

Need Analysis for Local Wisdom and Ecoliteracy-Based E-Story Book in Elementary Reading Comprehension

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ABSTRACT

Reading comprehension is a foundational skill in elementary education, yet many students struggle due to limited access to engaging, relevant, and contextual learning materials. Traditional reading resources often lack cultural and environmental relevance, resulting in low student motivation. Integrating local wisdom and ecoliteracy into digital media offers a promising solution to enhance both literacy and character education. This study reports the analysis phase of a broader development project using the ADDIE model, focusing on the design of an e-story book that integrates local wisdom and ecoliteracy to support reading comprehension. The research employed a mixed-methods approach involving 26 fourth-grade students and 2 teachers from two public elementary schools in Ulak Embacang. Data were collected through validated questionnaires and interviews, then analyzed descriptively. Findings indicate a strong need for interactive and contextual digital reading materials. Both students and teachers rated learning objectives, narrative texts, and environmental themes as highly important. While multimedia formats such as PDF and animation were favored, tools like Kahoot and web-based platforms received lower interest. Students also reported limited access to varied reading resources and low engagement with conventional materials. The analysis underscores the urgency of developing culturally responsive and environmentally themed digital media. The proposed e-story book has the potential to improve reading comprehension while fostering ecological awareness and local cultural appreciation among students.

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1. INTRODUCTION

Literacy skills in elementary school are a foundational component in developing language proficiency, critical thinking, and lifelong learning capabilities. Literacy is not limited to the mechanical ability to read and write; it encompasses the capacity to interpret, analyze, and apply information meaningfully (Lestari, Ibrahim, Ghufro, & Mariati, 2021). In a knowledge-based and increasingly digital

society, strong literacy is essential for academic achievement and active citizenship. Unfortunately, the literacy level of Indonesian students remains below international standards. According to data from the Programme for International Student Assessment (PISA), only 25.46% of Indonesian students meet the minimum competency level (level 2) in reading, compared to the OECD average of 73.75% (Pahlevi, 2023). These alarming figures reflect not only cognitive gaps but also a systemic challenge in how reading is taught and supported in schools.

A major contributing factor to low literacy outcomes is the lack of interest in reading among students. This disinterest is partly attributed to cultural shifts, where children and youth increasingly prefer watching television, engaging with short-form digital media, or playing online games over reading books (Dewi, Fajriyah, & DS, 2021). While reading is a cognitive process, it is also a social and affective experience. When reading materials are disconnected from students' realities, interests, or identities, comprehension becomes shallow and motivation declines. In this context, reading comprehension — a critical sub-skill of literacy — deserves particular attention. It involves not only decoding text but also connecting new information to prior knowledge, interpreting meaning, and applying insights to real-life contexts (Sarika, Gunawan, & Mulyana, 2024). Reading comprehension must be cultivated intentionally and contextually, especially at the elementary level, where cognitive and emotional foundations are still forming (Ayuningrum & Herzamzam, 2022).

One of the root causes of poor comprehension is the mismatch between available learning materials and students' needs. Many reading materials used in schools fail to reflect students' cultural backgrounds, lived experiences, or interests, making the content abstract and disengaging (Anisa, Ipungkarti, & Saffanah, 2021). The lack of diversified and appealing reading texts, particularly in under-resourced schools, further exacerbates this problem. There is a growing consensus that reading materials should be both culturally relevant and environmentally conscious to meet the dual goals of literacy development and character education (Hilda et al., 2023). In this light, the integration of local wisdom — values, stories, and traditions rooted in students' communities — and ecoliteracy — an awareness of and responsibility toward the environment — into reading materials represents a promising pedagogical strategy (Arifah, Winarni, & Suhita, 2024).

Technology, when appropriately harnessed, can significantly enhance the accessibility and appeal of learning resources. The digital habits of today's students suggest a strong preference for interactive and multimedia-based content over static print (Haleem, Javaid, Qadri, & Suman, 2022). With the widespread use of smartphones and tablets, particularly among younger generations, e-story books emerge as a practical solution for delivering reading materials that are both engaging and portable (Fajrie, Aryani, & Kironoratri, 2024). E-story books also allow the inclusion of images, animations, audio narration, and even interactive features, which can enhance comprehension and appeal to various learning styles. However, the mere presence of technology is not sufficient. The design of digital books must follow sound instructional principles and reflect the learners' psychological, cultural, and cognitive characteristics (Liu, Chou, & Lee, 2020).

Despite the potential of digital resources, many elementary schools in Indonesia continue to rely on traditional, print-based teaching materials that do not meet students' developmental or contextual needs. In particular, students in rural or under-resourced schools often face a severe lack of digital materials. For example, at SD Negeri 1 and SD Negeri 2 Ulak Embacang, teachers report using textbooks and whiteboards as the primary instructional tools, while students express boredom with available reading materials. The absence of engaging, visually rich, and contextually relevant resources significantly hinders student motivation and comprehension (Sasmita & Adji, 2023). Additionally, most available e-books are generic and rarely incorporate Indonesian cultural elements or promote environmental responsibility, leading to missed opportunities for holistic character and literacy development (Daryati, Suryadi, & Hatta, 2024).

Prior research supports the value of embedding local culture and ecoliteracy in reading materials. For instance, Vina et al. (2023) found that e-story books based on local wisdom were effective in teaching fairy tales to third-grade students, resulting in increased engagement and comprehension. Similarly, Gogahu and Prasetyo (2020) demonstrated that e-book-based media significantly improved students'

reading literacy levels. In the environmental domain, Hudhana, Sumarlam, and Sumarwati (2025) found that digital comics featuring Indonesian folktales fostered ecoliteracy and environmental awareness among elementary students. These studies affirm the pedagogical potential of culturally and ecologically integrated digital learning media.

The present study was conducted within the framework of a broader development project guided by the ADDIE model, a widely recognized instructional design framework comprising five stages: Analysis, Design, Development, Implementation, and Evaluation (Branch & Varank, 2009). This paper focuses specifically on the needs analysis phase, which plays a crucial role in identifying the content, features, and learning objectives that instructional media should address. Conducting a needs analysis ensures that educational materials are grounded in actual classroom contexts and aligned with learner characteristics, thereby providing a data-informed foundation for effective instructional design (Afifulloh & Cahyanto, 2021).

Accordingly, this study aims to assess the needs of fourth-grade students and teachers at SD Negeri 1 and SD Negeri 2 Ulak Embacang in relation to the development of an e-storybook that integrates local wisdom and ecoliteracy to support reading comprehension. By identifying the preferred content, features, and formats from both learners' and educators' perspectives, the study seeks to inform the creation of an engaging and pedagogically relevant learning resource. The ultimate goal is to develop media that not only enhances reading comprehension but also promotes cultural relevance, character education, and sustainable values aligned with students' lived experiences.

2. METHODS

This research is a type of research and development (R&D) that focuses specifically on the analysis stage of the ADDIE model. The study involved a sample of 26 students and 2 fourth-grade teachers from Ulak Embacang Public Elementary School 1 and Ulak Embacang Public Elementary School 2. Fourth-grade students were chosen because this is a critical stage for developing reading comprehension skills, and these schools were selected due to their representativeness and accessibility for the research.

Data collection was carried out using questionnaires and interviews. The questionnaire, distributed via Google Forms, consisted of 33 statements designed to assess students' needs related to reading comprehension media. It was developed based on relevant literature and expert feedback and validated prior to use to ensure its reliability and suitability. Interviews were conducted with two students using open-ended questions to gain deeper insights into their experiences and preferences. Ethical procedures were followed by obtaining informed consent from both the students and their parents before data collection began.

Table 1. The Grid Questionnaire of Students' Need Analysis

No	Aspect	Number of Statements
1.	Learning Outcomes and Learning Objectives	2
2.	Materials	13
3.	Media Presentation	7
4.	Learning	5
5.	Evaluation	6

The data analysis technique used both qualitative and quantitative methods. Qualitative analysis was applied to interpret the interview data, while quantitative analysis was used for the questionnaire data, which employed a Likert scale ranging from 1 to 4.

3. FINDINGS AND DISCUSSION

3.1 Finding

According to (Macalister & Nation, 2019), needs analysis includes three main aspects that must be considered: (1) necessities, (2) needs, and (3) lack. These three components are essential in identifying students' needs in the development of a local wisdom and ecoliteracy-based e-story book for reading

comprehension learning at Ulak Embacang Public Elementary School. The first component, “necessities”, refers to what students genuinely need in order to use language effectively in a specific context. The second component, “needs”, relates to the limitations or shortcomings students currently have. The third component, “lack”, concerns the things students want to learn or achieve in language learning.

3.1.1 Necessities

In the context of necessities, this refers to the skills or competencies that students are required to have in the language learning process (Oktarina et al., 2019). In this case, the e-storybook must be optimally designed to be effective in reading comprehension learning. These necessities include various essential aspects that must be present and required by both teachers and students in the e-storybook media to support the teaching and learning process. The appropriate use of learning media not only enriches students’ learning experiences but also creates a more enjoyable and meaningful environment. The use of engaging, interactive media that aligns with students’ interests and needs can help boost their interest in and motivation for learning (Safira, 2020).

In the rapidly advancing digital era, the E-Story Book emerges as an innovation, offering a digital version of a book containing specific information, structured in a sequential format to provide a more interactive and practical reading experience (Dwi. Alongside this development, E-Story Book reading tools have been designed to be compatible with various digital devices, such as computers and smartphones. These books are created to offer a practical and efficient reading experience by utilizing current advancements in information technology. For instance, applications provided by Microsoft that can be downloaded for free, or other apps that allow users to easily access these digital books across multiple devices, such as smartphones (Putrislia & Airlanda, 2021).

An ideal e-story book for students and teachers must align with the principles of high-quality e-story book development. According to (Gusti & Dicky, 2020), the principles of e-storybook media include:

1. Contiguity Principle
Presenting text and images close together to facilitate comprehension. For example, illustrations that match the text description help readers understand the story better.
2. Modality Principle
Providing audio narration as an alternative to written text allows readers to choose between reading independently or listening to the story. This enhances learning flexibility.
3. Redundancy Principle
Avoiding information overload by not displaying text and audio simultaneously enabling readers to focus on a single source of information.
4. Coherence Principle
Ensuring the presented material is not excessive and is aligned with the story content so that it does not disrupt the learning process.

Comprehension in reading is a crucial aspect of the literacy process, as it enables readers to grasp and interpret the meaning conveyed in a text. According to (Rahmi & Marnola, 2020), reading comprehension is the activity of reading with the aim of understanding the content, which contains the author's ideas, thoughts, and viewpoints. Through the text, the reader and writer interact closely so that the reader gains understanding and is able to convey the content of the text in return.

In reading comprehension, there are also principles that must be considered. The principles of reading comprehension share similarities with general reading, but focus on the meaning and personal understanding of the reader. According to McLaughlin and Allen (as cited in Ayuningrum & Herzamzam, 2022), several principles in reading comprehension include: (1) comprehension is socially constructive, where meaning is built through interaction; (2) balance of skills forms the foundation of a curriculum that supports comprehension; (3) teachers with strong reading skills can positively influence student learning; (4) effective readers are strategic and active during the reading process; (5) reading must take place in a meaningful context; (6) students benefit from reading various types of texts at different levels; (7) vocabulary development and learning influence text comprehension; (8) inclusivity plays a

significant role in the comprehension process; (9) reading strategies and skills can be taught to improve comprehension; (10) dynamic assessments provide useful information to enhance reading comprehension skills.

3.1.2 Needs

Needs are an important aspect for both students and teachers in carrying out the learning process. To obtain information regarding these needs, the researcher distributed a closed-ended questionnaire to the research subjects. This questionnaire focuses on the development of an e-story book based on local wisdom and ecoliteracy in reading comprehension learning.

The researcher collected data through questionnaires and interviews to analyze needs related to the e-storybook based on local wisdom and ecoliteracy, which were conducted on February 26, 2025. The research sample consisted of 26 fourth-grade students from SD Negeri 1 Ulak Embacang and SD Negeri 2 Ulak Embacang. The questionnaire instrument contained 33 closed-ended statements analyzed based on the Likert scale, which included categories: very needed, needed, somewhat needed, and not needed. Additionally, there were 6 open-ended questions to gather information about the students' needs. In the questionnaire used, the researcher grouped the questions into six main aspects, which are: (1) learning objectives and goals; (2) content; (3) presentation; (4) learning; (5) evaluation. To understand the needs for product development, the researcher conducted a needs analysis involving both students and teachers as research subjects. Data were collected through the distribution of questionnaires and interviews regarding the e-story book based on local wisdom and ecoliteracy.

Table 1. Percentage Category of Need Score

Average Percentage	Category
76%-100%	Very Need (SB)
51%-75%	Need (B)
26%-50%	Less Need (KB)
0-25%	No Need (TB)

The results of the needs analysis of students and teachers at SD Negeri 1 Ulak Embacang and SD Negeri 2 Ulak Embacang are presented in the following table.

3.1.2.1 Needs Analysis of Students and Teachers

The following presents the data obtained from the needs analysis conducted on 4th grade students and teachers at SD Negeri Ulak Embacang and SD Negeri 2 Ulak Embacang.

a. Learning Outcomes and Learning Objectives Aspect

The following is the data from the needs analysis of students and teachers regarding the development of an e-story book based on local wisdom and ecoliteracy in reading comprehension learning. In the aspect of learning outcomes and learning objectives, two statements were analyzed. The results of the analysis are presented below.

Table 2. Learning Outcome Aspect (CP) and Learning Objective (TP)

No	Statement	Students' Category Result	Teachers' Category Result
1.	Learning Outcomes reflect the main competencies that students must master according to the Independent Curriculum.	100% (SN)	100% (SN)
2.	Learning objectives are in accordance with the expected competencies	100% (SN)	100% (SN)
Average Percentage		100% (SB)	100% (SN)

Based on the table above, the first statement is "Learning outcomes reflect the core competencies that students must master in accordance with the Merdeka Curriculum". From the student questionnaire analysis, the total percentage for this statement shows that all respondents fall into the strongly need (SN) category, with a total percentage of 100%. Meanwhile, the total percentage from the teacher questionnaire also scored 100%, placing it in the strongly need (SN) category.

The second statement is "Learning objectives are in accordance with the expected competencies". The total percentage for this statement is 100%, classified under the strongly need (SN) category. Meanwhile, the total percentage from the teacher questionnaire also scored 100%, placing it in the strongly need (SN) category.

Most students and teachers emphasized the importance of improving reading comprehension skills as the primary learning objective. This highlights a strong need for learning tools that not only engage students but also support the development of critical thinking and text understanding. The findings suggest that learning objectives should focus on enhancing comprehension through contextual and meaningful content. Below is the data obtained for this statement, presented in graphical form.

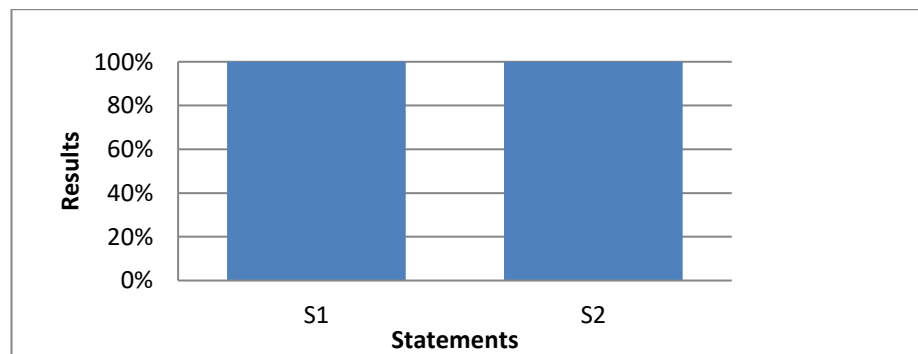


Figure 1. Student Needs for the CP and TP Aspect

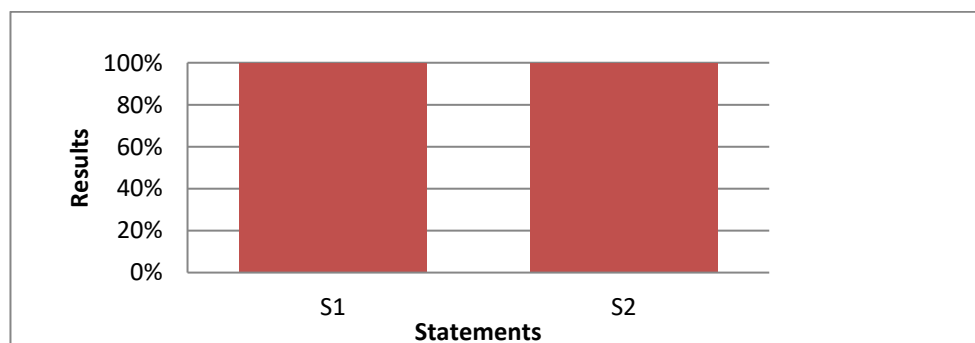


Figure 2. Teachers' Needs for CP and TP Aspect

The graph above shows a summary of the aspects of learning achievements and learning objectives as perceived by students and teachers, showing that the local wisdom and ecoliteracy-based E-Story Book media is strongly needed.

b. Material Aspect

The following is the data from the needs analysis of students regarding the development of e-story book media based on local wisdom and ecoliteracy in reading comprehension learning. In the material aspect, there are thirteen statements, and the following are the results obtained.

Table 3. Material Aspect

No.	Statement	Students' Category Result	Teachers' Category Result
1.	Learning Outcomes reflect the main competencies that students must master according to the Curriculum E-story book contains the definition of reading	89.42% (SN)	100% (SN)
2.	E-story book contains the purpose of the essence of reading	84.42% (SN)	100% (SN)
3.	E-story book contains narrative text	83.65% (SN)	87.50% (SB)
4.	E-story book contains linguistic rules of narrative text	82.69% (SN)	87.50% (SN)
5.	E-story book contains material on regional folklore	100% (SN)	100% (SN)
6.	E-story book contains material on customs	54.81% (N)	50.00% (LN)
7.	E-story book contains material on regional dances	54.81% (N)	50.00% (LN)
8.	E-story book contains material on typical foods	50.00% (LN)	50.00% (LN)
9.	E-story book contains material on local figures	51.92% (N)	50.00% (LN)
10.	E-story book contains material on local tourist attractions	50.96% (LN)	50.00% (LN)
11.	E-story book contains material on nature conservation	58.65% (N)	50.00% (LN)
12.	E-story book contains material on environmental conservation	97.12% (SN)	100% (LN)
13.	E-story book contains material on the impact of pollution	57.69% (N)	75.00% (N)
Average Percentage		70.47% (N)	73.07%(N)

Based on the table above in the material aspect, the first statement is "The e-story book contains the definition of reading". The total percentage for this statement reached 89.42%, which falls into the strongly needed (SN) category. Meanwhile, the total percentage from the teacher questionnaire analysis reached 100%, also falling into the strongly needed (SN) category.

The second statement is "The e-story book contains the essential purpose of reading". The total percentage for this statement reached 84.62%, placing it in the strongly needed (SN) category. Meanwhile, the total percentage from the teacher questionnaire analysis reached 100%, also falling into the strongly needed (SN) category.

The third statement is "The e-story book contains narrative texts." The total percentage for this statement reached 83.65%, which falls into the strongly needed (SN) category. Meanwhile, the total percentage from the teacher questionnaire analysis reached 87.50%, also in the strongly needed (SN) category.

The fourth statement is "The e-story book contains the linguistic features of narrative texts." The total percentage for this statement reached 82.69%, placing it in the strongly needed (SN) category. Meanwhile, the total percentage from the teacher questionnaire analysis reached 87.50%, also in the strongly needed (SN) category.

The fifth statement is "The e-story book contains regional folktale material." The total percentage for this statement reached 100%, which falls into the strongly needed (SN) category. Meanwhile, the total percentage from the teacher questionnaire analysis also reached 100%, categorized as strongly needed (SN).

The sixth statement is "The e-story book contains material on traditional customs." The total percentage for this statement reached 54.81%, which falls into the needed (N) category. Meanwhile, the total percentage from the teacher questionnaire analysis was 50.00%, categorized as less needed (LN).

The seventh statement is "The e-story book contains regional dance material." The total percentage for this statement reached 54.81%, which falls into the needed (N) category. Meanwhile, the total percentage from the teacher questionnaire analysis was 50.00%, categorized as less needed (LN).

The eighth statement is "The e-story book contains traditional food material." The total percentage for this statement reached 50.00%, which falls into the less needed (LN) category. Meanwhile, the total percentage from the teacher questionnaire analysis was 50.00%, categorized as less needed (LN).

The ninth statement is "The e-story book contains local figures material." The total percentage for this statement reached 51.92%, which falls into the needed (N) category. Meanwhile, the total percentage from the teacher questionnaire analysis was 50.00%, categorized as less needed (LN).

The tenth statement is "The e-story book contains local tourist destination material." The analysis of the questionnaire results showed that there were no responses in the strongly needed category, 1 student (3.8%) stated they needed it, and 25 students (96.2%) stated they less needed it. There were no responses in the not needed category. The total percentage for this statement reached 50.96%, which falls into the less needed (LN) category.

The eleventh statement is "The e-story book contains environmental sustainability material." The total percentage for this statement reached 58.65%, which falls into the needed (N) category. Meanwhile, the total percentage from the teacher questionnaire analysis was 50.00%, categorized as less needed (LN).

The twelfth statement is "The e-story book contains environmental conservation material". The total percentage for this statement reached 97.12%, which falls into the strongly needed (SN) category. Meanwhile, the total percentage from the teacher questionnaire analysis was 100%, categorized as strongly needed (SN).

The thirteenth statement is "The e-story book contains material on the impact of pollution." The total percentage for this statement reached 57.69%, which falls into the needed (N) category. Meanwhile, the total percentage from the teacher questionnaire analysis was 75.00%, categorized as needed (N).

Narrative texts and local folktales were rated as most essential by both teachers and students, indicating a preference for culturally relevant stories that reflect students' own environments. In contrast, topics such as traditional food and dance generated lower interest, suggesting that students engage more deeply when materials emphasize storytelling and moral values rather than purely factual descriptions. This implies that instructional resources should prioritize meaningful narratives integrating local wisdom and environmental themes. Below is the data obtained for this statement, presented in graphical form.

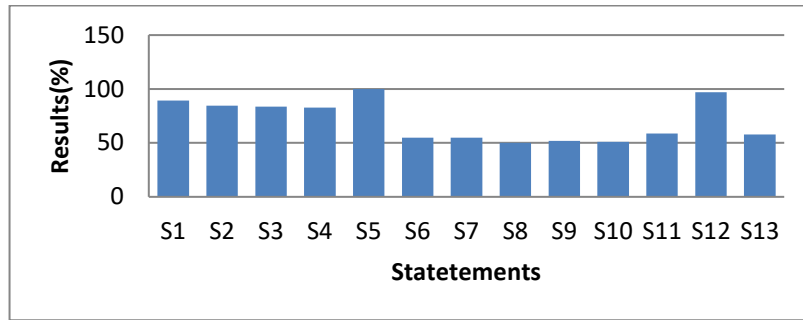


Figure 3. Students Needs Material Aspect

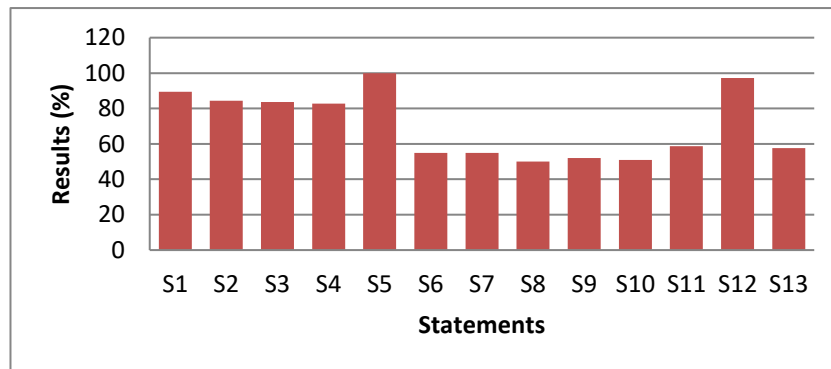


Figure 4. Teachers Need Material Aspect

The graph above shows a summary of the material aspect from both students and teachers, indicating that the local wisdom and ecoliteracy-based E-story book media is needed.

c. Media Presentation Aspect

The following presents the results of the students’ needs analysis regarding the development of an e-storybook incorporating local wisdom and ecoliteracy for reading comprehension instruction. Specifically, this section focuses on the media presentation aspect of the e-storybook, which was assessed through seven statements. The findings are detailed below.

Table 3. Media Presentation Aspect

No.	Statement	Students’ Category Result	Teachers’ Category Result
1.	E-story book contains media in PDF format	100% (SN)	100% (SN)
2.	E-story book contains media in a flipbook format	52.88% (N)	50.00% (LN)
3.	E-story book contains media in an animated video format	63.46% (N)	75.00% (N)
4.	E-story book contains media in Kahoot format	50.00% (LN)	50.00% (LN)
5.	E-story book contains media in YouTube format	50.00% (LN)	50.00% (LN)
6.	E-story book contains media in a scrapbook-based format	49.04% (LN)	50.00% (LN)
7.	E-story book contains media in a web format	50.00% (LN)	50.00% (LN)
Average Percentage		59.34% (N)	60.71%(N)

Based on the analysis of the media presentation aspect in the development of an e-storybook integrating local wisdom and ecoliteracy, both students and teachers identified specific preferences regarding the format and features of the digital media. The first statement—“The e-storybook contains media in PDF format”—received a unanimous 100% from both students and teachers, indicating that this format is considered *very much needed* (SN) by all respondents. This highlights a strong preference for accessible and easy-to-use formats that can be opened across various devices.

The second statement—“The e-storybook contains media in the form of a flipbook”—was categorized as *needed* (N) by students, with a score of 52.88%, but only *less needed* (LN) by teachers at 50.00%. Similarly, the third statement—“The e-storybook contains media in the form of an animated video”—was seen as *needed* (N) by both students (63.46%) and teachers (75.00%), indicating moderate interest in incorporating dynamic visual content to support engagement and comprehension.

Statements four through seven, which proposed using platforms or formats such as Kahoot, YouTube, scrapbooks, and websites, all received a score of approximately 50% or lower from both groups, placing them in the *less needed* (LN) category. These results suggest a lower level of interest or perceived relevance for more interactive or externally hosted digital tools, possibly due to accessibility concerns or unfamiliarity with these formats in the classroom context.

Overall, there is a clear preference among students for digital media that is interactive, visually engaging, and user-friendly. Features such as animations, images, and audio narration were particularly appealing, reflecting the digital habits of contemporary learners. These findings underscore the importance of aligning media design with students’ technological familiarity and preferences, supporting the development of a multimedia-based e-storybook that is both pedagogically effective and engaging. The summarized data for these findings is presented in the graphical section below.

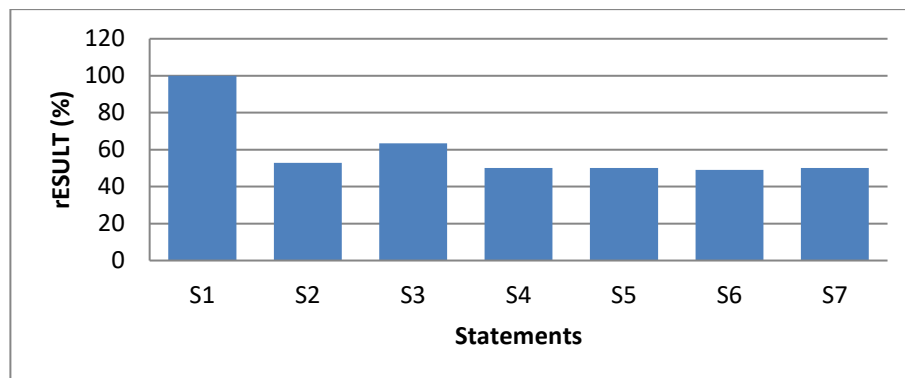


Figure 5. Students Needs Media Presentation Aspect

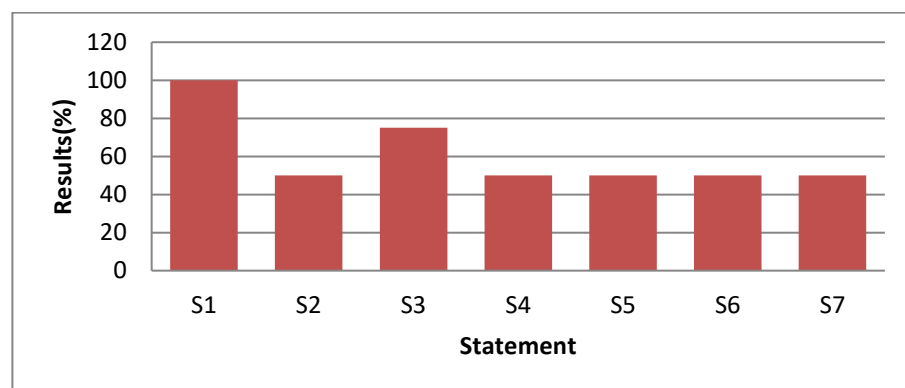


Figure 6. Teachers Need Media Presentation Aspect

The graph above shows a summary Aspect of Media Presentation from both students and teachers,

indicating that the local wisdom and ecoliteracy-based E-story book media is needed.

d. Learning Aspect

The following is the data from the analysis of students' needs regarding the e-story book media based on local wisdom and ecoliteracy in reading comprehension learning. In the learning aspect, there are five statements, and the results obtained are presented as follows.

Table 4. Learning Aspect

No.	Statement	Students' Category Result	Teachers' Category Result
1.	Students can identify the given problem.	73.08% (N)	75.00% (N)
2.	Students can work together in groups to divide tasks	71.15% (N)	75.00% (N)
3.	Students can collect information relevant to the problem being studied.	70.19% (N)	75.00% (N)
4.	Students can show creativity in presenting work results.	70.19% (N)	75.00% (N)
5.	Students can provide feedback	72.12% (N)	75.00% (N)
	Average Percentage	71.34% (N)	75.00% (N)

Based on the table above, the analysis of the learning aspect reveals that both students and teachers consider it important in the development of an e-storybook that incorporates local wisdom and ecoliteracy. The overall average percentage from the student questionnaire is 73.08%, while the teacher responses show an average of 75.00%; both fall into the *needed* (N) category.

For the second statement—"Students can collaborate in groups to divide tasks"—students gave a response rate of 71.15%, and teachers again rated it at 75.00%, both indicating it is *needed* (N). This emphasizes the perceived value of cooperative learning in classroom activities.

The third statement—"Students can gather relevant information related to the problem being studied"—received a 70.19% score from students and 75.00% from teachers, again categorized as *needed* (N). This suggests a shared recognition of the importance of developing students' research and information-gathering skills.

Similarly, for the fourth statement—"Students can demonstrate creativity in presenting their work"—both groups agreed on its relevance, with students rating it at 70.19% and teachers at 75.00%, falling within the *needed* (N) range. The emphasis on creativity points to the desire for learning activities that allow students to express themselves and think innovatively.

The fifth statement—"Students can provide feedback"—was also categorized as *needed* (N), with students rating it at 72.12% and teachers again at 75.00%. This reflects the importance of fostering interactive learning environments where students are encouraged to reflect and respond to each other's work.

Overall, the consistent classification of all learning indicators as *needed* by both students and teachers underscores the importance of incorporating collaborative, inquiry-based, and creative strategies into the design of the e-storybook. These elements are seen as essential for enhancing student engagement and learning outcomes. The corresponding data is illustrated in the graphical section below.

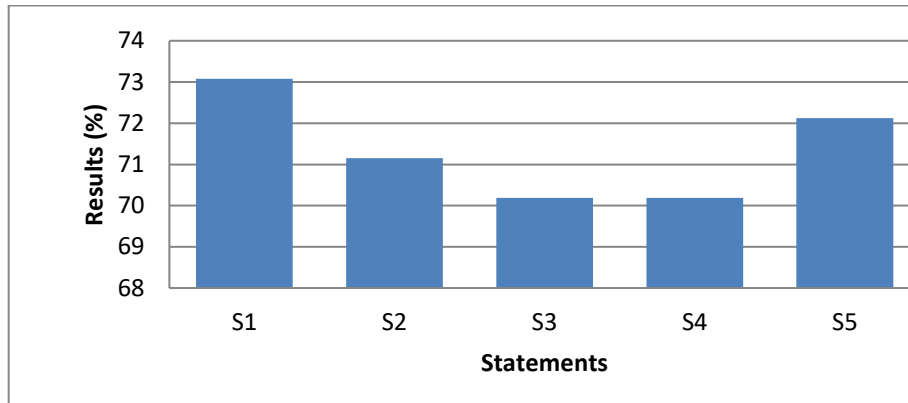


Figure 7. Students Needs Learning Aspect

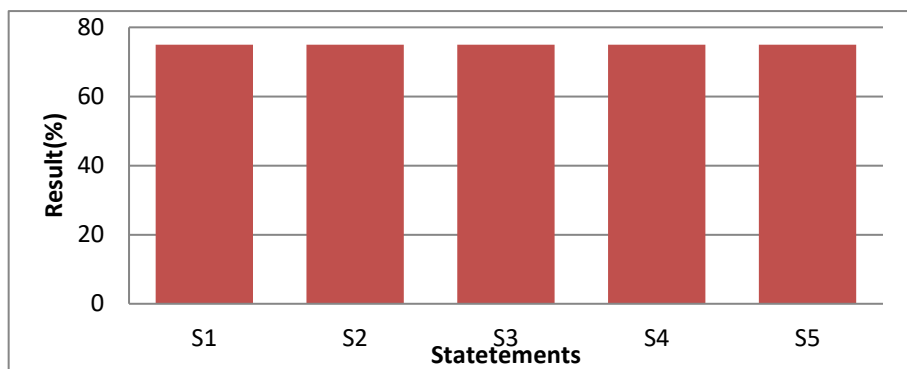


Figure 8. Teachers Needs Learning Aspect

The graph above shows a summary of learning aspects from both students and teachers, indicating that the local wisdom and ecoliteracy-based E-story book media is needed

e. Evaluation Aspect

The following is the data from the analysis of students' needs regarding the development of the e-story book media based on local wisdom and ecoliteracy in reading comprehension learning. In the evaluation aspect, there are six statements, and the results obtained are presented as follows.

Table 5. Evaluation Aspect

No.	Statement	Students' Category Result	Teachers' Category Result
1.	Evaluation is carried out individually	99.04% (SN)	99.04% (SN)
2.	Evaluation is carried out in groups	59.62% (N)	59.62% (N)
3.	Evaluation in the form of multiple choice questions	99.04% (SN)	99.04% (SN)
4.	Evaluation in the form of essay questions	50.00% (LN)	50.00% (LN)
5.	Evaluation using Kahoot	50.00% (LN)	50.00% (LN)
6.	Evaluation using Google Drive	64.2% (N)	64,2% (N)
	Average Percentage	70.31% (N)	99.04% (SN)

Based on the evaluation aspect presented in the table above, both students and teachers demonstrated a strong preference for certain assessment methods. The first statement—“Evaluation is conducted individually”—received a high agreement rate of 99.04% from both groups, categorizing it as *very much needed* (SN). This suggests that individual evaluation is widely accepted and considered essential in the learning process.

The second statement—“Evaluation is conducted in groups”—was rated at 59.62% by both students and teachers, placing it in the *needed* (N) category. While group assessments are acknowledged as beneficial, they are not prioritized as highly as individual evaluations.

The third statement—“Evaluation is in the form of multiple-choice questions”—also received a very high score of 99.04% from both groups, indicating it is *very much needed* (SN). This reflects a strong preference for structured, objective assessments that are straightforward to administer and assess.

In contrast, the fourth statement—“Evaluation is in the form of essay questions”—received only 50.00% from both students and teachers, categorizing it as *less needed* (LN). This may indicate concerns about the difficulty or subjectivity involved in essay-based assessments, or a lack of familiarity with this format.

The fifth statement—“Evaluation uses Kahoot”—also received 50.00% from both groups, falling under the *less needed* (LN) category. Despite Kahoot’s interactive and gamified approach, its lower rating suggests limited exposure or perceived relevance in the current learning context.

Finally, the sixth statement—“Evaluation uses Google Drive”—was rated at 64.42% by both students and teachers, placing it in the *needed* (N) category. This implies moderate acceptance of digital platforms for managing and submitting evaluation tasks.

Overall, the findings indicate a strong preference for individual and multiple-choice assessments, which are likely seen as familiar, efficient, and easy to use. The lower interest in essays and gamified evaluation tools suggests a potential need for further training or integration strategies to increase their acceptance. These insights highlight the importance of aligning assessment methods with learners’ preferences and digital competencies. The graphical representation of this data is presented below.

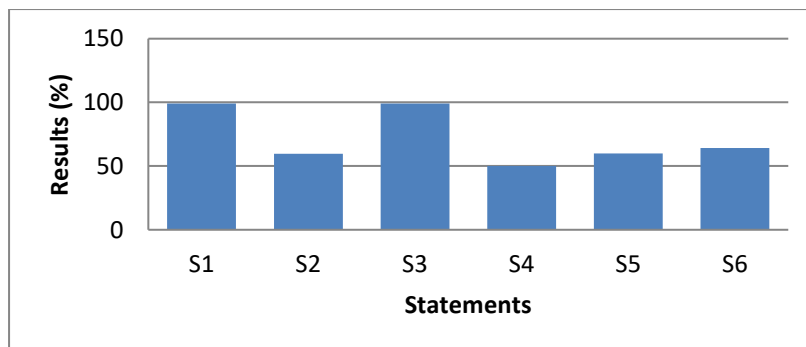
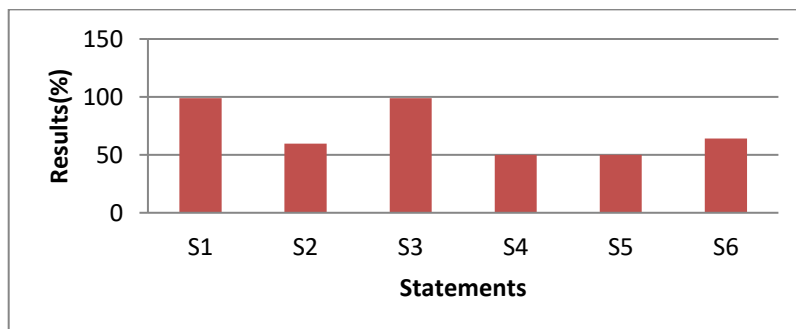


Figure 9. Students Needs Evaluation Aspect



Graph 10. Teachers' Needs Evaluation Aspect

The graph above shows a summary evaluation from both students and teachers, indicating that the

local wisdom and ecoliteracy-based E-story book media is needed

Based on the results of the student needs questionnaire analysis, it can be concluded that students need the e-story book media based on local wisdom and ecoliteracy in reading comprehension learning developed by the researcher. The results of the student and teacher needs analysis in the aspects of learning objectives and outcomes show a 100% percentage with the strongly needed (SN) category, and the teacher also received a 100% result with the strongly needed (SN) category. In the material aspect, the percentage result was 70.47% in the needed (N) category, and the teacher's result was 73.07% in the needed (N) category. In the media presentation aspect of the e-story book, the percentage result was 59.34% in the needed (N) category, and the teacher's result was 60.71% in the needed (N) category. In the learning aspect, the percentage result was 71.34% in the needed (N) category, and the teacher's result was 75.00% in the needed (N) category. In the evaluation aspect, the percentage result was 70.31% in the "needed" (N) category, and the teacher's result was 70.83% in the needed (N) category. The following is a table presenting the percentage results of the student needs analysis for each aspect.

Table 6. Analysis Result of Students' and Teachers' Need

No	Aspect	Students' Percentage Result	Category	Teachers' Percentage Result	Category
1.	Learning Outcomes and Learning Objectives	100%	SN	100%	SN
2.	Materials	70.47%	N	73.07%	N
3.	Media Presentation	59.34%	N	60.71%	N
4.	Learning	71.34%	N	75.00%	N
5.	Evaluation	70.31%	N	70.83%	N

Overall, the results of the student and teacher needs analysis fall into the "needed" category. It can be concluded that both students and teachers require e-story book media based on local wisdom and ecoliteracy for reading comprehension. The following is a graph presenting a comparison of the student and teacher needs analysis data

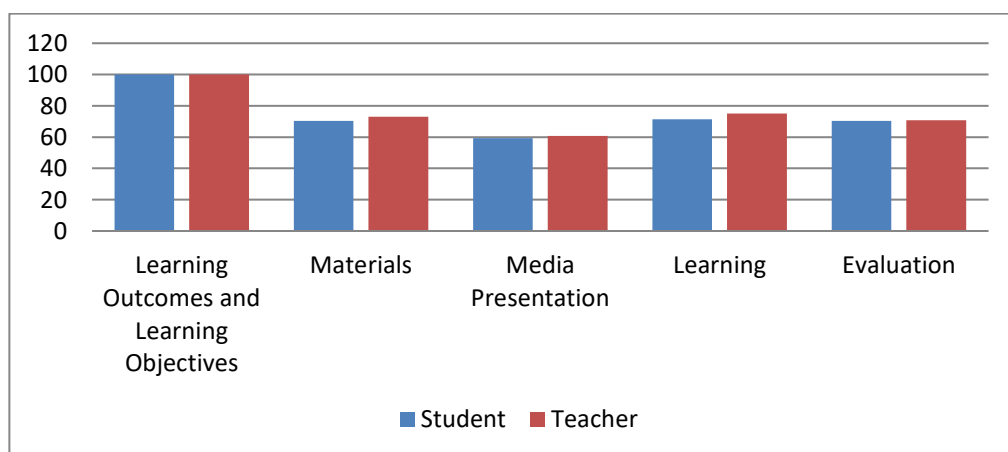


Figure 11. Analysis Result of Students' and Teachers' Need

Based on the comparison chart of the needs analysis results from students and teachers, the differences in percentages indicate that both groups need an e-storybook medium based on local wisdom and ecoliteracy for reading comprehension instruction, as developed by the researcher.

3.1.3 Lack (Shortcoming)

In the needs analysis, the lack refers to factors such as the availability of teaching materials, learning media, student knowledge, and the ongoing learning situation (S. Oktarina et al., 2023). In this case, the shortcomings include the limitations of the teaching materials used and the obstacles that arise during the reading comprehension learning process. To collect information related to this, a needs questionnaire method was used. The questionnaire was distributed on February 27, 2025, at SD Negeri 1 Ulak Embacang and SD Negeri 2 Ulak Embacang, with 26 respondents. The questionnaire included several questions, one of which was an open-ended question related to the shortcomings experienced during the reading comprehension learning process. Based on the needs questionnaire, the researcher summarized several responses from the students.

Students expressed that the lack of engaging learning resources is one of the factors they face. This indicates that the learning media used by teachers are still limited, primarily relying on textbooks as the main reference. As a result, not all students feel motivated to read and understand the material well. The lack of varied learning resources can lead to a decreased interest in exploring reading materials. Many reading texts are not directly related to the students' daily lives, culture, or surrounding environment, making it difficult for them to understand and connect with the content. On the other hand, the minimal use of engaging features in printed books also poses a challenge. Textbooks that are not equipped with images, colors, or appealing illustrations result in students perceiving reading as a boring activity.

Therefore, it is important for teachers to provide and develop more innovative learning resources that align with the needs of students. The use of technology in learning can be a solution to present more engaging and interactive media. This way, students will be more motivated to read and understand the material more deeply. In addition, the researcher also gathered information regarding the shortcomings in the reading comprehension process through face-to-face interviews with students at SD Negeri 1 Ulak Embacang and SD Negeri 2 Ulak Embacang, openly based on interview guidelines, conducted with 2 students on February 27, 2025. From the results of the interviews, several shortcomings were found in the Indonesian language learning, particularly in the reading comprehension material, which are:

- 1) Limited Learning Resources: One of the challenges in the learning process is the lack of access to varied and engaging learning materials. If the learning materials are limited to textbooks without additional media, students may struggle to grasp concepts more deeply. Additionally, the lack of variation in learning resources can make the learning process feel monotonous, decreasing students' interest and motivation in the subject.
- 2) Lack of Media in Learning: The lack of media in the learning process can hinder the delivery of material and reduce students' interest in learning. When the media used is limited, such as relying solely on textbooks without additional visual or interactive elements, students tend to get bored and fail to understand the concepts in depth. The lack of varied learning media can also make it difficult for teachers to explain the material in a more engaging and contextual way. Therefore, it is essential to introduce more innovative media, such as videos, animations, or digital learning applications, so that students are more motivated, and the learning process becomes more effective.

3.2 Discussion

The research highlights a significant need for educational media that integrates local wisdom and ecoliteracy. This aligns with the demands of the current educational landscape, where cultural context and environmental awareness are increasingly essential in shaping meaningful learning experiences. The thematic integration of local knowledge and ecological values into the e-storybook not only supports curriculum goals but also fosters a sense of identity and responsibility among learners.

The findings reveal that students are highly engaged with digital tools, underscoring the importance of digital readiness in education. Rapid technological advancements have positioned digital literacy as a key component of effective learning. The development of e-storybooks leverages students' familiarity

with digital devices such as smartphones and tablets, enabling greater interactivity and more personalized learning experiences. Studies by (Zakiyatus, 2022) and (Balqis et al., 2021) reinforce the motivational benefits of technology-based learning. The use of e-books provides convenience, enhances effectiveness, and supports efficiency for students in developing their knowledge, as stated by (Tang, 2021).

One significant barrier identified is the mismatch between traditional instructional materials and students' interests. Many existing resources lack relevance to students' daily lives and fail to include engaging visual elements. This disconnect leads to decreased motivation and reduced effectiveness in reading comprehension. The proposed e-storybook seeks to bridge this gap by providing content that is both contextually relevant and visually stimulating, thereby addressing students' preferences and learning styles.

The study builds on the theoretical framework provided by (Macalister & Nation, 2019) who emphasize the importance of necessities, lacks, and wants in needs analysis. It also aligns with (Gusti & Dicky, 2020) principles for multimedia learning design. The integration of these frameworks into the development of the e-storybook ensures that the media not only meets pedagogical standards but also addresses practical classroom needs. It also aligns with (Mayer, 2009) cognitive theory of multimedia learning, which outlines principles such as the contiguity, modality, redundancy, and coherence principles for effective multimedia instructional design.

The findings carry significant implications for curriculum development and teacher training. First, curriculum planners should consider incorporating digital, interactive, and culturally relevant materials that align with students' digital habits. Second, teacher training programs should emphasize the design and use of digital media that support diverse learners and promote ecoliteracy. Ultimately, the development of e-storybooks based on local wisdom and ecoliteracy can serve as a model for innovative, inclusive, and effective educational practices in the digital age.

4. CONCLUSION

The findings of this study indicate that students have a clear need for an e-storybook to support reading comprehension, particularly one that aligns with essential language learning competencies and incorporates principles of effective multimedia design—namely the contiguity, modality, redundancy, and coherence principles. The needs analysis also revealed that students require instructional media that addresses key aspects such as learning objectives, content, presentation, teaching methods, and evaluation. Current learning media were found to be limited, with conventional tools lacking digital integration, insufficiently engaging content, and a lack of teacher capacity to develop innovative materials. A key limitation of this research is that it only covered the analysis phase of the ADDIE model and did not include the actual design or implementation of the media. Future research should advance to the development and testing phases of the e-storybook, integrating local wisdom and ecoliteracy, to evaluate its effectiveness in improving student engagement and reading comprehension outcomes.

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