

TRAINING PRE-SERVICE EFL TEACHER IN DESIGNING SIMPLE MULTIMODAL DIGITAL BOOK

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Diterima: 06-10-2025 Direvisi : 06-11-2025 Disetujui : 06-12-2025 Diterbitkan : 06-01-2026

Abstract

EFL teaching at the elementary school level continues to rely on textual teaching materials, both printed and digital, which have not yet fully utilized the pedagogical potential of visual and audio resources. This reliance is misaligned with the multimodal learning characteristics of young learners and often results in learning experiences that are insufficiently meaningful. Additionally, pre-service English teachers frequently encounter challenges in designing digital instructional materials that are not only visually engaging but also pedagogically grounded. This community-based educational program aimed to develop a simple digital English digital book for elementary students using multimodality. It integrates textual and visual modes as a coherent meaning-making system to support contextual language comprehension and align with students' cognitive development. The program also sought to strengthen the capacity of pre-service English teacher to act as designers of digital instructional materials. A training-based method was employed, comprising needs analysis, material drafting, and digital book development using Story Jumper. The training engaged pre-service EFL teacher as participant and provided practical experience in designing pedagogically informed digital materials. The program is expected to contribute to more meaningful EFL learning experiences at the elementary school and to enhance teacher preparation in digital material design. The outcome of the program is a simple multimodal digital book that can be accessed free of charge.

Keywords: *community service, digital book, school, multimodality, pre-service English teacher.*

BACKGROUND

English language learning at the elementary school level plays a critical role in establishing foundational language literacy and preparing learners for subsequent stages of education. Nevertheless, instructional practices in elementary schools continue to rely predominantly on textual teaching materials, both in printed textbooks and basic digital formats. Such materials are generally not designed to optimize the pedagogical affordances of visual and audio resources for contextual meaning-making (Mayer, 2021).

Research indicates that elementary school learners exhibit multimodal learning characteristics, constructing meaning through the integration of text, images, color, and sound (Jewitt et al., 2025). A misalignment between these learning characteristics and the design of instructional materials often results in English language instruction that is less meaningful and insufficiently supportive of authentic language use. Consequently, students' levels of engagement and depth of language comprehension remain limited (Murphy & Arciuli, 2024).

Although advances in digital technology provide substantial opportunities for innovation in elementary EFL instruction, many existing digital teaching materials continue to replicate printed textbooks rather than reconceptualize learning design for digital environments (Rapanta et al., 2020). Furthermore, visual and audio elements are frequently incorporated in a fragmented manner and are not systematically designed as integral components of a coherent meaning-making system (Bulu et al., 2025).

Teachers, as central agents of instruction, often experience constraints in developing digital teaching materials and are typically positioned as consumers rather than designers of instructional resources (Türküzü & Dinçer, 2025). Empirical evidence suggests that actively involving teachers

in instructional material design enhances the pedagogical relevance, acceptability, and effectiveness of learning resources (Xu & Li, 2025). A multimodal approach foregrounds the systematic integration of multiple semiotic modes, such as linguistic, visual, and auditory resources within the learning process (Kress & van Leeuwen, 2020). When applied as a pedagogical design framework, multimodality provides a robust theoretical foundation for developing English instructional materials that support contextualized and meaningful learning for elementary students (Utami et al., 2020).

Empirical studies, however, focusing on the development of multimodal digital English textbooks that actively involve teachers as instructional designers within the Indonesian elementary school context remain limited (Jayanti & Damayanti, 2023). Previous research has predominantly examined multimodal analysis or digital media implementation in secondary education (Ezis, 2022; Mustofa et al., 2023; Trisanti et al., 2022) and higher education contexts (Djamdjuri et al., 2021; Rahmanu & Molnár, 2024). Although recent studies demonstrated that multimodal digital instruction positively influences students' motivation, engagement, and comprehension of vocabulary and simple texts (Lim, 2022; Unsworth & Mills, 2020; Utami et al., 2020), multimodality is often treated as a variation of media format rather than as a coherent theoretical framework guiding meaning construction (Hermawan, 2013).

To address these gaps, this community service program provided training for pre-service English teacher to develop digital literacy and gain hands-on experience in designing interactive digital instructional materials. Studies indicate that pre-service EFL teachers' competence in digital material design requires sustained institutional support and the explicit integration of digital literacy within teacher education programs (Limbong & Wadham, 2024; Tomczyk, 2024).

Accordingly, this program serves as an initial catalyst for pre-service English teachers to further develop digital literacy in instructional material design beyond formal coursework. The program demonstrates three key contributions. First, from a theoretical perspective, it positioned multimodality as a pedagogical design framework rather than a purely aesthetic feature (Lim, 2022). Second, methodologically, it employed a training-based, iterative, and practice-oriented approach that actively engages pre-service teachers as collaborators in needs analysis and instructional design. Third, in terms of outcomes, the program produced a simple digital English instructional material as a tangible product developed by pre-service English teachers.

This community service initiative is expected to contribute to improvements in elementary EFL instruction and to strengthen pre-service teachers' competencies as designers of digital instructional materials. This aligns with broader evidence indicating that organizational innovation and technological integration are essential for enhancing pre-service teachers' digital capabilities and supporting effective instructional design in digital learning environments (Bui, 2022).

METHODOLOGY

This study employed a qualitative case study approach framed within a design-based training paradigm. The qualitative case study was selected to enable an in-depth exploration of the process through which a pre-service English teacher developed a simple multimodal digital textbook through a structured training program. Design-based training was adopted to emphasize iterative learning, reflective practice, and the integration of pedagogical theory with authentic instructional design tasks.

This study adopted a case study approach to enable an in-depth examination of a phenomenon that required rich, contextualized description and over which the researcher had no direct control (Yin, 2018). Specifically, an exploratory case study design was employed to investigate teaching-related events and instructional activities in their natural settings, with the aim of generating a detailed understanding of the processes involved. Exploratory case studies are particularly suitable when a study seeks to examine emerging phenomena or to inform the development of subsequent research questions or hypotheses (Newcomer et al., 2015; Yin, 2018).

In this study, the exploratory case study design was selected to examine the process of designing a simple multimodal digital book by an EFL pre-service teacher. The phenomenon under investigation involved real individuals operating within authentic educational contexts, allowing for a nuanced analysis of instructional design practices as they naturally occurred. By focusing on a single case, this approach facilitated a deeper understanding of the participant's experiences, decision-making processes, and challenges during the design process. The participant was a pre-

service English teacher enrolled in the fifth semester of an English Education Department at a private university in Indonesia. The participant was male and is referred to using the pseudonym Enrico to ensure ethical considerations and confidentiality. The participant was purposefully selected based on academic readiness, active participation in coursework, and demonstrated interest in digital material development.

The training program was conducted over six sessions, each lasting 100 minutes. The instructional design process began with a needs analysis, which served as a foundational phase to ensure alignment between the digital textbook design and the learning context (Govindasamy et al., 2024). During this phase, the participant analyzed elementary school students' learning characteristics, curricular demands, and the need for contextually relevant digital English teaching materials. This phase was implemented within one 2-credit-hour instructional session and involved guided reading and discussion of literature on young learners' cognitive development, multimodal learning preferences, and digital instructional materials.

Following the needs analysis, the participant engaged in design-based training sessions focusing on multimodal theory, principles of digital instructional material design, and technical training in the use of the *Story Jumper* platform. These sessions were conducted across five meetings to support the complete development of the digital textbook, including content planning, multimodal integration, and layout design. Throughout the process, the researcher or lecturer acted as a facilitator and co-collaborator, providing pedagogical and technical feedback, while the pre-service teacher remained the primary designer of the digital textbook.

Data were collected through direct observation, reflective notes, training sessions, semi-structured interviews, and documentation of the design process. The training sessions functioned as both an instructional and observational context, enabling the researcher to capture the participant's engagement and design processes in real time. Semi-structured interviews were conducted to elicit the participant's reflections, perceptions, and pedagogical reasoning related to the digital material design. Documentation, including drafts of instructional materials and design artifacts, provided additional evidence of the development process and supported data triangulation.

Furthermore, the use of multiple data collection methods enabled data triangulation, enhancing the credibility and trustworthiness of the findings. Through this design, the study provides foundational insights that may serve as a precursor to future research employing alternative methodologies, such as surveys or experimental designs, to further examine digital material development in EFL teacher education contexts. Data analysis followed the interactive model proposed by Miles et al. (2014), in which data collection and analysis occur concurrently. The analysis involved three interconnected stages: data condensation, data display, and conclusion drawing and verification. Analytical insights were continuously refined across the six training sessions, allowing emerging patterns to inform subsequent instructional decisions.

The lecturer was actively involved throughout the training process, facilitating sessions, observing participant engagement, and documenting design decisions. This close interaction enabled the identification of patterns related to the participant's development as a digital material designer and supported a nuanced interpretation of the findings.

RESULTS AND DISCUSSIONS

RESULTS

Initial Engagement and Emerging Designer Identity

The pre-service English teacher's first experience in designing a simple multimodal digital book marked a meaningful step in his development as an instructional material designer. His prior interest in design helped him engage enthusiastically with the task and encouraged him to explore the use of visual and textual elements from the outset. At the beginning of the project, the lecturer offered several theme options related to English instruction for Indonesian primary school students aged six to twelve. The participant chose the theme festivals and traditions in Java, which he considered familiar and accessible for young learners. This choice suggests an early awareness of the importance of cultural relevance and contextual appropriateness in designing instructional materials for primary education.

At first, the participant intended to create a multi-chapter book. However, after receiving guidance from the lecturer, he narrowed the scope to a single digital book using the *Story Jumper*

platform. This adjustment reflects the value of pedagogical scaffolding in design-based training, particularly for novice designers who are still learning to balance creative ambition with practical constraints.

Needs Analysis and Multimodal Design Awareness

Before starting the design process, the pre-service teacher reviewed academic literature on primary school learners' characteristics and the pedagogical use of digital instructional materials. This stage functioned as a needs analysis and helped him make more informed design decisions. Through this process, he began to understand that instructional meaning is not conveyed through text alone but is constructed through the interaction of multiple semiotic modes, such as text and visuals.

Following this phase, the lecturer introduced the Story Jumper platform and provided hands-on guidance on its technical features. The instructional support extended beyond technical training to include assistance in transforming learning objectives into simple dialogues and narrative texts appropriate for young learners. Gradually, the participant's understanding of multimodality shifted from viewing visuals as decorative elements to recognizing them as integral components of meaning-making.

Iterative Design, Semiotic Integration, and Use of Digital Tools

The design process began with the creation of story characters depicting students learning about festivals and traditions in Java with their teacher, Miss Siti, in a classroom setting. As the project progressed, the participant encountered challenges in selecting and integrating images, visuals, and potential audio elements that meaningfully supported the story. These difficulties are typical of novice designers, who often struggle to align visual choices with pedagogical intentions.

To overcome these challenges, the participant used artificial intelligence tools to generate background visuals, which helped speed up the design process. However, he remained actively involved in evaluating whether the generated visuals were suitable and coherent with the narrative. This experience highlights an important aspect of digital competence: the ability to use technological tools critically rather than relying on them unreflectively.

During the first training session, the participant completed the design of all main characters. In subsequent sessions, he gradually integrated dialogue, narration, and visuals, improving coherence between modes. Throughout the process, the lecturer provided formative feedback by reviewing the digital book through a shared online link, focusing on grammatical accuracy, language appropriateness, and alignment with the learners' level.

Product Completion and Multimodal Constraints

Due to time limitations, the final version of the book primarily combined textual and visual modes, while audio elements were not fully incorporated. Despite this limitation, the book demonstrates intentional coordination between text and visuals to support meaning-making for primary school learners. During the remaining training sessions, the participant refined the layout and visual consistency of the book, although he continued to experience some difficulty in selecting background designs that fit seamlessly with the narrative.

Ultimately, the participant completed a 19-page simple multimodal digital book, which serves both as a tangible instructional product and as evidence of his professional learning. From a multimodal perspective, the book illustrates a clear progression from initial experimentation toward more deliberate semiotic integration. From a teacher education perspective, this case shows how design-based training can support pre-service teachers in developing not only technical skills but also pedagogical reasoning in multimodal instructional design.

This case highlights the importance of structured training, continuous feedback, and guided reflection in helping pre-service teachers understand multimodality as a pedagogical framework rather than merely an aesthetic choice. The participant's design journey reflects a gradual recognition of the interdependence of text and visuals in constructing meaning, in line with social semiotic views of multimodal learning. The resulting digital book thus functions both as a learning artifact and as a representation of the participant's emerging competence as a designer of digital instructional materials.

Interview data further revealed the participant's evolving understanding of multimodality and digital material design. He reported that, prior to the training, he perceived digital books mainly as visually attractive texts, but gradually came to recognize that images needed to function as meaning-making resources rather than decorative elements. This shift reflects a growing awareness of multimodal principles, particularly the idea that meaning is constructed through the interaction of semiotic modes. The participant also indicated that conducting a needs analysis helped him better understand primary school learners' characteristics, which influenced his decisions regarding text length, vocabulary choice, and visual representation.

The participant acknowledged that integrating visuals coherently with narrative content was more challenging than expected, requiring repeated revision and reflection. He emphasized that lecturer feedback during the training sessions played a crucial role in refining his design choices, especially in aligning language use with learners' cognitive levels. The participant also expressed that the use of AI tools facilitated faster content creation but still required critical judgment to ensure pedagogical appropriateness. Overall, the interview findings suggest that the training not only enhanced the participant's technical skills but also fostered reflective thinking about multimodal design as a pedagogical practice rather than a purely technical task.

Book description

The digital book entitled *Javanese Festival and Tradition* that can be accessed free in the following link: <https://www.storyjumper.com/book/read/184981241/Festival-and-Traditio> is a publicly accessible storybook created and published on the StoryJumper platform, an educational tool commonly used to support digital storytelling and classroom-based learning. The book has been accessed by online readers, suggesting early engagement with its content. The story combines written text and visual elements to introduce young learners to festivals and traditions in a meaningful way. Its design reflects thoughtful consideration of the intended audience, Indonesian primary school students by presenting culturally familiar themes that connect learning to children's everyday social and cultural experiences. Rather than relying solely on written text, the book uses images alongside short dialogues and narration to help learners understand meaning, in line with multimodal learning principles that emphasize the interaction of multiple modes in supporting comprehension.

Each page guides readers through culturally significant events using illustrations that support understanding and make the content more accessible for children aged six to twelve. The visuals are not merely decorative; they play an important role in helping learners grasp new vocabulary and ideas by linking language to familiar cultural practices. This approach helps reduce cognitive load and supports early language development, particularly for young learners who benefit from visual support. Although audio features were not included, the strong coordination between text and visuals reflects practical pedagogical decisions made within the available time and technical constraints. Story Jumper's features such as character creation, background design, and flexible page layouts enabled the authors to create a story that is both engaging and instructional.

Javanese Festival and Tradition serves not only as a digital storybook but also as a multimodal learning resource designed for young EFL learners. Its open access through Story Jumper increases its reach and illustrates how pre-service teachers can use digital tools to create culturally grounded, meaningful instructional materials in English language learning contexts.

One representative page of the digital book *Javanese Festival and Tradition* presents a classroom scene in which a teacher character, Miss Siti, introduces a traditional festival to her students. The page combines a short, simple dialogue written in basic English with a colorful illustration depicting students interacting in a familiar classroom setting. The text is concise and uses high-frequency vocabulary suitable for elementary learners, while the accompanying visual contextualizes the meaning of the dialogue by showing culturally recognizable elements related to the festival. The image does not merely decorate the page but supports comprehension by visually reinforcing key concepts introduced in the text, such as the setting, participants, and cultural practices. This alignment between verbal and visual modes helps reduce learners' cognitive load and supports meaning-making, particularly for young EFL learners who are still developing basic language proficiency. The following is the visual of the digital book described above.

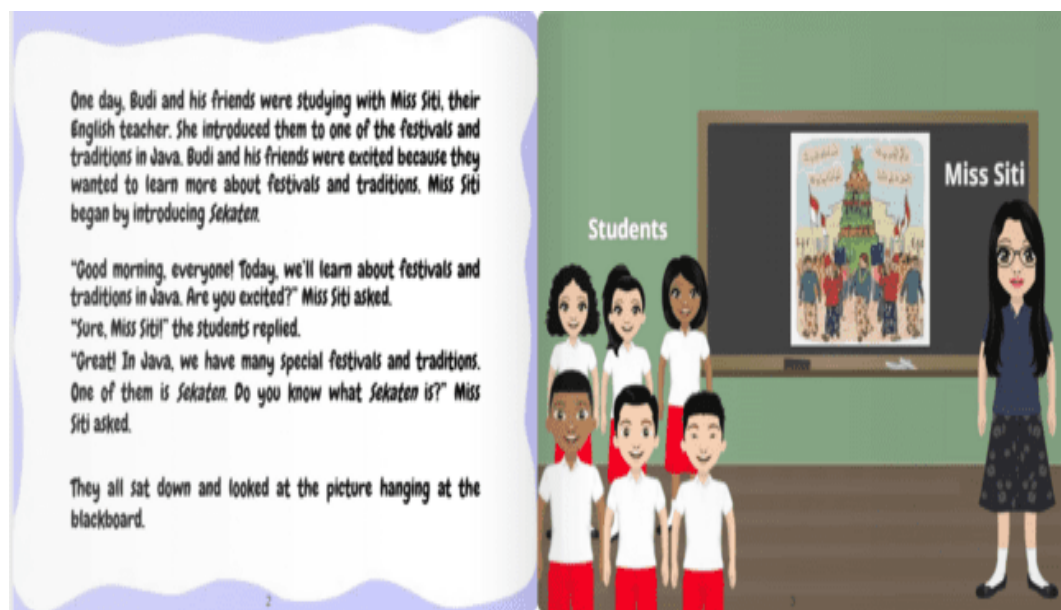


Figure 1. The representative page of the digital book Javanese Festival and Tradition

From a pedagogical perspective, the digital book demonstrates alignment between content, language objectives, and multimodal design. The theme Festivals and Traditions in Java serves as culturally familiar content, which can increase learner engagement and facilitate comprehension. Linguistically, the book focuses on simple sentence structures, everyday vocabulary, and short dialogues, supporting beginner-level reading comprehension and basic oral language exposure.

The integration of visuals with text reflects principles of multimodal learning, in which images function as semiotic resources that help learners interpret linguistic meaning rather than acting as decorative elements. For young learners, this design supports vocabulary acquisition by linking new words to concrete visual representations. Furthermore, the narrative format encourages contextualized language use, allowing learners to encounter English within meaningful social interactions rather than isolated word lists.

Although audio elements were not incorporated, the existing text–image orchestration already supports receptive language skills and can be extended in future iterations to include listening activities. Overall, the book illustrates how a simple multimodal digital resource can support meaningful English learning while remaining developmentally appropriate for elementary students. Table 1 describe multimodal features of the digital book.

Table 1. Multimodal Features of the Digital Book

Multimodal Element	Description	Pedagogical Function
Text (dialogue & narration)	Short sentences and simple dialogues related to festivals and classroom interaction	Supports basic reading comprehension and exposure to functional English
Visuals (illustrations & backgrounds)	Colorful images depicting characters, classroom scenes, and cultural contexts	Scaffolds meaning, supports vocabulary learning, reduces cognitive load
Layout	One main idea per page with clear text–image alignment	Helps learners focus and process information step by step
Cultural content	Festivals and traditions from Java	Enhances relevance, motivation, and cultural connection
Digital platform (Story Jumper)	Web-based book creation and publication tool	Enables accessibility, teacher authorship, and digital literacy development

Audio (planned but not included)	Not integrated due to time constraints	Identifies potential for future enhancement of listening skills
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The dialogue in Figure 1. uses simple sentence structures and high-frequency vocabulary, which are appropriate for elementary school learners. The conversational format between Miss Siti and Ahmad helps present information in a natural and engaging way. Overall, the language is understandable and suitable for learners aged 6–12. Pedagogically, the content is well aligned with young learners’ needs. The use of a teacher–student dialogue models classroom interaction and supports contextual language learning. Cultural content (Reog Ponorogo) is familiar and meaningful for Indonesian learners, which can increase engagement and motivation.

The explanation provided by Miss Siti offers content knowledge (culture) and language input simultaneously, supporting integrated content and language learning (CLIL-like practice at a simple level). The visual element, a photograph of the Reog Ponorogo performance, strongly supports the text. The image helps learners visualize abstract descriptions such as “big mask,” “lion face,” and “decorated with feathers.” This alignment between text and image reflects effective multimodal meaning-making, where visuals function as meaning-bearing resources rather than decoration. The character placement (teacher and student) reinforces the dialogue and helps learners follow the narrative flow. This supports comprehension and reduces cognitive load, especially for early EFL learners.

This page demonstrates strong pedagogical value, culturally relevant content, and effective multimodal integration. With minor language refinements, it can serve as a high-quality example of a simple multimodal digital material for primary EFL learners and as a solid artifact for reporting in an academic article. The following pictures depict the digital book designed by pre-service English teacher, front and back cover.

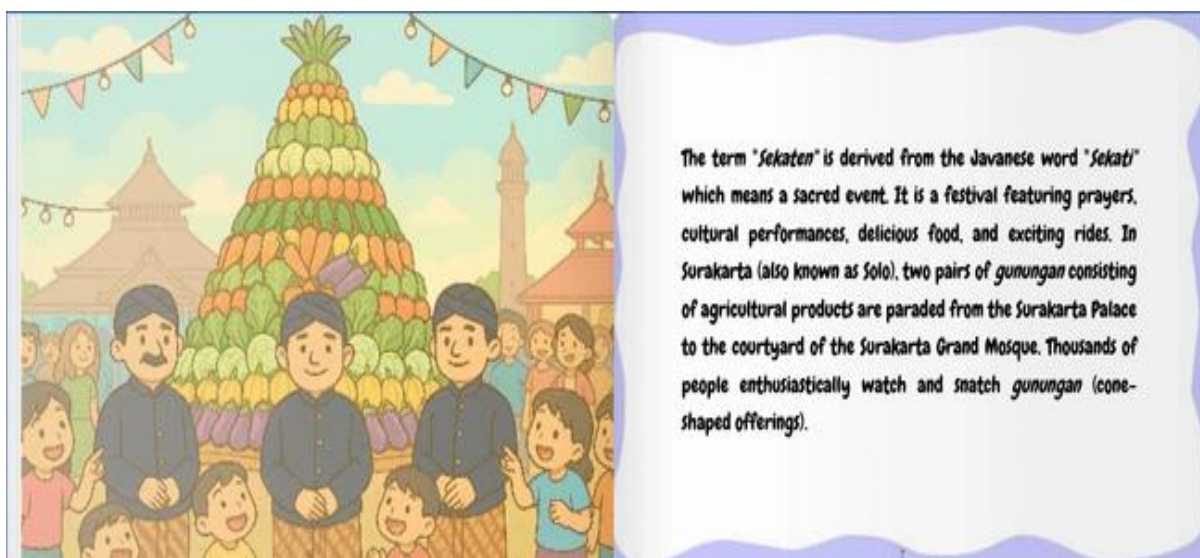


Figure 2. Screenshot of the Digital Book



Figure 3. Front Cover of Digital Book

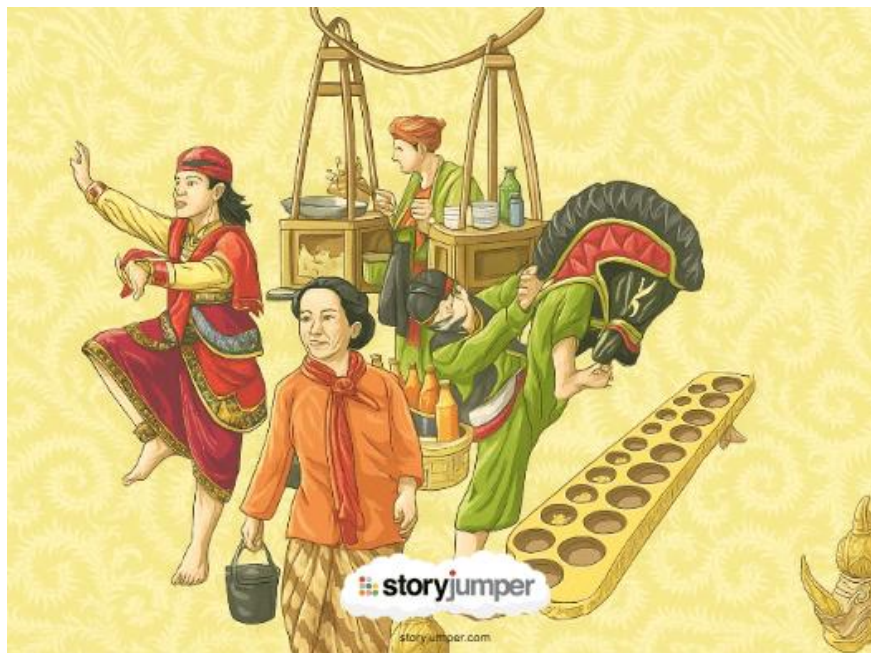


Figure 4. Back Cover of Digital Book

DISCUSSIONS

The primary output of the design-based training was a simple multimodal digital book published on the Story Jumper platform and made freely accessible online. Documentation of the final artifact indicates that the book integrated linguistic and visual modes, such as short graded sentences paired with images, to support contextual meaning-making. This design reflects the multimodal principle that young learners construct meaning through coordinated semiotic resources (Jewitt et al., 2025). Pedagogically, this outcome is significant because it demonstrates that the training extended beyond conceptual understanding to the production of a usable and disseminable instructional artifact.

This output also aligns with multimedia learning principles, which emphasize that learning is enhanced when verbal information is meaningfully coordinated with visuals rather than presented

as isolated text (Mayer, 2021). Furthermore, the result is consistent with research on pre-service teachers' digital competence development, which highlights the importance of evaluating learning outcomes through participant-generated artifacts rather than relying solely on tests or self-reported perceptions (Limbong & Wadham, 2024; Redecker, 2017). Studies grounded in the DigCompEdu framework, for example, assess digital competence by examining the pedagogical coherence and quality of instructional materials produced by pre-service teachers.

From a broader multimodal perspective, the digital book embodies the principle that meaning is constructed through the orchestration of multiple semiotic modes, particularly text and visuals, within a unified design (Kress & van Leeuwen, 2020; Jewitt et al., 2025). Literature on teaching-material development further emphasizes that instructional materials are not merely classroom tools, but play a central role in shaping teachers' pedagogical reasoning and professional growth (Tomlinson, 2013; Xu & Li, 2025).

Another key finding is that the design process did not begin with aesthetic considerations but with a needs analysis that mapped elementary school learners' characteristics and digital-material requirements. This stage functioned as a design anchor, strengthening alignment between instructional design and contextual classroom demands (Govindasamy et al., 2024). Within design-based research and professional development contexts, needs-driven design is widely recognized as a foundation for developing contextualized and learner-centered instructional products (Reeves, 2006; McKenney & Reeves, 2019).

Documentation and training notes indicate that the needs analysis informed concrete design decisions, including topic selection grounded in children's lived experiences, text length per page, vocabulary load, the use of meaning-bearing visuals rather than decorative images, and the sequencing of content from simpler to more complex forms (scaffolding). These findings align with critiques that many digital teaching materials merely transfer printed textbooks into digital formats without redesigning the learning experience for digital environments (Rapanta et al., 2020).

Training observations and interview data further suggested a shift in the participant's professional stance, from perceiving digital materials as externally produced resources to viewing himself as a designer capable of producing pedagogically purposeful materials. This increased teacher agency is consistent with qualitative studies showing that active involvement in materials development promotes professional learning, including the ability to justify material choices, evaluate level appropriateness, and reflect on learners' needs (Xu & Li, 2025). This shift is particularly important given that teachers are often positioned as users rather than developers of instructional resources (Türközü & Dinçer, 2025).

The participant's development also aligned with international evidence indicating that pre-service teachers require structured opportunities and institutional support to strengthen digital competence for designing interactive materials (Limbong & Wadham, 2024). At a broader level, this finding resonated with cross-national research highlighting that preparing pre-service teachers in digital competence, especially in digital content creation, remains an organizational and methodological challenge in teacher education (Instefjord & Munthe, 2017; Tomczyk, 2024). Together, these studies supported the interpretation that training-based, design-oriented interventions are more effective than technology-as-tool approaches in operationalizing digital competence.

Across the six training sessions, the participant's draft development followed an iterative refinement cycle. Early drafts tended to prioritize visual attractiveness, whereas later revisions increasingly reflected multimodality as a pedagogical design framework. Revisions focused on improving text-image coherence, message consistency, and age-appropriate readability, helping reduce cognitive overload. This trajectory aligned with research noting that multimodality is often treated as mere media variation unless explicitly taught as a theory-driven framework for meaning-making (Hermawan, 2013), and with evidence that digital materials frequently replicate printed textbooks rather than being redesigned for digital learning environments (Rapanta et al., 2020).

The results further supported the multimodal view that effective learning resources should orchestrate semiotic modes; including text, visuals, and potentially audio; to support comprehension (Kress & van Leeuwen, 2020). In practical terms, documentation of revisions revealed changes in text density, image selection and placement, and consistency of visual-verbal correspondence, all of which are central to meaning-making in multimodal instructional materials.

Despite these developments, the participant also experienced constraints commonly reported in pre-service teacher digital production, such as limited experience translating pedagogical goals into digital layouts and uncertainty in selecting digital resources that aligned with learning objectives. These challenges reflect broader concerns that teachers' perceived competence in materials development does not always correspond to their procedural design knowledge (Türküzü & Dincer, 2025). International research similarly identifies resource and access limitations—such as platform features, connectivity, and subscriptions—as recurring barriers to interactive material development (Limbong & Wadham, 2024).

At the national level, Indonesian studies continue to emphasize the importance of technology integration experiences in pre-service teacher preparation, particularly through practice-based contexts such as microteaching. The present program extends this line of research by emphasizing not only technology use, but technology-enabled instructional material design as a core professional capability for future English teachers.

CONCLUSION

This community service program provided empirical evidence that structured, design-based training can effectively support pre-service English teacher in developing pedagogically informed digital instructional materials. Through a sequence of guided training sessions, the participant successfully produced a simple multimodal digital book that integrates textual and visual modes to facilitate contextual meaning-making for elementary school learners. The findings indicate that training models prioritizing authentic design activities over isolated technology use facilitate pre-service teachers' ability to translate theoretical perspectives, including multimodality and multimedia learning, into pedagogically coherent and openly accessible instructional artifacts.

Beyond the production of a digital learning resource, the program contributed to the professional development of the pre-service teacher by strengthening instructional design agency and reflective practice. The integration of needs analysis, iterative revision, and formative feedback supported the development of digital competence that extends beyond technical proficiency to include pedagogical reasoning and design decision-making. Although the program was limited in scale, the outcomes suggested that community service initiatives grounded in design-based principles could play a significant role in bridging theory and practice within teacher education. Future initiatives should consider expanding participant involvement, incorporating classroom implementation, and enhancing multimodal features to further examine the potential impact on both pre-service teacher development and elementary English language learning.

RECOMMENDATION

Based on the outcomes of this community service program, it is recommended that teacher education institutions systematically integrate design-based digital material development into pre-service English teacher training. Providing sustained opportunities for pre-service teachers to engage in authentic instructional design tasks supported by needs analysis, iterative feedback, and reflective practice can strengthen their digital competence and pedagogical reasoning. Future community service initiatives should involve a larger and more diverse group of participants, extend the duration of training, and incorporate classroom implementation to examine the instructional impact of the developed materials on learners. Furthermore, institutional support in the form of access to digital platforms, mentorship, and follow-up activities is essential to ensure continuity and deeper professional learning. By embedding such initiatives within teacher education programs, community service can more effectively bridge theoretical knowledge and classroom practice while fostering pre-service teachers' confidence and agency as designers of meaningful digital instructional materials.

ACKNOWLEDGMENTS

The author expresses sincere appreciation to the institution that provided financial support for the implementation of this community service program.

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