Original Research

Interactive Digital Storybooks: A Personalized Approach to English Learning in Indonesian Primary Schools

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Article Info	Abstract
	In response to the growing emphasis on meaningful and student-centered English instruction in Indonesian primary schools, this study investigates the effectiveness of an Interactive English Story Book in fostering young learners' engagement, motivation, comprehension, and autonomous learning. This study explores the potential and educational benefits of an Interactive English Story Book aimed at improving engagement, motivation, comprehension, and usability for young learners. A mixed-methods approach was utilized to combine quantitative trends with qualitative insights, facilitating a thorough understanding of learning processes. This design was selected to triangulate perceptual data from students and educators within genuine classroom environments. The investigation included 13 fourth-grade students from a suburban elementary school, serving as a phase to assess feasibility and user feedback. Data collection involved the use of student questionnaires, classroom observations, and interviews. The results indicated a high level of engagement, motivation, and usability, as students reacted favorably to the visual and interactive elements. Some minor comprehension challenges were observed in story contexts that were culturally unfamiliar, and educators reported connectivity issues in rural regions. This study presents a unique approach by integrating digital storytelling, English as a Foreign Language pedagogy, and curriculum reform, validated through mixed-method classroom research. This provides foundational evidence for expanding digital storytelling innovations within Indonesia's *Merdeka Belajar* framework and for future longitudinal studies in English as a Foreign Language.

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1. Introduction

English education in Indonesian primary schools continues to encounter structural challenges that restrict student engagement and language achievement (Al-Jarf, 2023). Although English has been introduced early in many institutions, high quality and accessible learning resources remain limited. Teachers frequently rely on rigid textbooks and repetitive exercises that emphasize vocabulary memorization rather than meaning making, while training programs seldom prepare them to implement creative and multimodal instructional strategies (Khairul Anuardi et al., 2022). As a result, many young learners struggle to develop emotional and cognitive connections with English learning, which contributes to disengagement and varied literacy outcomes across schools.

Prior studies have shown that digital storybooks can enhance engagement and motivation in language learning. However, most research has not examined how these tools can be pedagogically designed to support comprehension, vocabulary development, and intercultural literacy in English as a foreign language (EFL) settings (Dhayapari Perumal et al., 2021). Existing literature often discusses digital storybooks in broad terms without addressing how narrative content, audio scaffolding, and interactive tasks can be

aligned with young learners' developmental needs and the sociocultural context of Indonesia. Consequently, a significant gap remains concerning how digital storybooks can be systematically developed and validated as personalized, literacy-oriented tools for Indonesian primary school students who are learning English (Cevikbas and Kaiser, 2022).

In response to this gap, the present study introduces an interactive English storybook, designed as a culturally responsive and pedagogically grounded digital resource to strengthen young learners' English skills (Savva et al., 2022). Unlike conventional models that function primarily as reading aids, this interactive storybook integrates clear English audio narration, curated vocabulary support, comprehension questions, and embedded interactive tasks to enhance language development and cognitive participation. The narrative content blends well-known stories from European and American traditions, such as Hansel and Gretel and The Ugly Duckling (Fatima Mujahid, 2022), with Indonesian folktales like Malin Kundang and Bawang Merah Putih. This cultural integration enables learners to experience global storytelling traditions while preserving cultural familiarity and emotional relevance, creating a bridge between local identity and global understanding.

The design of the interactive storybook draws on multimodal learning theory, which emphasizes the combined use of visual, auditory, and textual elements to support comprehension and memory (Bellon-Harn and John, 2024). It also adopts a literacy-focused approach that uses stories as meaningful tools for language learning. Learners are prompted to read and listen while predicting events, making inferences, and reflecting critically on the narrative. This method fosters higher-order thinking skills and encourages independent learning habits (Astutik and Munir, 2022).

The study advances existing work by shifting attention from digital storybooks as entertainment toward examining their pedagogical effectiveness and cognitive benefits. It proposes a model for developing interactive English resources that align with Merdeka Belajar principles, emphasizing personalized learning, creativity, and learner autonomy (Salim and Hanif, 2021). The findings contribute to a deeper understanding of how multimodal and narrative-based instruction can be effectively contextualized for EFL settings in developing countries. Moreover, this study provides practical guidance for educators, curriculum developers, and digital content designers seeking to cultivate literacy-rich environments that stimulate curiosity, empathy, and communicative competence in young learners (Nugroho et al., 2021). Ultimately, the interactive English storybook represents a meaningful initiative to transform digital storytelling into an enriching learning experience that blends technology, culture, and educational principles to support Indonesian learners in developing confident English literacy while maintaining their cultural roots (Waloyo et al., 2021).

2. Literature Review

Interactive English storybooks increasingly receive recognition as an innovative tool for supporting English language acquisition among primary school learners, particularly in contexts where traditional methods remain limited (Widagsa and Nisa, 2023). This review critically examines how interactive storybooks have been used to foster vocabulary development, reading fluency, and learner motivation, while outlining their strengths and challenges. It also situates digital storybooks within the personalized learning orientation of Merdeka Belajar, highlighting their potential to strengthen student-centered instruction. The discussion is structured into three subsections, namely digital storybooks in language education, personalized learning and interactive digital storybooks, and theoretical foundations for digital storybooks (Bellon-Harn and John, 2024).

2.1 Digital Storybook in Language Education

Digital storybooks, grounded in multimodal design principles, combine text, visuals, simplified English audio, and interactive features such as vocabulary highlights, comprehension checks, and embedded activities (Umar et al., 2023). These features create enriched learning conditions that promote vocabulary growth, reading fluency, and comprehension by engaging multiple sensory channels, which strengthens retention and contextual understanding (Bernacki et al., 2021).

A growing body of research confirms the benefits of interactive storybooks. Multimodality supports attentional focus, meaning making, and word recognition, while interactive tasks such as clickable prompts and quizzes promote active and self-directed learning (Anggarini et al., 2022). Further, gamified pathways sustain motivation and repeated engagement, both of which are crucial for literacy development.

However, limitations remain. Evidence is predominantly drawn from Western or high-income settings, resulting in limited empirical insights from Southeast Asian contexts, including Indonesia (Iwan Fauzi, 2022). Studies often focus on short-term effects such as immediate engagement rather than long-term literacy outcomes and frequently rely on self-report data that may introduce bias (Mustoip et al., 2024).

To enhance linguistic accessibility and maintain cultural relevance, many interactive storybooks draw upon both globally recognized tales and Indonesian folklore. Well-known stories such as *Hansel and Gretel* and *The Ugly Duckling* are presented alongside cherished local narratives like *Malin Kundang* and *Bawang Merah Putih*. Each story is supported with simplified English narration, vocabulary highlights, comprehension questions, and interactive activities. Through these features, learners are able to gradually build essential English skills, practice understanding meaning in context, and engage deeply with diverse narrative traditions, all while enjoying storylines that feel familiar, meaningful, and culturally rich (Sahiruddin and Manipuspika, 2021).

2.2 Personalized Learning and Interactive Digital Storybooks

Personalized learning is an instructional method that customizes education to the unique requirements, abilities, and interests of each student. In the *Merdeka Belajar* framework of Indonesia, personalized learning is characterized by student-centered, flexible, and adaptive learning pathways that enable learners to advance at their own tempo and readiness (Ramdani et al, 2022). In addition to providing immediate feedback, interactive digital storybooks facilitate this approach by providing self-paced reading, adaptive vocabulary assistance, and multimodal engagement. Autonomy and differentiation in instruction are facilitated by learners' ability to revisit challenging sections, concentrate on specific vocabulary items, or participate in optional comprehension tasks (Taylor et al., 2021).

Practical challenges must be taken into account, despite these advantages. Educators may be unable to fully utilize interactive features or align the storybooks with curriculum objectives if they lack adequate training, which is why teacher preparedness is so important (Mahmudah & Kholis, 2023). Access disparities in rural or under-resourced institutions may impede equitable use as a result of limited devices, internet connectivity, or digital literacy skills. Additionally, research illuminates digital equity concerns in developing countries, such as Indonesia, where technology-enhanced learning may inadvertently exacerbate disparities between students with differing levels of access to resources (Crosthwaite et al., 2021). Adaptive and differentiated instruction is also demonstrated by digital storybooks, which enable comprehension queries and vocabulary exercises to be adjusted in accordance with the performance of the learner. Personalized learning experiences that are consistent with both personalized learning principles and *Merdeka Belajar* objectives are facilitated by branching storylines (Al Farid & Damayanti, 2022), scaffolded prompts, and real-time feedback.

2.3 Foundations for Digital Storybooks

The pedagogical effectiveness of interactive storybooks is grounded in well-established learning theories. Vygotsky's sociocultural theory emphasizes the role of social interaction and scaffolding in language development. Interactive storybooks operationalize this principle through guided narration, contextual vocabulary support, and interactive prompts, allowing learners to navigate language tasks with appropriate assistance within their zone of proximal development (Anam & Stracke, 2020). Mayer's cognitive theory of multimedia learning underscores the importance of dual channel processing, which involves integrating visual and auditory information to optimize learning. Simplified English audio narration paired with illustrations and highlighted text enhances comprehension and vocabulary retention while reducing cognitive load, supporting reading fluency (Anggarini et al., 2022).

Self-determination theory highlights intrinsic motivation, autonomy and competence as key drivers of learning. Interactive storybooks foster these aspects through self-paced navigation, gamified challenges and immediate feedback enabling learners to experience a sense of control, competence and engagement. By integrating these theories (Mbato, 2023). Interactive English storybooks provide a robust framework for enhancing vocabulary acquisition, reading fluency, comprehension and motivation. At the same time attention to teacher support access disparities and equity considerations in essential to ensure effective and inclusive implementation across diverse Indonesian primary school contexts (Biantoro, 2020).

3. Method

This study adopted a Research and Development (R&D) approach, aiming to design, develop, and evaluate the Interactive English Story Book as a digital learning resource for primary school students. The R&D methodology allows for the systematic creation of educational tools while simultaneously assessing their pedagogical effectiveness, usability (Hadi et al., 2022), and practicality in real classroom settings (Gall & Borg, 1989). The study focused on exploring how the storybook supports students in developing vocabulary, reading fluency, comprehension, and motivation, while aligning with the principles of the Merdeka Belajar framework, which emphasizes personalized, student-centered, and adaptive learning (Mulyono et al., 2021).

3.1 Research Design

The research was conducted in accordance with a developmental R&D model, which encompassed three primary phases: (1) Design and Development, (2) Expert Validation, and (3) Classroom Trial and Evaluation (Otoluwa et al., 2022). The content and features of the Interactive English Story Book were conceptualised and developed during the Design and Development phase. The storybook combined Indonesian folktales, such as Malin Kundang and Bawang Merah Bawang Putih, with universal children's tales, including Hansel and Gretel. The selection of these stories was based on their cultural and educational relevance, with the objective of fostering cultural awareness, providing moral teachings, and engaging students through the use of familiar narrative structures (Aziz, 2020). The tales were composed in simplified English and accompanied by audio narration in English, thereby guaranteeing accessibility for young learners. Highlighted keywords, contextual illustrations, interactive activities, and comprehension questions were incorporated into each story to facilitate vocabulary acquisition and comprehension (Neti Lastri & Mila Arizah, 2009). Students' engagement and self-directed learning were promoted by gamified elements, including adaptive reading paths and assessments, which promoted active participation and autonomy.

The storybook was evaluated by English language educators, curriculum specialists, and instructional design experts during the Expert Validation phase (Lastri & Arizah, 2020). Validation was conducted to assess the appropriateness of language level, accuracy of vocabulary, clarity of instructions, interactive features, and alignment with learning objectives. The storybook's pedagogical quality and usability were enhanced through iterative revisions, which were informed by feedback from experts. This ensured that the storybook was appropriate for primary school students with a variety of English proficiency levels.

The Interactive English Story Book was implemented in actual classroom settings during the Classroom Trial and Evaluation phase to collect data on student engagement, motivation, comprehension, and usability. Students' interactions with the storybook, navigation of its features, and responses to duties were the primary focus of the observations (Widagsa & Nisa, 2023). Additionally, teacher facilitation was observed to ascertain the instructional strategies and support mechanisms that are necessary for successful implementation. While emphasising the challenges associated with teacher preparedness and digital access disparities, this phase provided practical insights into the storybook's strengths and limitations in enhancing English learning.

3.2 Participants

The classroom trial for this research was conducted at Bina Putra Elementary School, where thirteen fourth-grade students actively engaged in English lessons that included the Interactive English Story Book (Susanto & Arifani, 2023). The school was intentionally selected for its preparedness to incorporate new educational technologies and its experience with digital learning tools, which created an environment that was conducive to the practical implementation of interactive storybooks (Yunita Adriyanti et al., 2022). This context enabled the research to document genuine interactions between students and the digital learning resource in a genuine classroom environment.

Students who consistently engaged with the narrative activities were selected through purposive sampling. This method guaranteed that participants could provide valuable feedback on the storybook's efficacy, including usability, comprehension, vocabulary acquisition, and motivation (Fatsah & Purnama, 2022). The study was able to observe how the interactive features, including audio narration in simplified English, embedded vocabulary tasks, comprehension questions, and interactive exercises, supported learners at varying skill levels, as the selected students represented a diverse range of prior English proficiency.

An English teacher with prior experience in incorporating digital tools into instruction supervised the classroom. The teacher's proficiency was essential for the facilitation of the learning process, the provision of scaffolding when required, and the assistance of students in navigating interactive features (Wensi Alka et al., 2023). This guidance also enabled the research to investigate the practical pedagogical aspects of utilising interactive storybooks in accordance with the Merdeka Belajar framework, not only student responses, but also teacher strategies in mediating digital learning. The objective of the exploratory study was to identify patterns of engagement, comprehension, and motivation that could inform iterative enhancements of the Interactive English Story Book, despite the relatively small sample size (Otoluwa et al., 2022). The findings were the result of the combination of experienced teacher guidance and student diversity, which ensured that they captured meaningful insights into the storybook's adaptability, usability, and effectiveness in primary education.

3.3 Data Collection Instruments

To evaluate the effectiveness and usability of the Interactive English Story Book, the study employed three primary instruments:

- *Student Questionnaires*

The engagement, motivation, usability, and comprehension of the students were evaluated using a Likert-scale questionnaire (1 = strongly disagree, 5 = strongly concur). Three sections comprised the questionnaire: Engagement: the act of engaging with the narrative in order to elicit interest, enjoyment, and attention. Motivation: evaluating the willingness to continue learning with the narrative and self-directed participation. Comprehension and Usability: assessing the simplicity of navigation, comprehension of vocabulary, story comprehension, and completion of interactive exercises. The questionnaire was intended to assess both cognitive and affective components of learning and was derived from validated instruments on digital learning engagement (Barkley, 2020).

- *Classroom Observations*

Regular English lessons were observed for a period of four weeks. They concentrated on the interaction between students and interactive features, such as audio narration, exams, adaptive reading paths, and animations. The observation was guided by the CLASS (Classroom Assessment Scoring System) framework, which captured the efficacy of teacher facilitation and student engagement (Rahmawati & Ambarwati, 2023). Additionally, the responses of students to comprehension questions, vocabulary highlights, and tasks that were integrated into the storybook were documented through observations.

- Teacher Interviews

Semi-structured interviews with the English teacher provided qualitative insights into the integration of the storybook into lessons, instructional strategies, challenges, and suggestions for improvement. Interviews were analyzed using thematic analysis, identifying recurring patterns and perspectives that offered a deeper understanding of pedagogical implications and practical usability (Braun & Clarke, 2022).

3.4 Data Analysis

Descriptive statistics, such as mean scores and frequency distributions, were employed to analyze quantitative data from questionnaires in order to ascertain the overall trends in motivation, usability, and engagement. In order to identify critical insights regarding student interaction with the narrative, the role of teacher facilitation, and the learning strategies employed (Marzuki et al., 2023) Qualitative data from observations and teacher interviews were coded and thematically analyzed. The pedagogical value of the storybook's multimodal features, interactive elements, and personalized learning pathways was captured through the integration of quantitative and qualitative findings, which provided a comprehensive evaluation of its strengths and limitations.

4. Results

This study assessed the efficacy of the Interactive English Story Book in improving student engagement, motivation, comprehension, and usability, as well as its conformity with the *Merdeka Belajar* curriculum (Kurniasih, 2016). Data were collected using questionnaires from students (quantitative), classroom observations, and teacher interviews (qualitative). A mixed-methods approach was utilized to obtain thorough insights from both quantitative trends and contextual classroom experiences.

4.1 Quantitative Result

Quantitative data were obtained from structured questionnaires administered to 13 participants following four sessions of implementation. The survey addressed four primary constructs: engagement, comprehension, motivation, and usability. Each item was evaluated using a five-point Likert scale ranging from Strongly Agree to Disagree. The findings were examined using descriptive analysis and are displayed in Tables 1–5.

Engagement

The quantitative findings reveal that a significant number of students exhibited strong engagement while learning with the Interactive English Story Book. Students expressed robust positive reactions across all three indicators, including their happiness while learning, enjoyment of the story and illustrations, and enthusiasm for the upcoming story.
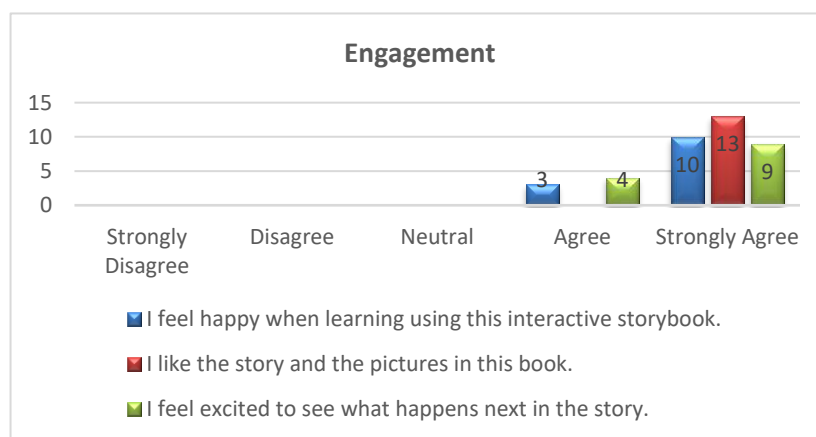

Figure 1. Result of Engagement

Among the 13 students, between 7 and 13 students indicated positive agreement (Strongly Agree or Agree) for each item. All students expressed a definitive stance, with no neutral and negative responses, indicating a consistent endorsement of the digital learning experience.

Comprehension of Learning Material

Students indicated a notable enhancement in their comprehension of English content following their engagement with the storybook. Three indicators were evaluated: vocabulary recognition, story comprehension, and overall content understanding.
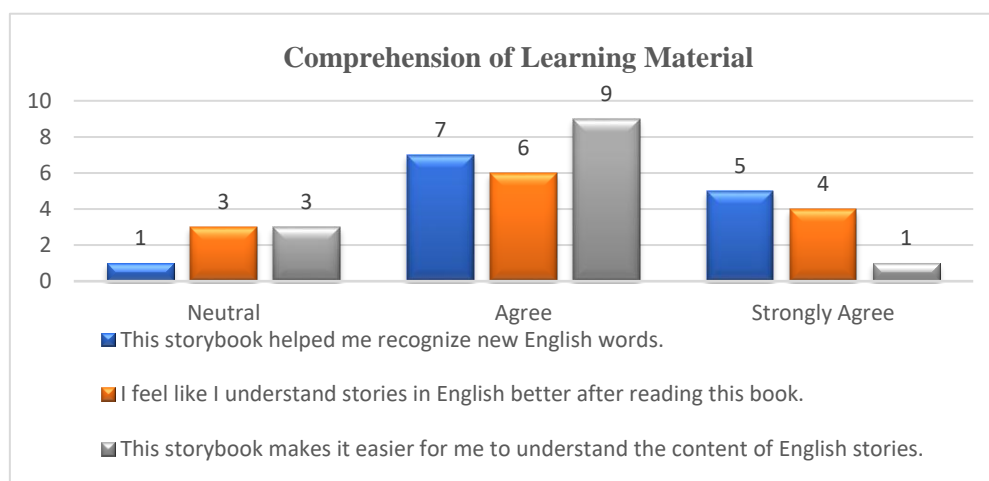

Figure 2. Comprehension of Learning Material

The findings indicate that 10–12 students acknowledged the storybook's positive impact on comprehension and vocabulary development, whereas some students expressed neutrality, citing difficulties with specific words or cultural aspects. The absence of negative responses suggests that comprehension outcomes were generally favorable, though there was some variability in the perceived level of difficulty.

Motivation

Motivation was another area where the storybook excelled. Many students reported feeling more motivated to learn English after using the storybook. Many expressed interest in exploring additional stories, and several students mentioned they preferred this method over traditional classroom exercises. This is indicated by the following questionnaire results.
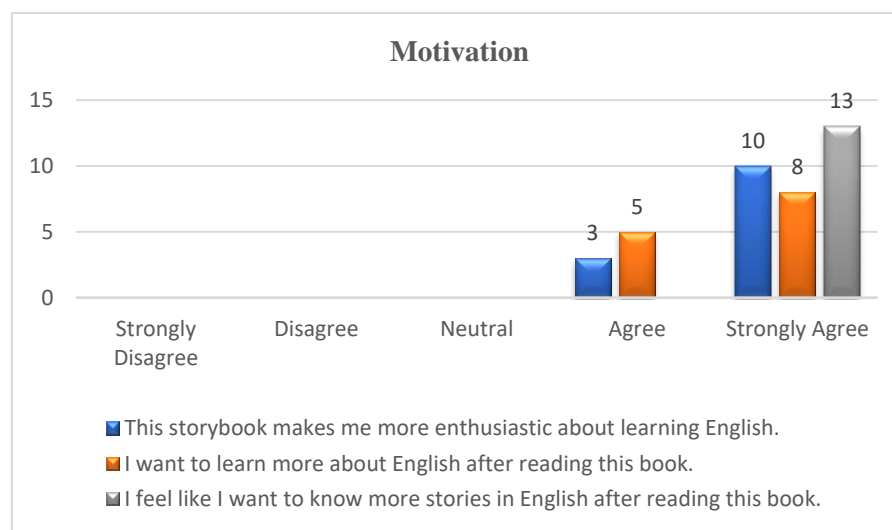

Figure 3. Result of Motivation

The overall assessment revealed that motivation achieved the highest score among all constructs. The consensus among all students was that the storybook heightened their enthusiasm for learning English, sparked curiosity about new narratives, and motivated them to engage in further study.

Ease of Use

The assessment of usability was conducted to evaluate the technical viability of the storybook. The indicators encompassed the capacity to utilize the storybook autonomously, maneuver through its features, and comprehend the visual and audio elements.
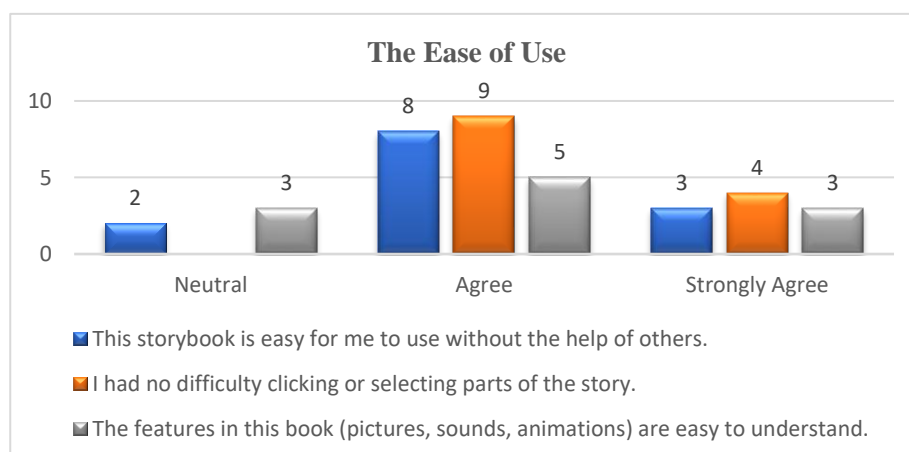

Figure 4. Result of Ease of Use

Two to three students offered neutral feedback, noting slight technical hesitations during the initial sessions, such as adjusting sound or clicking on icons. All students expressed agreement, affirming that the application was user-friendly.

The quantitative data reveal a consistently high level of positive responses across all measured constructs, highlighting the strong pedagogical and technical effectiveness of the Interactive English Story Book. The highest ratings were observed for both Engagement and Motivation, indicating that students found the digital storybook to be an enjoyable, stimulating, and inspiring tool for learning English. In a similar vein, the results for Comprehension and Ease of Use were notably positive, indicating that students not only grasped the material well but also found the platform easy to navigate. A limited quantity of neutral responses (n = 1–2 per item) were noted, indicating slight differences in user familiarity and content complexity instead of any indication of dissatisfaction. Additionally, there were no adverse reactions in any construct, highlighting a widespread endorsement of the digital learning format among participants. Collectively, these findings offer strong quantitative support indicating that the Interactive English Story Book significantly boosts engagement, comprehension, motivation, and usability for young learners, effectively aligning with the principles of the *Merdeka Belajar* curriculum that prioritize joyful, autonomous, and meaningful learning experiences.

4.2 Qualitative Findings

The quantitative results provide a broad overview of students' positive responses toward the Interactive English Story Book, whereas the qualitative findings offer a deeper understanding of how and why these outcomes emerged in real classroom conditions. The qualitative phase was grounded in systematic classroom observations and in depth interviews with teachers, designed to explore the lived learning experiences, behavioral patterns, and pedagogical considerations surrounding the use of digital storytelling in English language classrooms. Through this approach, the study captures the classroom realities that shape learning interactions and reveals both the opportunities and instructional challenges involved in integrating interactive story based learning within the context of Indonesia's Merdeka Belajar curriculum.

The qualitative analysis fulfills three interrelated objectives. First, it describes observable student engagement and interaction with digital media and narrative based learning activities. Second, it documents teachers' reflective insights regarding student learning processes, classroom management, and instructional decisions. Third, it identifies potential barriers, whether technical, cultural, or pedagogical, that may influence the effectiveness of digital learning practices. Taken together, these qualitative results enrich the interpretation of the quantitative findings and provide a stronger empirical basis for evaluating the feasibility, instructional value, and broader educational implications of the Interactive English Story Book.

Classroom Observation

The classroom observations indicated a consistently elevated level of engagement during the learning sessions. Students engaged actively with the interactive features animations picture, narration, and embedded quizzes showing clear enthusiasm and concentration. The educational environment was distinctly different from conventional English classes; instead of merely listening, students engaged actively with their screens, interacted with the material, and sustained their focus for longer durations. Educators noted that even those learners who usually faced challenges with focus became more engaged when interacting with the storybook.

Despite the overall positive engagement, several minor discrepancies appeared during classroom implementation. A small number of students, approximately two to three in each session, required additional support from the teacher to navigate the storyline or complete the interactive tasks. Early sessions also experienced brief technical delays, particularly when students attempted to adjust audio settings or locate clickable icons within the digital platform; however, these challenges decreased significantly after short instructional demonstrations, showing that learners adapted quickly and became more confident in using the technology. Occasional distractions occurred when the internet connection slowed momentarily, although these interruptions did not meaningfully affect the learning flow or diminish student motivation. In general, the challenges observed were manageable and steadily declined as students became more familiar with the digital storytelling environment, offering encouraging evidence of learners' readiness to engage with technology enhanced language instruction.

Table 1. Observation Summary

Engagement Level	Behavioral Indicators	Frequency (out of 13 students)	Notes
High Engagement	Actively responded to quizzes, followed narration attentively, expressed joy during animations	9–10 students	Sustained focus; minimal need for teacher intervention
Moderate Engagement	Needed prompts to continue or revisit sections	2–3 students	Improved autonomy after initial guidance
Technical Hesitation	Difficulty with sound control or navigation during early sessions	1 student	Resolved by Session 3

The observed patterns suggest that digital interactivity effectively enhanced concentration, emotional engagement, and autonomous participation. The educator noted that the digital storybook fostered a "calmer but more focused" learning atmosphere, in which students were not just finishing assignments but truly interacting with the content.

Interview Findings

Conversations with the two English educators yielded profound understandings of teaching practices and student reactions throughout the implementation process. Both educators concurred that the Interactive English Story Book markedly improved classroom engagement and vocabulary understanding, particularly for visual and auditory learners. It was highlighted that students who usually disengaged from English lessons demonstrated heightened participation, curiosity, and enthusiasm.

Teacher 1 emphasized the motivational aspect of the storybook, illustrating how it transformed the emotional energy within her classroom. She observed that from the outset of the narrative, students' focus instantly directed toward the screen, and even those typically passive or prone to distraction exhibited heightened alertness and engagement.

> "Once the animations begin, the focus of the audience immediately changes," she remembered with a smile. "Even the more reserved students start to engage, it's as if the narratives beckon them to join in." They engage actively; they react, they find humor, they anticipate the next developments. It seems to possess a vitality".

She noted that the storybook fostered an environment of joyful learning, in accordance with the principles of Merdeka Belajar, which highlight curiosity and enjoyment as key motivators of the learning process. She stated, "The class becomes quieter, but it's not the quiet of boredom, it's the quiet of focus." This observation demonstrated that the digital storytelling format effectively engaged attention while also promoting a lasting, intrinsic motivation to learn.

Teacher 2, conversely, concentrated more on the cognitive and linguistic outcomes, especially in terms of vocabulary retention and comprehension. The observation indicated that students retained new English vocabulary more efficiently due to the combination of visual and auditory stimuli. "My students were able to recall new words effortlessly due to the simultaneous visual and auditory exposure," she explained. She subsequently recounted a particular anecdote.

> In the case of Bawang Merah Bawang Putih, understanding unfolded more effortlessly, while the English vocabulary served as a conduit for exploring new linguistic frameworks. "They expressed satisfaction in accurately pronouncing 'stepmother' or 'river,'" she explained. "The narrative provided context for unfamiliar terms as they grasped the circumstances."

Both educators noted that the storybook successfully promoted self-directed learning, a fundamental aspect of Merdeka Belajar. Students engaged in self-directed exploration of difficult sections, re-listened to

the narration, or retook quizzes until they reached a level of proficiency. Teacher 2 remarked, "They took the initiative without waiting for my guidance; they clicked and explored independently." Several individuals expressed interest in revisiting the narrative following the conclusion of the class.

Nonetheless, the educators recognized certain instructional difficulties. Some students showed a tendency to depend heavily on the voice narration rather than engaging with the text directly, and there were instances where technical difficulties disrupted the lesson flow due to a slow internet connection. Teacher 1 observed, "When the voice failed to load promptly, the students exhibited signs of restlessness." It highlighted the significance of technological support in the learning process. In light of these constraints, both educators conveyed a positive outlook regarding the digital storybook's ability to enhance motivation, comprehension, and cultural literacy. The key themes emerging from both interviews are summarized below.

Table 2. Thematic Summary of Teacher Interviews

Theme	Description	Representative Quote	Interpretation
Engagement and Enjoyment	Students showed enthusiasm during both stories.	"Even the quiet ones became curious and smiled."	Multimodal elements increased focus and participation.
Cultural Curiosity	Students compared Western (*Hansel and Gretel*) and local (*Bawang Merah Bawang Putih*) values.	"They were proud to hear our story in English."	Promoted cross-cultural understanding and identity awareness.
Vocabulary Retention	Visual and audio cues supported long-term memory.	"They remembered words like *butterfly* from seeing it fly."	Reinforced dual coding and contextualized learning.
Autonomy and Confidence	Students controlled pacing and reviewed independently.	"They explored the story again after class."	Encouraged self-regulated learning.
Technical and Access Constraints	Some lag and internet issues were reported.	"When the audio delayed, they got distracted."	Highlighted infrastructure dependence.

Both educators concluded that the Interactive English Story Book offers an effective approach to strengthening English learning by making instructional content more relevant, meaningful, and enjoyable. The dual narrative structure, which combines Hansel and Gretel as a representation of global culture with Bawang Merah Bawang Putih as a reflection of local identity, enabled students to form emotional and linguistic connections throughout the learning process. This cultural pairing allowed learners to engage with global perspectives while maintaining a strong sense of familiarity with their own traditions. As Teacher 2 expressed, students did not merely read the stories, they connected with them through context, character emotions, and familiar cultural values, which enriched their understanding and heightened their interest in English learning.

> "The children are not just acquiring English skills; they are discovering new perspectives on their own narratives."

The reflections of the educators demonstrate that digital storytelling, when thoughtfully integrated with cultural relevance and educational principles, can truly capture the essence of the Merdeka Belajar philosophy: empowering students with the liberty to discover while fostering a sense of pride in their heritage.

The school principal presented a broader institutional viewpoint, highlighting how the project was consistent with school policy and Merdeka Belajar's vision. He saw the Interactive English Story Book as a "gateway innovation" for changing classroom procedures and promoting more creative, student-centered learning.

"These stories demonstrate how local wisdom and global imagination may coexist in one classroom. "When children hear Hansel and Gretel, they see the world beyond; when they read *Bawang Merah Bawang Putih*, they see themselves."

The principal emphasized that this cultural fusion symbolizes Merdeka Belajar's spirit: pupils become globally aware while being rooted in their local identity. He applauded the two instructors' digital readiness, pointing out that their previous preparation made implementation easier. However, he highlighted systemic obstacles, particularly in low-resource schools.

"Innovation works when teachers are comfortable using the tools. We are fortunate, but I am aware that many schools continue to struggle with internet and access. If we want Merdeka Belajar to succeed everywhere, infrastructure and teacher capability must work together."

The teacher also observed that the use of digital storytelling significantly reduced students' anxiety toward learning English. According to his reflection, many students previously perceived English as a difficult and intimidating subject; however, the interactive narrative experience helped them approach the language with greater curiosity and confidence. He expressed this shift metaphorically by stating that English once felt like a barrier to students, yet it has now become a window that allows them to see new ideas and possibilities. The school principal further echoed this enthusiasm, noting a strong interest in expanding similar technology assisted approaches to other subjects, provided that adequate professional development opportunities and structured technological support are made available to teachers.

Table 3. Summary of Principal Interview Findings

Focus Area	Observation	Supporting Quote	Implication
Cultural Integration	Combines Western and local folktales to balance identity and global exposure.	"Local wisdom and global imagination live together."	Encourages intercultural literacy.
Teacher Readiness	Teachers' prior training supported smooth use.	"Innovation works when teachers feel comfortable with the tools."	Teacher competence sustains innovation.
Infrastructure Challenges	Connectivity and devices vary between schools.	"Not all schools have stable access."	Highlights equity concerns.
Student Confidence	Digital storytelling reduced learning anxiety.	"English used to be a wall; now it's a window."	Encourages positive learning attitudes.
Scalability	Recommends adoption in other subjects.	"The stories can inspire other areas of learning."	Supports broader Merdeka Belajar implementation.

Overall, the qualitative data demonstrated a consistent pattern: the Interactive English Story Book increased student involvement, motivation, comprehension, and autonomy. The combination of global (Hansel and Gretel) and local *(Bawang Merah Bawang Putih)* narratives increased cultural knowledge, while the multimodal design improved word retention and comprehension. Teachers and principals both appreciated the storybook's educational and cultural potential, but they also cited issues such as internet reliability, access inequity, and balancing narration with autonomous reading.

Overall, the findings indicate that the Interactive English Story Book is not only a successful digital learning tool, but also a transformational pedagogical paradigm that connects technology, culture, and the Merdeka Belajar ideal of autonomous and joyful learning.

5. Discussion

The findings of this study demonstrate that the Interactive English Story Book significantly enhanced student engagement, motivation, comprehension, and usability in Indonesian primary EFL classrooms, while remaining aligned with the pedagogical values of Merdeka Belajar (Arini and Fadilla, 2021). The

integration of student questionnaires, classroom observations, and interviews (Johan et al., 2021) provides a comprehensive understanding of how multimodal narrative resources can transform learning experiences for young English learners. The following discussion offers a deeper analysis of the results grounded in relevant theories and empirical evidence. It also highlights the study's unique contributions, implications for practice and policy, and key limitations that guide future directions (Lie et al., 2023).

The high levels of engagement and motivation observed among learners support Mayer's Cognitive Theory of Multimedia Learning, which suggests that learning improves when information is received through both visual and auditory channels simultaneously (Mayer & Fiorella, 2025). Students expressed excitement and enjoyment when using the storybook, stating that they felt curious and happy during learning activities (see Figure 1), indicating strong cognitive and affective involvement. These results are consistent with existing studies showing that digital storytelling fosters motivation and learner autonomy in EFL settings (Miao & Li, 2024; Suryoputro et al., 2023). Similarly, emphasized that digital storytelling provides richer and more meaningful learning experiences than traditional textbook-based instruction (Purnama et al., 2022). The present study extends these findings to young Indonesian learners, demonstrating comparable motivational benefits.

Cognitive gains were also evident through improvements in vocabulary acquisition and comprehension (see Figure 2). Students reported recognizing new words and understanding stories more effectively after using the material (Fitria et al., 2023), confirming the principles of Paivio's Dual Coding Theory (Paivio, 2014), which highlights the value of combining verbal and visual information. These findings align with Zarei and Navidinia (Zarei & Navidinia, 2024), who identified similar improvements in writing performance among young EFL learners exposed to digital story-based instruction. Nevertheless, some students struggled with longer sentence structures or culturally unfamiliar references, as noted by teachers, reflecting cultural accessibility concerns raised by Al-Jarf (2023). These challenges underscore the importance of culturally contextualized story design for optimal comprehension.

Learner autonomy also increased during the intervention, supporting the intentions of Merdeka Belajar. Students revisited stories independently, repeated tasks without prompting, and explored learning pathways at their own pace. These behaviors reflect the principles of differentiated instruction (Pramono et al., 2022) and confirm evidence that narrative digital media can promote self regulation and learner agency in EFL environments (Nguyen et al., 2022). However, teachers observed that some students relied heavily on the audio narration, which may hinder independent reading development, echoing concerns by park regarding the need to gradually reduce scaffolding for reading fluency development (Park, 2022).

From a technical perspective, the storybook's interface was generally intuitive and user-friendly, demonstrating the importance of learner-centered design in educational technology. Nonetheless, connectivity challenges were reported in less-equipped areas, aligning with observations by Santoso on digital infrastructure disparities in Indonesia (Rizal & Farikhah Zulaefa, 2023). While the storybook performed effectively in equipped classrooms, broader adoption will require equitable access to devices, stable internet connections, and offline learning options.

The study presents several distinguishing contributions. First, it focuses specifically on a digital storybook rather than general digital storytelling tools, integrating both global folktales and culturally embedded Indonesian narratives to support linguistic and cultural engagement (Iskandar, 2018). Second, it aligns directly with Merdeka Belajar by prioritizing autonomy, relevance, and flexible learning pathways. Third, it employs a mixed-methods R and D model to triangulate engagement, comprehension, usability, and curricular alignment, an approach rarely implemented in Indonesian primary EFL research (Karimullah et al., 2021). These combined elements demonstrate strong theoretical and practical innovation.

The practical and policy implications are clear. Teachers and curriculum planners can incorporate digital storybooks to diversify instruction, increase engagement, and support differentiated learning (Wensi Alka et al., 2023). Teachers are encouraged to gradually guide students from audio-supported reading toward independent reading to foster fluency (Putri, 2020). Furthermore, culturally familiar narratives should continue to be integrated alongside global content to sustain cultural grounding and contextual relevance. At the policy level, expanding the Merdeka Belajar agenda will require investments in digital infrastructure, teacher training in technology enhanced pedagogy, and the development of offline learning versions to promote inclusivity (da Silva, 2014).

This study also acknowledges several limitations. The sample size was small and drawn from one school, which limits generalizability. The short implementation period did not allow examination of long term retention or sustained reading fluency (Sadikin, 2021). Cultural familiarity with story themes may have influenced comprehension outcomes, and self reported data carries the possibility of bias despite triangulation (Mahmud, 2019). To strengthen evidence, future research should involve larger and more diverse samples, extended duration, and controlled designs that examine longer term impacts on literacy skills. Future development should also include adaptive learning features such as bilingual narration, adjustable difficulty levels, and fully offline access (Anggarini et al., 2023) to enhance accessibility and scalability.

In conclusion, the Interactive English Story Book demonstrates strong potential as an innovative, engaging, and pedagogically aligned tool for supporting early English literacy in Indonesian primary schools within the Merdeka Belajar framework (Suryoputro et al., 2023). This study provides valuable guidance for practitioners and policymakers, contributes to theoretical discussions on multimodal narrative learning, and underscores the need for continued development and equitable expansion of digital resources across diverse learning contexts (Eddraoui et al., 2023). With continued refinement and broader accessibility, interactive digital storybooks can play a transformative role in fostering effective, enjoyable, and inclusive early English education in Indonesia.

6. Conclusion

The present study set out to explore whether a culturally grounded Interactive English Story Book could meaningfully support young Indonesian learners in developing foundational English skills within the Merdeka Belajar environment, where engagement, autonomy, and contextual learning are emphasized. The findings demonstrate that this digital story-based approach significantly enhanced students' motivation, comprehension, vocabulary awareness, and self paced learning, strengthened by multimodal features that combined narration, visuals, and interactive tasks. These results confirm the pedagogical value of multimodal literacy tools in early EFL settings and introduce a novel contribution by blending global folktales with Indonesian cultural narratives, thereby fostering both linguistic growth and cultural connection. While the study was limited by a small sample size, a single-school setting, and a relatively short implementation period, it offers meaningful insights for educators and policymakers seeking innovative literacy solutions for primary learners. Future research should expand to multi-school and longitudinal implementations, explore adaptive and bilingual storybook designs, and examine offline or low bandwidth versions to ensure equitable access for rural and under resourced communities. In closing, this research underscores the transformative potential of culturally responsive digital storytelling in shaping confident and motivated young English learners, and encourages continued investment in creative, inclusive, and contextually relevant language learning technologies that empower every child to thrive in a multilingual world.

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