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The Role of Non-Text Picture Story Books in Enhancing Narrative Structuring Skills of Elementary School Students

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Article Info	ABSTRACT
	Many elementary students are able to decode written text fluently but struggle to construct coherent narratives with clear sequencing and causal relationships. This study aimed to develop and evaluate a culturally grounded non-text picture storybook to enhance narrative structuring skills among elementary school students. The research employed a Research and Development (R&D) design using the Plomp model, consisting of preliminary investigation, design, realization, testing, and implementation phases. The product was developed based on Cirebon's coastal ethnoscience and tested through a limited trial involving 30 second-grade students, followed by broader implementation with 200 students from ten public elementary schools in Cirebon City, Indonesia. Data were collected through expert validation, practicality questionnaires, pre-test and post-test assessments, and classroom observations. The results indicated that the storybook met high validity standards in terms of content (4.2), media design (4.0), and language (4.0). Practicality ratings from teachers (4.7) and students (4.1) showed positive user responses. Quantitative findings revealed a significant improvement in students' narrative structuring skills, with a large effect size. The study concludes that integrating visual scaffolding with culturally relevant content effectively strengthens students' ability to organize and express narratives. This research contributes to visual literacy development and culturally responsive pedagogy in elementary education.

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1.   INTRODUCTION

This study began with a simple yet meaningful moment in a second-grade classroom in Cirebon. During a storytelling activity, several students were able to read words fluently, but they struggled to explain the story shown in a series of pictures. Some could name individual objects in the images, yet they found it difficult to connect these elements into a

clear and logical plot. This situation reflects research showing that decoding skills (reading words aloud) do not automatically lead to narrative competence, which requires the ability to organize events in a meaningful sequence [1].

This classroom phenomenon reveals a fundamental research problem: elementary students' ability to decode written words does not necessarily translate into the ability to structure coherent narratives. Narrative structuring skills—such as sequencing events, identifying causal relationships, and constructing logical story frameworks—remain underdeveloped, particularly in early-grade learners.

Teachers frequently encounter this challenge. Although children today are exposed to abundant information, they are not always engaged with meaningful storytelling experiences. National data indicate that more than half of second- and third-grade students in Indonesia experience difficulty composing stories with complete narrative structures [2]. Internationally, narrative structuring ability is recognized as a strong predictor of later literacy achievement and academic success [3]. The 2022 PISA results further show that Indonesian students perform below the global average in reading tasks requiring interpretation of narrative sequences.

A closer look at classroom practices suggests one possible cause. Many literacy lessons rely heavily on text-dominated materials that may feel distant from children's lived experiences. For seven-year-old learners in the concrete operational stage, abstract and text-heavy materials can create cognitive overload. Research indicates that visual scaffolding significantly supports meaning construction at this developmental stage [4].

From a theoretical perspective, this issue can be explained through Dual Coding Theory (Paivio) and Social Constructivist Theory (Vygotsky), which emphasize that visual stimuli and social interaction play crucial roles in language development. Visual representations provide cognitive anchors that help learners bridge concrete experiences and abstract language structures.

One instructional approach aligned with this theory is the use of wordless picture storybooks. Without the burden of decoding written text, students can focus on interpreting visual cues and organizing story events. Studies demonstrate that wordless picture books enhance inferential thinking and narrative coherence by encouraging children to actively construct meaning from images [5]. This process, often described as visual meaning-making, positions images as a primary medium for generating ideas before they are expressed orally or in writing [6].

Recent research strengthens this argument. Wordless picturebooks have been shown to significantly improve narrative sequencing and inferential comprehension among early-grade students [7]. Similarly, visual narrative scaffolding has been found to enhance oral storytelling complexity in primary school learners [8].

In addition, wordless books create a more inclusive learning environment. Struggling readers can demonstrate sophisticated storytelling abilities without being limited by their reading fluency [9]. However, most previous studies focus on general visual literacy benefits and rarely integrate local cultural contexts into wordless narrative materials. This reveals a research gap: while wordless books are proven effective for narrative development, limited

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research explores culturally grounded wordless picturebooks as tools for strengthening narrative structuring skills in Indonesian elementary classrooms.

Within Indonesia's educational transformation, literacy instruction is increasingly connected to cultural relevance. The Merdeka Belajar curriculum encourages contextualized learning rooted in local wisdom. The concept of culturally responsive pedagogy suggests that students learn more effectively when instructional materials reflect their sociocultural backgrounds.

Recent findings confirm this. Culturally relevant literacy materials significantly improve engagement and narrative elaboration among primary students [10]. Furthermore, integration of local cultural narratives enhances students' sense of identity and narrative agency [11].

Cirebon, known for its fishing traditions and the iconic Mega Mendung batik motif, provides rich ethnocultural resources. Yet, such local elements are rarely represented in standardized literacy textbooks. The absence of local representation may create cultural distance between students' home experiences and school learning [12].

Although ethnoscience and culturally responsive teaching have been widely discussed, empirical research combining wordless picturebooks and local cultural integration to specifically enhance narrative structuring skills remains limited. This study therefore addresses that gap by developing and implementing a culturally grounded non-text picture storybook inspired by Cirebon's local culture.

Narrative development extends beyond linguistic competence; it contributes to identity formation and social belonging [13]. When children construct stories rooted in their own communities, they strengthen both cognitive and socio-emotional dimensions of literacy. Evidence shows that culturally embedded visual storytelling improves chronological organization and narrative complexity [14].

Based on the identified problem and research gap, this study aims to: (1) examine the effect of non-text picture storybooks on students' narrative structuring skills; (2) analyze how culturally grounded visual narratives influence chronological sequencing and causal coherence; and (3) explore the role of local cultural representation in fostering narrative agency among elementary students.

To address the problem, this research designs and implements a culturally inspired wordless picture storybook based on Cirebon's local context. The intervention emphasizes structured storytelling sessions, guided questioning, and collaborative oral narrative construction to support students in organizing story elements systematically.

It is expected that the findings of this study will contribute theoretically to visual literacy and culturally responsive literacy instruction, and practically to the development of contextualized literacy materials aligned with the Merdeka Belajar curriculum. Moreover, this research is hoped to provide empirical evidence that integrating local culture into visual narrative media can simultaneously enhance narrative structuring skills and strengthen students' cultural identity.

Thus, the non-text picture storybook is positioned not merely as a literacy medium but as a culturally reflective pedagogical tool that bridges cognitive development, narrative competence, and identity formation in elementary education.

2. METHOD

This research employed a research and development (R&D) design following the Plomp model, which consists of five iterative phases: preliminary investigation, design, realization/construction, testing and evaluation, and implementation [15]. The Plomp model was selected for its adaptability in developing educational products that are empirically validated and systematically refined. The study focused on the development of a non-text picture storybook based on Cirebon's coastal ethnoscience to enhance students' narrative structuring skills in elementary literacy learning.

The research was conducted in Cirebon City, West Java, Indonesia, representing a coastal community with distinctive cultural and economic characteristics. The limited trial involved 30 second-grade students at SDN Sumurwuni, while the broader field implementation engaged 200 students from ten public elementary schools reflecting Cirebon's coastal cultural context. Schools were selected using purposive sampling to ensure contextual relevance between the learning media and the students' social environment.

Data were collected from multiple sources, including expert validation, teacher and student questionnaires, pre-tests and post-tests of narrative structuring skills, and classroom observations. The instruments used in this study included: (1) expert validation sheets assessing content, media, and linguistic aspects; (2) practicality questionnaires for teachers and students; (3) narrative skill tests evaluating the ability to organize story structures, identify characters, and develop logical sequences; and (4) observation guidelines documenting student engagement and teacher–student interaction during learning activities.

The research procedures were implemented in several stages. The preliminary investigation phase involved an in-depth literature review and field analysis to identify learning challenges and needs. Observations and interviews indicated that students often struggled to connect visual sequences coherently, while teachers reported difficulties in accessing culturally relevant learning media. These findings provided the rationale for developing a local-culture-based picture storybook.

The design phase involved developing the initial prototype by integrating visual elements of Cirebon's ethnoscience, including the fishing industry, local markets, and the creation of Mega Mendung batik patterns. Illustrations were arranged sequentially to enable students to interpret storylines independently. The book's design considered color harmony, narrative continuity, and age-appropriate visual symbolism.

During the realization phase, the prototype was produced and validated by three groups of experts: content, media, and language specialists. Validation focused on material appropriateness, visual clarity, linguistic accuracy, and cultural integration. Feedback from the experts informed the first round of revisions.

The testing and evaluation phase involved implementing the media in classroom contexts to measure its practicality and effectiveness. Teachers facilitated dialogic reading sessions in which students described each image, inferred causal relationships, and collaboratively reconstructed stories. Data were collected through teacher and student responses as well as pre-test and post-test performance measures.

In the implementation phase, the revised media were distributed to ten schools for field testing. Teachers received brief training sessions to familiarize themselves with the

instructional design of the media and to integrate it into their literacy lessons. Observations documented how the storybook encouraged active participation, improved sequencing skills, and promoted the integration of local culture into classroom discussions.

Data analysis combined quantitative and qualitative approaches. Quantitative data were analyzed descriptively using mean scores and categorized into levels of validity, practicality, and effectiveness. Effect size was calculated using Cohen's d to determine the magnitude of the media's impact. Qualitative data from interviews and observations were analyzed using the framework of data reduction, data display, and conclusion drawing [16]. To ensure credibility, triangulation was applied by comparing expert assessments, student performance, and teacher responses. The validity of the findings was strengthened through consistency across multiple data sources, demonstrating that the product development process adhered to both empirical rigor and pedagogical relevance.

3.   RESULTS AND DISCUSSION
3.1. Results

The development process produced a non-text picture storybook that met the criteria of validity, practicality, and effectiveness. Each component was evaluated comprehensively through expert judgment, classroom trials, and quantitative analysis of learning outcomes.

The validation results confirmed that the media achieved high quality in content, media design, and linguistic aspects.

Table 1. Expert validation results

Aspect	Mean Score	Category
Content Experts	4,2	Highly Valid
Media Experts	4,0	Valid
Language Experts	4,0	Valid

The scores in Table 1 indicate that the non-text picture storybook falls within the "valid to highly valid" category, with mean scores ranging from 4.0 to 4.2. Content experts confirmed that the storyline and thematic components align with Indonesian language competencies for lower-grade students. Media experts emphasized the appropriateness of color composition, sequential image flow, and visual balance for children aged seven to eight years. Linguistic experts agreed that the instructional guide employed simple yet precise vocabulary suitable for classroom implementation.

The practicality test aimed to determine the user-friendliness of the media and the extent to which teachers and students could apply it effectively in classroom settings. The results demonstrated that both groups perceived the media as highly practical and enjoyable.

Table 2. Practicality results from teachers and students

Respondent	Mean Score	Category
Teachers	4,7	Very Practical
Students	4,1	Very Practical

Table 2 shows that the teachers' mean score of 4.7 and the students' mean score of 4.1 fall within the "very practical" category. Teachers reported that the layout, storyline sequence, and thematic coherence enabled students to follow the narrative easily and encouraged active participation. Students described the book as fun, colorful, and easy to understand.

The effectiveness of the developed media in improving students' narrative structuring skills was evaluated through pre-test and post-test comparisons.

Table 3. Comparison of pre-test and post-test scores

Test Type	N	Mean	SD	Min	Max
Pre-test	30	60,75	20,86	46,0	75,5
Post-test	30	87,75	15,20	77,0	98,5

As presented in Table 3, the mean score increased from 60.75 in the pre-test to 87.75 in the post-test, indicating an improvement of 27 points. The standard deviation decreased from 20.86 to 15.20, suggesting greater consistency in student performance after the intervention. The calculated effect size using Cohen's d exceeded 0.8, indicating a large impact.

Field observations further revealed increased student participation. Students actively described scenes, inferred character emotions, predicted subsequent events, and reconstructed coherent narratives. Teachers observed that previously passive students became more confident in expressing their ideas during storytelling activities.

Table 4. Synthesis of findings based on the plomp model

Plomp Phase	Plomp Phase	Plomp Phase
Preliminary Investigation	Identified the need for visual media integrating local culture	Media should reflect students' social and cultural contexts
Design & Realization	Book designed with sequential ethnoscience-based illustrations	Media represent Cirebon's coastal culture
Test & Revision	Media found highly practical and positively received	Adjustments made to optimize usability
Implementation	Significant improvement in students' narrative skills	Media recommended for lower-grade literacy programs

The results demonstrate that each phase of the development process contributed to producing a valid, practical, and effective educational product.

3.2. Discussion

The high validation scores show that the product is theoretically sound, accurate in content, and easy to use, in line with established educational design principles [17]. The strong connection between visual and verbal elements supports early literacy development, as consistency between images and language plays an important role in helping young learners understand meaning [18]. This alignment is especially important because, without

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the need to decode written text, children can focus their cognitive effort on understanding the "grammar" of the visual story [19].

The high practicality ratings also reflect the effectiveness of dialogic interaction during storytelling sessions. The teachers' use of interactive questioning strategies is consistent with research showing that dialogic reading of wordless picture books increases student engagement and supports oral language development [20]. The observed teacher–student interactions also illustrate the concept of scaffolding, where learning takes place through guided social interaction within the learner's zone of proximal development [21]. This social-constructivist approach is particularly powerful when using wordless books, as students are encouraged to become active "co-authors" of the story rather than passive listeners of a fixed text [22].

Students' ability to interpret culturally rich illustrations demonstrates the value of contextual learning. Familiar scenes such as fish markets, fishermen, and batik artisans helped students connect new information with their own prior experiences, thereby supporting meaningful learning [23]. Including cultural representation in instructional materials strengthens students' sense of identity and helps bridge school knowledge with real-life contexts [24]. Studies show that when children see aspects of their own lives reflected in visual materials, their narrative interest increases, resulting in more detailed and complex verbal storytelling [25].

The significant improvement in narrative structuring skills highlights the cognitive benefits of combining visual and verbal stimuli. According to dual coding theory, the integration of images and language enhances both comprehension and memory retention [26]. Well-designed visual prompts serve as cognitive scaffolds, helping learners build cause–effect relationships and organize logical story sequences. This process reinforces the role of narrative construction in children's meaning-making [27]. In addition, research indicates that wordless books can reduce reading anxiety among young learners, allowing them to express more complex narrative ideas than they might be able to convey in written form [28].

The large effect size further suggests that the intervention had a strong pedagogical impact. Integrating local ethnoscience into visual storytelling not only improved literacy skills but also enhanced creativity, participation, and cultural awareness. This contextual approach is consistent with student-centered and culturally responsive educational principles emphasized in current Indonesian educational reform. The success of this medium indicates that visual literacy should not be viewed merely as preparation for reading written text, but as an essential and independent cognitive skill in the digital era [29].

Overall, these findings contribute to theoretical discussions on visual literacy and culturally responsive pedagogy. The non-text picture storybook serves both as a cognitive scaffold and as a cultural bridge. By engaging students in analyzing, interpreting, and synthesizing visual information, the medium promotes higher-order thinking skills while simultaneously strengthening cultural identity. Therefore, visual media should be recognized not as supplementary material, but as a transformative component of early literacy education.

4. CONCLUSION

This study demonstrates that a culturally grounded non-text picture storybook can effectively support elementary students' narrative structuring skills by integrating visual scaffolding with meaningful local context. The findings suggest that visual sequencing combined with sociocultural relevance strengthens students' ability to organize events logically, construct causal relationships, and express coherent narratives. Theoretically, this research contributes to visual literacy and culturally responsive pedagogy by affirming that narrative competence develops through the interaction of imagery, language, and social dialogue. Practically, it provides an alternative instructional model for lower-grade literacy learning aligned with the Merdeka Belajar curriculum. However, the study was limited to a specific regional context and short-term implementation, indicating the need for broader and longitudinal investigations. Future research should explore cross-cultural adaptations, digital formats, and long-term impacts on wider literacy skills. Overall, integrating culturally embedded visual storytelling into elementary education offers both academic and societal benefits by enhancing literacy while strengthening students' cultural identity.

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