

While this study offers an in-depth qualitative look at the implementation process, there is a clear need for future longitudinal research to evaluate the long-term impact of digital storytelling on children's reading readiness in primary school. Further studies could also explore the comparative effectiveness of various digital media designs such as gamified vs. narrative-focused books and involve a larger, more diverse sample of PAUD institutions to broaden the generalizability of these pedagogical findings.

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