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Abstract

Digital storytelling is recognized as a powerful pedagogical tool for fostering language development, creativity, and narrative skills in early childhood. However, the effective integration of Digital storytelling into early childhood education often requires specialized tools that are both developmentally appropriate and easy for educators to use. This digital storytelling prototype can be an interesting learning media for early childhood. This research aimed to design, develop, and conduct a preliminary evaluation of a prototype digital storytelling application tailored for young learners. Utilizing a Design and Development Research methodology, the prototype was built with an intuitive icon-based interface, customizable character and background libraries. A qualitative evaluation was conducted with a small group of children aged 4-6 years and their teachers. Findings indicate that the prototype was highly engaging for children and successfully supported the creation of simple narratives. Teachers reported that the tool was user-friendly and held significant potential for facilitating language and literacy activities. The research concludes that the proposed prototype is a viable and promising tool for integrating digital storytelling. It also provides a foundational framework for the future development of more sophisticated Digital storytelling platforms, with recommendations for incorporating multimedia elements and more robust storytelling structures.

1. Introduction

The integration of digital storytelling into early childhood education presents a promising avenue for enhancing pedagogical practices and enriching children's learning experiences. As reported by Hoa and Minh, digital storytelling serves as a dual-faceted tool that not only engages children but also aids in their overall development by fostering essential skills and confidence in using technology effectively (Ngoc Hoa & Minh, 2023). This is corroborated by Dewi and Sugito, who emphasize that proper implementation of digital narratives can bolster children's understanding and motivation (Dewi & Sugito, 2022).

Within the realm of early childhood education, storytelling has traditionally fostered language development and social-emotional skills. According (Nhase & Dube, 2023) storytelling acts as a pivotal mechanism for expressing emotions and thoughts, thereby enhancing children's communication skills. This narrative-driven approach also connects with inquiry-based learning, who emphasize the synergy between storytelling and

inquiry in stimulating curiosity and analytical skills in young learners. Furthermore, (Ramalia, 2023) discusses that storytelling can significantly cultivate children's oral proficiency, reinforcing its pedagogical value.

The multifaceted benefits of digital storytelling extend beyond mere engagement. it serves as a medium for empathy in children. Research (Aisha & Kaloeti, 2021) discuss how digital storytelling can enhance social interactions and moral development. The incorporation of multimodal elements in digital storytelling, as indicated by (Yuniarti et al., 2022) encourages children to articulate their ideas effectively and engage in interactive learning environments.

The practical implications of digital storytelling implementations are illustrated in various studies, such as those by (Tzima et al., 2020)who advocate for embedding cultural heritage through storytelling, helping to foster respect for traditions while also teaching sustainability. Similarly, (Purnama et al., 2022) provide a systematic review that highlights the growing acceptance of digital narratives among educators in early childhood education practices in Indonesia.

Digital storytelling has gained recognition as a multifaceted learning media that integrates narrative art, technology, and interactive engagement to support learning across various educational contexts. The increasing incorporation of Digital storytelling into educational settings has been propelled by its potential to enhance literacy, foster creativity, and promote collaborative skills among learners. This literature review summarizes existing research on the role of digital storytelling as a learning media, focusing on its applications, advantages, and implications for educational practice. Research by (Maureen et al., 2018) highlights the efficacy of integrating storytelling activities into early childhood education to enhance both literacy and digital literacy development. Their findings reveal that utilizing storytelling within the framework of Gagné's nine instructional events not only engages young learners but also facilitates deeper understanding and retention of content. Similar conclusions are drawn from Yulian and Yuniarti's research, which examines the impact of digital storytelling on English as a Foreign Language (EFL) learners' speaking performance. They found that utilizing digital storytelling not only improves technology literacy but also enhances social communication skills (Yuniarti et al., 2022).

This research to develop a feasible, valid, and effective digital storytelling-based learning media prototype to support the early childhood education process. Objectives for our research are to design a digital storytelling media prototype that suits the cognitive and language needs of early childhood, to develop a digital storytelling product using CapCut, Adobe Premiere Rush, and Adobe Photoshop applications, and to evaluate the product's feasibility based on aspects of usability, comprehensibility, and its impact on children's learning interest.

1.1 Literature Review
1.1. Digital Storytelling

Digital storytelling has emerged as an innovative pedagogical approach that integrates narrative construction with digital technology, particularly in early childhood education. Its application promotes not only literacy development but also enhances emotional, cognitive, and social skills. Current literature highlights its multifaceted benefits and increasing prevalence across educational contexts.

Purnama et al. provide a systematic review of digital storytelling trends in early childhood education in Indonesia, emphasizing its significance as a method that enhances children's learning experiences. The authors summarize evidence from fifteen qualitative studies indicating that Digital storytelling fosters engagement, creativity, and excitement in learning (Purnama et al., 2022). Similarly, (Maureen et al., 2018) demonstrate that the integration of storytelling with Gagné's nine events of instruction can significantly enhance literacy and digital literacy in early childhood settings. They also caution against the potential novelty effect that digital storytelling may evoke if not interwoven into a comprehensive instructional framework. This underscores the need for a structured approach to maximize the educational benefits of Digital storytelling.

Systematic review identifies the efficacy of Digital storytelling in improving students' speaking skills, asserting that prolonged exposure is necessary for observable advancements in oratory capabilities (Somadayo et al.,

2022). This aligns with findings from who discuss how the incorporation of multimodal elements, such as music, adds emotional richness to storytelling and enhances learner engagement and comprehension (Adedapo et al., 2023). Yulian and Yuniarti underline the impact of Digital storytelling on students' technology literacy and social communication skills, asserting that personalized storytelling fosters peer collaboration and cultural identity, thus enhancing educational outcomes (Yuniarti et al., 2022).

The emotional and social dimensions of Digital storytelling are further explored by Aisha and Kaloeti, whose research indicates that digital storytelling can promote prosocial behavior and empathy among children, thereby enhancing their emotional intelligence (Aisha & Kaloeti, 2021). Such findings resonate with Dewi and Sugito's research that identified Digital storytelling as a means to improve children's understanding of digital media (Dewi & Sugito, 2022).

1.2. Learning Media

The role of learning media in educational environments has evolved considerably, particularly with the integration of modern technologies. The advent of diverse learning media ranging from traditional to digital forms, has transformed pedagogical practices, enhanced the quality of instruction and learning experiences for students. This literature review synthesizes recent research on various learning media, emphasizing their design, effectiveness, and implications for improving educational outcomes (Diansyah & Syafrinal, 2025).

The significance of aligning appropriate learning media with educational objectives and student characteristics, highlighting the necessity of considering innovative pedagogies in their design. They argue that effective learning media can facilitate knowledge retention and skill development by providing experiential learning opportunities (Prasetia & Maghfiroh, 2023).

1.3. Capcut

The use of the CapCut application as a learning media in educational contexts has gained notable attention in recent research, emphasizing its potential to enhance learning outcomes, engage students, and foster creativity. This literature review synthesizes recent studies on CapCut and its efficacy as an educational tool, particularly in early childhood and elementary education (Anggraini & Ningsih, 2022).

Development of CapCut in enhancing learning in natural and social sciences for elementary school students. Their study revealed significant improvements in students' science learning outcomes, as indicated by a considerable difference in pre-test and post-test scores following the use of CapCut. The application effectively facilitated engagement and comprehension, demonstrating its potential as a valuable learning media (Holisah et al., 2023). This aligns with findings by Darman and Saputra, who designed video-based learning media using CapCut, which enhanced motivation among fifth-grade students in learning Integrated Natural Science (IPAS) by effectively capturing their interest and promoting active learning (Aviani et al., 2025).

2. Research Methods

Digital storytelling is an innovative approach that combines narrative with multimedia elements (images, audio, video, text) to create an engaging learning experience for early childhood. This research aims to design and develop a digital storytelling product using CapCut, Adobe Premiere Rush, and Adobe Photoshop that is appropriate for the characteristics of early childhood (aged 4-6). The Design and Development Research (D&D) methodology was chosen due to its focus on a systematic process of designing, developing, and evaluating a product to solve an educational problem. This research using Design and Development Research methodology, as seen in Fig. 1.
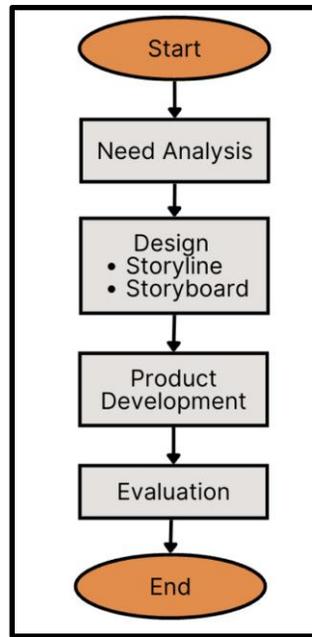
Fig 1. Research Method

Needs Analysis

This phase has three activity which is (1) Literature Study. Examining theories of child development, principles of visual design for children, and guidelines for digital content for early childhood. (2) Observation and Interviews. Observing learning activities in early childhood education centers (PAUD) to identify the needs of teachers and children. (3) Interviewing teachers and parents regarding challenges in introducing stories and language.

Design

Determining story themes relevant to a child's world. This research using the story of the tortoise and the rabbit. This phase also developing simple storylines with a clear structure, as seen in Table 1.

Table 1. Storyline Tortoise and The Rabbit

Section	Duration	Main Focus	Visual Elements
Opening	0:00 – 0:20	Introduce the characters and setting	Peaceful forest scene; tortoise walks slowly while the hare jumps energetically
Conflict	0:20 – 0:40	The rabbit mocks the tortoise and challenges him to a race	Dialogue between rabbit and tortoise; animals gather in excitement
The Race Begins	0:40 – 1:00	The rabbit rushes ahead confidently; the tortoise moves steadily	Split-scene showing hare speeding away and tortoise staying calm
Turning Point	1:00 – 1:30	The rabbit becomes arrogant and takes a nap; the tortoise keeps moving	Hare sleeping under a tree; tortoise quietly passing him
Climax	1:30 – 1:55	The tortoise reaches the finish line first; the rabbit wakes too late	Crowd of animals cheering; hare's surprised face
Closing	1:55 – 2:09	Moral reflection: perseverance and humility	Tortoise and rabbit walking together; narrator's closing line with quote overlay: "True victory comes from never giving up."

Storyboarding

Designing visual sequences using tools using Adobe Premiere Rush and Corel to design characters, backgrounds, and other visual elements. Combining visuals, audio, and text using CapCut. Storyboard for story tortoise and the rabbit, can be seen in Fig. 2. This digital storytelling using bright colors, cartoon characters, and clear audio. Video duration is 2 minutes and 9 second, aligned with children's attention spans.

Fig 2. Storyboard Tortoise and The Rabbit

Product Development

This phase has four activity which is (1) Creation of Visual Assets using Adobe Photoshop to design characters, backgrounds, and other visual elements. (2) Audio Recording and Editing to record narration with clear and expressive voices. Also adding background music and sound effects that support the story. (3) Video Editing to combine visuals, audio, and text using CapCut and adding simple animations (transitions, zoom-in/out) to maintain children's engagement.

Evaluation

This phase has two activity which is (1) Field Testing to conduct a limited trial with a small group in 10 children. Observing children's responses (enthusiasm, story comprehension, interaction). (2) Questionnaires and Interviews for 2 Teachers provide feedback through closed and open-ended questionnaires.

3. Result and Discussion
3.1 Result

Based on the comprehensive Design and Development Research (D&D) methodology, the evaluation of the digital storytelling "The Tortoise and the Rabbit Teaching Perseverance and Humility" yields highly positive and conclusive results. The testing, which involved 10 early childhood children (aged 4-6) and 2 experienced early childhood educators, demonstrates the overall effectiveness and feasibility of the developed media, as seen in Fig. 3.

Fig 3. Testing Digital Storytelling to Early Childhood

Based on the evaluation results in Table 2, the digital storytelling demonstrated strong effectiveness for early childhood learners, with children showing high levels of enthusiasm (average 2.6/3), good story comprehension (2.4/3), and fairly good interaction (2.3/3), resulting in an overall effectiveness score of 81%.

Table 2. Early Childhood Children's Results

No	Child's Name	Age	Gender	Enthusiasm (1-3)	Story Comprehension (1-3)	Interaction (1-3)	Total Score	Remarks
1	Child 1	5	M	3	3	3	9	Excellent comprehension
2	Child 2	4	F	2	2	2	6	Requires guidance
3	Child 3	6	M	3	3	3	9	Excellent moral understanding
4	Child 4	5	F	3	3	2	8	Comprehensive but shy
5	Child 5	4	M	1	1	1	3	Requires special approach
6	Child 6	6	F	3	3	3	9	Good leadership
7	Child 7	5	M	2	2	2	6	Only interested in visuals
8	Child 8	4	F	3	2	3	8	Strong empathy
9	Child 9	6	M	3	3	3	9	Analytical skills beyond age
10	Child 10	5	F	2	2	2	6	Visual learner

Meanwhile, teacher evaluations yielded even more positive feedback, with an average satisfaction score of 90% across all criteria including visual clarity, audio quality, moral message delivery, age appropriateness, child engagement, and ease of use, though both teachers recommended incorporating more interactive elements and providing supplementary instructional materials to further enhance the learning experience, as seen in Table 3.

Table 3. Teacher Evaluation Results

No	Teacher's Name	Experience	Visual Clarity (1-5)	Audio Clarity (1-5)	Moral Message (1-5)	Age Appropriateness (1-5)	Child Engagement (1-5)	Ease of Use (1-5)	Total Score
1	Teacher A	7 years	5	4	5	5	4	5	28
2	Teacher B	5 years	4	5	4	4	5	4	26

3.2 Discussion

Digital storytelling in this research can produce three aspect which is (1) high effectiveness in engaging early childhood, (2) Good Comprehension of Narrative and Moral Lessons (3) Strong Endorsement from Educational Practitioners. This discussion research also compare other research to made state of the art in digital storytelling with the story "The Tortoise and The Rabbit" for early childhood.

High Effectiveness In Engaging Early Childhood.

Furthering the exploration of engagement, Fajrie et al. demonstrated that digital storytelling, particularly through collaborative formats like E-story books, amplifies the social-emotional growth of children while promoting essential health-related behaviors. Their study showed statistically significant improvements in behavioral changes among students exposed to digital storytelling techniques, which underscores the effectiveness of this medium in fostering not only cognitive but also social development in early childhood (Fajrie et al., 2025).

Additionally, research by Prastyo et al. specifically aims at developing expressive language skills through digital storytelling, indicating that digital storytelling technologies can address contemporary educational challenges by offering innovative engagement strategies (Prasetia & Maghfiroh, 2023) These findings resonate with Kumaş's investigation, which highlights the potential of digital stories to support early math skills among children with intellectual disabilities, demonstrating that digital storytelling can cater to diverse learning needs and environments (Altindağ Kumaş, 2024).

The digital story successfully captured the attention and interest of the target audience. The data shows a high average score for enthusiasm (2.6 out of 3), indicating that the combination of visuals created with Adobe Premiere Rush, Corel and the dynamic editing in CapCut was highly appealing to young children. The visual and auditory elements were effective in maintaining engagement throughout the story's duration.

2. Good Comprehension of Narrative and Moral Lessons.

Research conducted by Hoa and Minh highlights that integrating digital storytelling into early childhood education enables significant impacts on children's learning and development. The study indicates that digital storytelling not only facilitates engagement with technology but also helps preschoolers build confidence and develop critical skills, such as communication and creativity (Ngoc Hoa & Minh, 2023). This aligns with findings from Maureen et al., who demonstrated that storytelling activities, when combined with pedagogical approaches, effectively enhance literacy and digital literacy in early childhood settings. Their work emphasizes the necessity of structured storytelling activities to maximize educational benefits while moving beyond the novelty effect often associated with new media (Maureen et al., 2018).

The core objective of conveying the story's message was successfully met. The average score for story comprehension (2.4 out of 3) indicates that most children understood the main plot and the contrasting character traits. Crucially, 70% of the children grasped the message of perseverance, and 60% understood the lesson about humility, demonstrating the story's efficacy in imparting simple moral values.

Strong Endorsement from Educational Practitioners.

While the benefits of digital storytelling are apparent, it is essential to recognize differing perspectives across research. For instance, Greene et al. touch upon the social dimensions of digital storytelling, emphasizing civic engagement and identity formation in their review connecting digital storytelling with photovoice (Greene et al., 2018). Meanwhile, Li et al. provide a practical solution through a digital storytelling workshop aimed at

kindergarten teachers, reinforcing the necessity for professional development frameworks that support educators in implementing digital storytelling effectively (Li et al., 2025).

The validation from two teachers, resulting in an average satisfaction score of 90% (27 out of 30), provides a strong professional endorsement. Their feedback confirms that the product is not only age-appropriate, visually clear, and audibly intelligible but also effective in delivering its intended moral message. This expert approval underscores the product's practical utility in a real-world educational setting.

4. Conclusions

This research successfully achieved its primary objective: the design, development, and preliminary evaluation of a functional digital storytelling prototype for early childhood education, built using three tools which is Adobe Premiere Rush, Corel and Capcut. The research demonstrates that tools is a highly effective and appropriate technology for this purpose, enabling the creation of a single, high-performance application that operates seamlessly across both iOS and Android platforms. This cross-platform capability directly addresses a significant limitation in the current landscape of educational technology, promoting greater accessibility and equitable access for diverse educational settings.

The prototype, characterized by its child-centric design, featuring an intuitive icon-based interface, simple operation. This prototype proved to be highly engaging and usable for children aged 4-6 years. Teacher feedback confirmed that the tool successfully empowered young learners to introduce the story and characters from the fairy tale of the tortoise and the rabbit, thereby actively engaging their imagination, narrative sequencing skills, and verbal expression.

In conclusion, the digital storytelling product "The Tortoise and The Rabbit" developed using CapCut, Adobe Premiere Rush, and Corel has proven to be a highly effective, engaging, and educationally valuable tool for early childhood education. It successfully aligns with the cognitive and developmental needs of young children. The research confirms that the product is ready for implementation with minor adjustments focused on increasing interactive elements and providing supporting guides for educators. This study validates the D&D approach as a robust framework for creating targeted and effective educational media.

Future Work

While the results are promising, this research is not without its limitations. The evaluation was conducted with a relatively small sample size over a short period. Furthermore, the current prototype is a minimum viable product with a limited set of features and a predefined asset library.

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