

Integration of Baduy Local Wisdom in Indonesian Digital Textbooks to Improve Elementary School Students' Writing Skills

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Abstract—This research successfully developed a digital Indonesian language textbook based on the local wisdom of Baduy culture, which has proven useful in improving the narrative and descriptive writing skills of primary school students in Lebak Regency. Although qualitative data showed that teachers and students gave satisfactory responses, especially those related to increased engagement and deeper awareness of local cultural values, quantitative data showed a clear improvement in students' writing skills after using the textbook. Incorporating Baduy cultural values into digital learning tools not only enhances teaching materials but also provides a more contextualized and significant learning environment, thus helping students deepen their cultural identity. Therefore, this digital textbook product provides not only a means of literacy but also a means of cultural preservation, supporting the implementation of the Merdeka Belajar curriculum, which emphasizes culture- and technology-oriented education. Although this study has favorable results, there are opportunities for further development. Further research could expand this reach by involving more people from various backgrounds and assessing the effectiveness of digital textbooks in other Indonesian local cultural frameworks. Further research could examine how other technologies, such as mobile applications or augmented reality, can be incorporated to increase the interactivity and appeal of the learning environment. Based on local knowledge to improve literacy, this approach is projected to provide a more complete picture of the potential of digital media, which is the basis for the sustainability of local culture in the ever-evolving digital age.

Index Terms—digital textbooks, Baduy culture, local wisdom, writing skills

I. INTRODUCTION

Writing is a fundamental skill required to learn Indonesian at the elementary school level. Unfortunately, numerous studies and educational assessments have shown that elementary school students in Indonesia still have low writing ability, particularly in narrative and descriptive writing (Maulidiah et al., 2023; Sholihah et al., 2022). The lack of relevant teaching materials and a social and cultural environment that does not sufficiently support formal education exacerbate this problem (Julia & Jeyanthi, 2024). Consequently, many students struggle to develop ideas and build emotional connections with the topics of their writing, leading to poor writing quality. This indicates poor technical writing skills (Boginskaya, 2025; Wedin, 2020). Schools often neglect students' local cultural backgrounds and rarely attempt to connect their daily experiences with the process of learning Indonesian, resulting in less optimal development of students' reading skills (Alwi et al., 2024; Breton, 2023).

A similar situation was found at the research site in Lebak Regency, Banten Province. Most elementary schools in the area use general textbooks that do not reflect the richness of the local culture (Uzum et al., 2021). Lebak Regency possesses a large and distinctive cultural diversity, most notably the presence of the Baduy tribe. The Baduy community is known for its adherence to tradition, emphasis on simplicity and honesty, and close relationship with nature (Asteria et al., 2024; Enjang, 2022; Santoso et al., 2025). Unfortunately, there is still a lack of learning tools, including teaching materials that accommodate the traditional values and wisdom of the Baduy, for Indonesian language education at the elementary-school level. This highlights the significant imbalance between the rich cultural potential of the region and the availability of relevant and contextual learning tools for local children (Lin et al., 2023; Pang et al., 2021). This gap

threatens students' emotional and cultural connections to their cultural identity and literacy (Caraballo, 2017; Hudhana et al., 2025).

We must innovate to bridge the gap between students' growing cultural awareness and their need for effective learning methods. The development of digital textbooks that integrate literacy, technology, and local wisdom as relevant and inclusive learning tools holds great promise (Kempe & Grönlund, 2019; Lestariningsih et al., 2023). Digital textbooks enable the inclusion of rich cultural content and enhance content accessibility and interactivity, thereby creating a more engaging and relevant learning environment for students to learn English. Digital textbooks rooted in local cultural knowledge align with the national education framework, which prioritizes education sensitive to culture, local needs, and technology (Rahim & Daghigh, 2020; Zhang & Liu, 2022).

Many previous studies have emphasized the importance of developing digital learning materials that incorporate local knowledge in teaching Indonesian. According to Netra et al. (2023), Bali-based cultural learning tools significantly improved students' reading skills. Tsertsvadze (2021) highlighted the need to integrate local culture into language education to increase the relevance of learning materials and student engagement in the learning process. Moutsinas et al. (2023) introduced digital textbooks to enhance students' understanding of learning materials and their motivation. Digital textbooks combine interactive and visual materials, thus encouraging a modern and engaging approach to self-directed, project-based learning. However, most of these studies overlook the potential of Baduy local culture as a suitable teaching tool for digital learning environments (Bukhori Muslim, 2021; Guo et al., 2020).

Most existing research on Baduy culture has focused on anthropological aspects, including the community's social structure, *pikukuh karuhun* (customary rules), and their ecological way of life (Enjang, 2022; Sobarna et al., 2024). Few studies have examined or utilized Baduy cultural heritage as a learning tool, particularly in relation to digital textbooks for elementary school students. The values of simplicity, honesty, and harmony with nature in Baduy culture have great potential as contextual learning tools (Keifert, 2021). Therefore, integrating traditional Baduy knowledge into education in Indonesia will enrich learning materials and serve as a means of cultural preservation, thus improving the quality of literacy education in the Baduy community and beyond.

To improve the narrative and descriptive writing skills of elementary school students in Lebak Regency, this study aims to bridge the existing gap by developing an Indonesian digital textbook rooted in Baduy's local wisdom. The product developed in this project is expected to serve as a valuable tool for teaching local cultural values to the younger generation and as a means of introducing and preserving them. The objectives of this project are as follows: first, to identify the needs of teachers and students for Indonesian language teaching materials based on local culture; second, to design and develop a digital textbook that is relevant and contextual to Baduy culture; third, to evaluate the effectiveness of the digital textbook in improving students' narrative and descriptive writing skills; and fourth, to document the responses and perceptions of teachers and students regarding the use of culture-based textbooks.

This project aims to raise awareness of the development of contextual learning resources rooted in local culture, especially those that utilize digital technologies. The results of this study are expected to serve as a guide and reference for policymakers, curriculum designers, and teachers in creating education in Indonesia that is more relevant to and aligned with students' cultural realities in the future. This initiative seeks to build an educational foundation that emphasizes cognitive and character development and the preservation of local culture through an inclusive and creative educational approach.

II. LITERATURE REVIEW

A. Local Wisdom & Language Learning

Most existing research on Baduy culture focuses on anthropological aspects, including the community's social structure, *pikukuh karuhun* (customary rules), and their ecological way of life (Enjang, 2022; Sobarna et al., 2024). Few studies have examined Baduy cultural heritage as a learning tool, especially in relation to digital textbooks for elementary school students. Baduy cultural values, such as simplicity, honesty, and harmony with nature, have great potential as contextual learning tools (Keifert, 2021). Therefore, integrating traditional Baduy knowledge into education in Indonesia will enrich learning materials and serve as a means of cultural preservation, thereby enhancing the quality of literacy education in the Baduy community.

To improve the narrative and descriptive writing skills of elementary school students in Lebak Regency, this study aims to bridge the existing gap by developing a digital Indonesian language textbook rooted in local Baduy wisdom. The product developed in this project is expected to serve as a useful tool for teaching local cultural values to the younger generation and as a means of introducing and preserving them. The objectives of this project were as follows: first, to determine the needs of teachers and students for Indonesian language teaching materials based on local culture; second, to design and develop a relevant and contextual digital textbook reflecting Baduy culture; third, to evaluate the effectiveness of the digital textbook in improving students' narrative and descriptive writing skills; and fourth, to document teachers' and students' responses and perceptions regarding the use of culture-based textbooks.

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aligned with the cultural realities of students. This initiative seeks to build an educational foundation that emphasizes cognitive and character development and the preservation of local culture through an inclusive and creative educational approach.

B. Digital Textbook

The digitalization of textbooks has opened up various opportunities for innovative learning methods. In particular, in terms of engagement, accessibility, and distribution efficiency, digital textbooks offer several advantages that surpass those of conventional printed books (Wardani et al., 2023). As reported by Rohmah et al. (2024), the government is implementing the Independent Curriculum by publishing digital textbooks. This curriculum helps teachers select teaching materials that match the needs and characteristics of their students, thereby enabling more efficient and personalized learning experiences.

Technology has been integrated, as is most evident in the Flipbook application, to enhance the features of digital texts. Digital textbooks offer a comprehensive learning experience, as they can include game-based interactivity, audio, animations, and gamification. This approach encourages learning tailored to individual needs and increases student engagement and their motivation. This is in line with Lee et al.'s (2023) research, which states that digital textbooks can improve the learning process and empower students to access learning materials.

However, the main benefits of digital textbooks are closely linked to ongoing infrastructure issues, especially in areas such as Lebak Regency, which have limited access to technology and the Internet. The digital divide between urban and rural areas highlights the importance of comprehensive regulations to ensure equitable access to information and communication technologies. Rafalow and Puckett (2022) emphasized the crucial role of technology-based education during the Industrial Revolution 4.0 period; however, they noted that inadequate infrastructure can exacerbate existing educational inequalities.

In addition to technical challenges, the content dimension of textbooks faces serious issues such as: According to this study, most existing digital textbooks neglect local content relevant to students' lives, such as the cultural values of the Baduy community in West Java. Integrating local culture into digital textbooks is not just a visual improvement or an added feature; it is also a crucial component for increasing learning motivation and preserving national values. Therefore, the development of digital textbooks that combine technology and local knowledge must be carefully planned as part of projects aimed at building inclusive, contextual, and sustainable education in Indonesia.

C. Baduy Culture and Its Relevance to Writing Skills

Through rituals preserved for decades, the Baduy Tribe in Lebak Regency, Banten, demonstrates a civilization that highly respects traditional values and ancestral beliefs. Pikukuh Karuhun, which serves as a guideline for the Baduy community, embodies fundamental values such as simplicity, honesty, respect for nature, and social norms. These values function as guides in daily life and contain moral teachings that improve students' narrative and descriptive writing skills. The use of this local knowledge can help students learn to create logical and cohesive stories that are highly relevant to their own experiences. This writing is drawn from real sources: folklore, life experiences in nature, and the values of Baduy's community life. According to Slakmon (2022), narrative essays present events in a logical and sequential manner. Baduy Pikukuh provides a strong narrative structure that is deeply embedded in the students' cultural environment. Therefore, the resulting compositions have strong emotional and cultural resonance and high informative value.

According to a study by Pipitone and Raghavan (2022) on the development of Bali culture-based teaching materials, the integration of local cultural elements into Indonesian language teaching can enhance literacy skills and have a positive impact on students' character development. For comparison, stories about weaving techniques, agricultural practices, and forest conservation in the Baduy community can be used as learning tools. In addition to providing a learning platform, these stories also increased students' environmental awareness and cultural identity from an early age, thereby strengthening their sensitivity to national values and environmental protection.

In addition, the Baduy community makes and works at sites where kacapi and bamboo weavings are produced, which not only represent economic activities but also hold great cultural value, technique, and stories. Stories about the weaving process can serve as suitable procedural or descriptive writing projects for students. According to Roychoudhury (2022), good descriptive writing should be based on the learner's sensory experiences and cultural background so that the writing becomes vivid and real. In addition to serving as a learning tool for character development, national identity, and cultural preservation, the creation of textbooks that include narratives, values, and visual depictions of bad culture also enhances students' writing skills. This book serves as a bridge between learning content and students' personal experiences, thus facilitating a genuine and meaningful learning process that not only teaches writing skills but also fosters deep respect for a unique and rich local culture.

III. METHODOLOGY

A. Research Design

This study used a modified model from Borg and Gall (2014) in accordance with the research and development approach. Originally consisting of ten development stages, Borg and Gall modified their approach into five main stages

to improve efficiency and applicability in school environments in Lebak Regency. These stages include (1) Potential and Problems, which involves identifying needs through observations and interviews with educators, as well as analyzing existing textbooks; (2) Initial Data Collection, conducted through literature reviews and curriculum analysis related to local wisdom and the writing skill requirements of elementary students; (3) Product Design, which includes the development of a digital textbook based on Baduy local wisdom using the Flipbook application, complemented by visual and interactive elements; (4) Product Validation, which consists of expert evaluations regarding content, design, and curriculum alignment through validation questionnaires; and (5) Product Testing, conducted with fourth-grade elementary students to assess the effectiveness of the digital textbook in improving narrative and descriptive writing skills. This technique helps researchers produce relevant and useful products based on real needs in the field.

B. Research Subjects and Context

This study was conducted at a public elementary school located in Lebak Regency, Banten Province, at the fourth-grade level. Lebak Regency has distinctive socioeconomic characteristics, dominated by an agrarian community with lower-middle income levels. Based on field studies, many local schools have inadequate learning environments, including limited access to digital textbooks and learning materials rooted in the local culture.

The participants in this study came from an environment that highly valued conventional norms, particularly the Baduy culture in the region. This situation presents both opportunities and challenges for developing textbooks based on local knowledge. In the target schools, teachers generally rely on only one Indonesian textbook and learning module; they do not have other thematic or contextual resources available. This leads to a lack of variety in material delivery and low student participation in writing tasks, especially those involving narration and description. The integration of content based on the local context is expected to produce textbooks that are authentic, relevant, and have greater cultural learning value.

C. Research Instruments

Two main instruments were used in this study to assess the effectiveness of digital textbook development: a product validation questionnaire and a writing skills assessment rubric. Both instruments were deliberately designed to ensure that the evaluation of the learning product encompassed not only quantitative criteria but also qualitative insights from professionals and end users, including teachers and students. The assessment of students' competencies at two stages, before (pre-test) and after (post-test) the educational intervention using the digital textbook, relied on the assessment rubric. Plakans and Gebril (2017) developed a rubric based on academically accepted ideas and fundamental writing principles. The rubric emphasizes three main components: writing standards, vocabulary, and work organization.

The organizational component, at 30%, evaluates the clarity and cohesion of students' writing structures, including an introduction, content, and conclusion that are logically connected to each other. This writing structure contributed 30% to the overall assessment. In contrast, the vocabulary component evaluates students' ability to use vocabulary relevant to the local cultural context, which is essential for clearly and meaningfully expressing the atmosphere and essence of the narrative. This component assesses the word choice, linguistic variety, and accuracy of word selection. With a weight of 40%, the writing rules component became the main priority, and technical accuracy was evaluated, including the correct application of spelling, punctuation, grammar, and sentence structures. Each element was scored from "very poor" to "very good," thereby improving the data processing and enabling a comparison between pre- and post-test results.

In addition, we obtained valuable input from subject matter experts, language specialists, and instructional media experts through a product validation questionnaire. This questionnaire evaluated various aspects of the product, including content quality, language usage, graphic design, and suitability for elementary school students, using a 1–4 Likert scale. To help improve and refine the digital textbook, a comment box allowed validators to provide in-depth qualitative feedback. This study aims to ensure that the product is relevant and practical for enhancing the learning process of Indonesians rooted in local wisdom and to gain comprehensive knowledge about its effectiveness and quality.

D. Data Analysis Technique

Data from this study were analyzed using a complementary descriptive quantitative and qualitative approach to understand the level of acceptance and effectiveness of the digital textbook developed based on Baduy local knowledge. The quantitative study focused on students' narrative and descriptive writing abilities, as well as pre- and post-test score data. Using descriptive statistical techniques, these scores were analyzed, including calculations of averages, percentage increases, and score differences between the two assessment intervals. The main success criteria were developed based on a significant increase in average post-test scores compared to pre-test scores, thus confirming the positive impact of learning activities using a digital textbook. For example, an average pre-test score increase from 65 to 80 in the post-test, with a difference of 15 points, demonstrates how well the product improved students' writing abilities. This study used assessment rubric indicators to show which elements, vocabulary development, and improvements in narrative structure, experienced significant gains. Simultaneously, qualitative research was conducted through in-depth interviews with users of Indonesian language textbooks in the fourth grade. The interviews aimed to determine teachers' opinions on the ease of use, benefits, and impact of the digital textbook on student engagement and the learning process. Using data reduction and categorization of key themes, including increased student interest in learning, technical limitations of the Flipbook application, and their reactions to content highlighting local culture and narrative interpretation, the interview data were

systematically analyzed to generate comprehensive insights into the dynamics involved in product implementation. In addition to providing vital information for product refinement in the next stage of development, the qualitative results complemented the quantitative findings by explaining the background and justification for the proposed modifications.

This study combines two approaches: providing empirical evidence regarding the improvement of students' writing skills and clarifying the effectiveness of digital textbooks based on Baduy local knowledge within the education system of Lebak Regency. This comprehensive strategy is important to ensure that the results of this study are practically and culturally relevant to developing sustainable education.

IV. RESULTS

A. Digital Textbook Effectiveness Test

The pre- and post-tests administered to thirty fourth-grade students at a public elementary school in Lebak Regency made it possible to evaluate narrative and descriptive writing skills, thus enabling an assessment of the effectiveness of the Indonesian language textbook based on Baduy's local wisdom. As the measurements were taken from the same subjects before and after the intervention, the data collected were analyzed using a paired-sample t-test.

Balance Test

TABLE 1
NORMALITY TEST

	Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pre.test	Control	.128	35	.157	.935	35	.087
	Experiment	.115	35	.200*	.948	35	.095

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the normality test using the Shapiro test in the table above, the significance value for the control group before the test was 0.087, and for the experimental group before the test, it was 0.095, which is greater than α (0.05). Therefore, the pre-test data in the control and experimental groups were normally distributed, and parametric statistical tests could be used.

Homogeneity Test

TABLE 2
TEST OF HOMOGENEITY OF VARIANCE

		Levene Statistic	df1	df2	Sig.
Pre.test	Based on Mean	2.347	1	68	.130
	Based on Median	2.354	1	68	.130
	Based on Median and with adjusted df	2.354	1	64.874	.130
	Based on trimmed mean	2.339	1	68	.131

The criterion in this test is that if the significance value (Sig.) exceeded 0.05, it was concluded that the data were homogeneous. If the significance level (Sig.) is less than 0.05, it is concluded that the data are not homogeneous. Based on the output above, the significance value for the pre-test group variable was 0.130, which was greater than 0.05. Therefore, it can be concluded that the data were homogeneous.

TABLE 3
DIFFERENTIAL TEST

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pre.test	Control	35	65.06	11.425	1.931
	Experiment	35	65.74	9.169	1.550

Balance testing is conducted to ensure that, before treatment is given, the initial conditions between the experimental group and the control group are the same, especially in terms of pre-test scores. Based on the results of statistical analysis, the average pre-test score in the control group was 65.06 with a standard deviation of 11.425, while in the experimental group it was 65.74 with a standard deviation of 9.169. For further details, an Independent T-Test was conducted as follows.

TABLE 4
INDEPENDENT SAMPLES TEST

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Pre.test	Equal variances assumed	2.347	.130	-.277	68	.783	-.686	2.476	-5.627	4.255
	Equal variances not assumed			-.277	64.957	.783	-.686	2.476	-5.631	4.260

The results of the independent sample t-test show that the significance value (Sig. 2-tailed) is 0.783, which is well above the 0.05 threshold. This indicates that there is no statistically significant difference between the control group and the experimental group in the pre-test. The effect of the treatment on the experimental group can therefore be more convincingly attributed to the differences in the post-test, as both groups were balanced before the treatment. Effectiveness Test

TABLE 5
NORMALITY TEST

	Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Post-test	Control	.142	35	.070	.962	35	.268
	Experiment	.143	35	.069	.922	35	.059

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Based on the normality test using the Shapiro–Wilk test in the table above, the significance value for the control group's post-test was 0.268, and the post-test value for the experimental group was 0.059, both of which were greater than α (0.05). Therefore, it can be concluded that the post-test data in the control and experimental groups were normally distributed; thus, a parametric statistical test was used in this study.

TABLE 6
UJI HOMOGENITAS

		Levene Statistic	df1	df2	Sig.
Post-test	Based on Mean	1.905	1	68	.172
	Based on Median	1.473	1	68	.229
	Based on Median and with adjusted df	1.473	1	67.977	.229
	Based on trimmed mean	1.759	1	68	.189

The test criteria indicated that if the significance value (Sig.) is greater than 0.05, the data are considered homogeneous. If the significance level (Sig.) is less than or equal to 0.05, it is concluded that the data are not homogeneous. Based on the above output, the significance value of the post-test group variable was 0.172, which was greater than 0.05. Therefore, it can be concluded that the data were homogeneous.

TABLE 7
DIFFERENTIAL TEST

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Post-test	Control	35	78.86	4.493	.759
	Experiment	35	85.80	4.993	.844

Effectiveness testing was conducted to determine whether there was a significant difference in the post-test results between the experimental and control groups after treatment. Based on the descriptive statistical results, the average post-test score in the control group was 78.86, with a standard deviation of 4.493, whereas in the experimental group, it was 85.80, with a standard deviation of 4.993.

TABLE 8
INDEPENDENT SAMPLES TEST

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Post-test	Equal variances assumed	1.905	.172	-6.115	68	.000	-6.943	1.135	-9.208	-4.677
	Equal variances not assumed			-6.115	67.256	.000	-6.943	1.135	-9.209	-4.677

The results of the independent samples t-test showed a significant difference (Sig. The p-value was 0.000, 2-tailed), which is far below the significance threshold of 0.05. This indicates a statistically significant difference between the two groups. The mean difference of -6.943 shows that the post-test scores of the experimental group were significantly higher than those of the control group. Additionally, the confidence interval range from -9.208 to -4.677 does not include zero, which further strengthens the conclusion that the difference is significant.

Thus, it can be concluded that the treatment administered to the experimental group was effective in improving post-treatment test results compared to the control group.

Test the Difference Between the Pre-Test and Post-Test as a Whole

TABLE 9
PAIRED SAMPLES STATISTICS

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre.test	65.40	70	10.289	1.230
	Post.test	82.33	70	5.870	.702

The difference between the overall pre-test and post-test scores aims to determine whether there is a significant increase in participants' scores after the treatment, without differentiating between the control group and the experimental group. Based on the descriptive statistical results, the average pre-test score for all participants was 65.40, while the average post-test score increased to 82.33. This indicates an average difference of 16.929 points.

TABLE 10
PAIRED SAMPLES TEST

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre.test - Post.test	-16.929	11.964	1.430	-19.781	-14.076	-11.838	69	.000

The results of the paired-sample t-test indicate that this difference is statistically significant, with a significance value (Sig. The p-value was 0.000, 2-tailed), which was well below the significance threshold of 0.05. The t-value of -11.838 with 69 degrees of freedom (df) supports this conclusion. Moreover, the confidence interval ranging from -19.781 to -14.076 did not include zero, indicating that the difference between the pre- and post-test scores was significant.

Thus, it can be concluded that there was a significant improvement in the post-test results compared to the pre-test overall, indicating that the intervention provided during the learning process had a positive impact on the participants' abilities. Specifically, in terms of text organization, vocabulary, and writing conventions, the use of digital textbooks based on Baduy's local wisdom improved students' writing skills.

There was a consistent increase in scores, and most students earned more than ten points. These findings support the idea that integrating local cultural content through digital media can enhance student participation in the learning process and encourage more creative and contextually appropriate expressions of concepts in writing. Based on the quantitative results, the products created meet the learning objectives for Indonesian language instruction in narrative and descriptive writing and are therefore practical and successful.

B. Teachers' and Students' Enthusiasm Towards Baduy Cultural Content

The qualitative results of this study provide a comprehensive overview of the enthusiasm of teachers and students for the Baduy cultural content featured in digital textbooks. After the implementation of this product, semi-structured interviews with fourth-grade Indonesian language teachers and several students revealed different perspectives that validated the quantitative findings regarding the effectiveness of this learning tool. According to the teachers, the thematically organized approach based on local culture significantly improved student participation in writing tasks,

which are typically challenging. "In general, children struggle when asked to write," said another teacher. When reading stories about the lives of the Baduy people, including their lives in the forest, weaving techniques, and core values (pikukuh), the students showed great interest in the topic. In particular, when viewing images in a flipbook, many students felt inspired to write stories. This demonstrates that materials directly related to local life and culture can greatly inspire students' creativity and engagement in learning. Furthermore, another teacher noted that the visual and narrative materials provided digitally allow children greater imaginative space: "This flipbook helps children see animated pictures and hear sounds that bring the narrative to life in addition to reading the text," they said. This aligns with what a student said: "I enjoy learning about the Baduy clan because it is really interesting. They lived in the forest and made their clothes. I also plan to write a story about my hometown." These comments indicate that integrating cultural values into digital textbooks can enhance students' writing skills and strengthen the emotional bonds between students and the surrounding community.

Another student responded with a similar reaction: "I previously didn't know about the Baduy customs; now I understand the reasons behind their prohibition of technology." This is remarkable. From this perspective, the local knowledge they were unaware of demonstrated great curiosity and respect for the local culture. Other teachers have noted how this approach helps children to develop their cultural identities. "Learning about Baduy culture emphasizes the importance of preserving traditions and helps students feel proud of their region," said one student. This shows how digital textbooks promote character education and cultural literacy.

However, teachers have complained about technical obstacles in implementing Flipbook, including limited access to technology in students' homes. "Sometimes, they can't access the Flipbook at home, so they have to study at school." "This requires attention to ensure that all students can benefit equally," said the teacher. Another student complained that the material was sometimes difficult and demanding, saying, "Sometimes, the narration is too long and contains complicated vocabulary." I read it several times to better understand it. These comments highlight the importance of simplifying language and adjusting the content's difficulty level to improve accessibility for all students.

According to the teacher, cultural resources should be provided alongside various interactive activities that suit the diverse learning environments of students, in addition to stories and visuals. He suggests including group projects or assessments to encourage students' active participation rather than passive reading. This serves as an important reminder for the future development of digital textbooks that aim to enhance efficiency and inclusivity. Based on this qualitative research, integrating traditional Baduy local knowledge into digital textbooks significantly improves students' narrative and descriptive writing skills, while simultaneously boosting engagement, cultural awareness, and opportunities for authentic and meaningful learning. In particular, in the context of inclusive and contextual education, this approach of combining local materials with digital technology holds great potential for improving the learning environment in primary schools. However, to achieve a broader and fairer impact, we must recognize the technical challenges and the need for content updates in this area.



Figure 1. Front View of the Digital Book Baduy Cultural Content

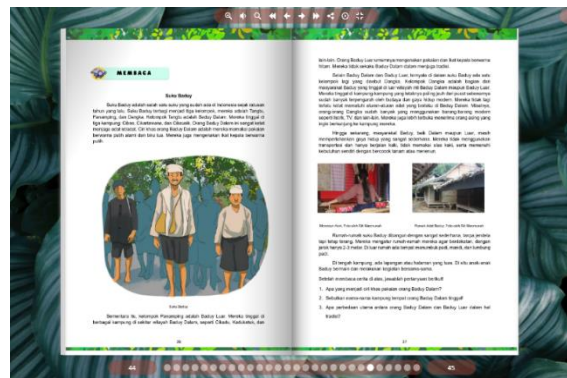


Figure 2. View of the Contents of the Digital Book Baduy Cultural Content

V. DISCUSSION

The results of this study indicate that the use of digital textbooks based on Baduy's local wisdom can significantly improve the writing skills of elementary school students. The significant difference between the pre- and post-test scores provides statistical evidence of this improvement. Additionally, qualitative observations showed that students were enthusiastic about learning material derived from the local culture related to their daily lives. Besides strengthening their technical writing skills, this participation also helps them feel prouder and more aware of their cultural identities.

These findings confirm the ideas of Abdulrahim and Orosco (2020) regarding Culturally Responsive Teaching, which states that learning will be more effective if the taught material relates to students' values, life events, and cultural perspectives. Preusche and Göbel (2021) noted that students' cognitive and emotional participation increases when they interact with learning resources that align with their cultural identity. In addition to serving as a learning tool, the digital textbooks produced in this study represent culture and help strengthen the emotional bond between students and their

educational journeys (Chang & Chen, 2023). Consequently, they help develop a strong cultural identity and add an intellectual aspect to it (Del Toro & Wang, 2021).

This is in line with Kertih and Sriartha's (2022) findings, who developed learning materials rooted in Bali's local history. According to one study, incorporating elements of local culture into Indonesian education can improve literacy rates and help students develop personally (Ramadhani et al., 2025). In this context, culture is seen as a dynamic and continually relevant source of knowledge rather than a static object of research (Lareau, 2015). For students, this digital textbook, which includes stories about Baduy Pikukuh, weaving traditions, and the daily lives of indigenous communities, provides an opportunity for deeper and more contextual learning. This helps students connect academic material to their sociocultural environment, thereby enhancing their understanding of and respect for local cultural heritage.

Particularly in the context of primary education, which is rich in cultural diversity, the results of this study show that using local wisdom as the basis for learning can be an important and transformative educational technique. This approach helps students develop their character, cultural identity, and intellectual capacity, thereby making education more inclusive, relevant, and empowering.

The results of this study are highly relevant for developing educational policies, especially regarding the curriculum and learning tools for elementary school students in Indonesia. These findings highlight the need to adjust the Indonesian curriculum, which has so far focused more on formal language aspects, to incorporate the cultural dimensions that exist and continue to evolve within society. Therefore, the curriculum should focus more on local wisdom as the main tool for improving students' writing skills. This approach enhances the quality of learning materials and increases their relevance and connection to students' daily lives, thus making learning more meaningful for students. Second, in line with the principles of the Independent Curriculum, which gives teachers the freedom to choose learning materials, this study supports comprehensive training for teachers so that they can create or select digital textbooks relevant to their context. Especially when combined with traditional cultural narratives from each region, the use of technology, such as flipbooks or similar digital platforms, can offer a successful and engaging means of distributing learning resources. This can improve access, student engagement, and enthusiasm for learning.

Third, education offices and legislators should promote the development of digital textbooks that are contextually appropriate and culturally inclusive to cover culturally diverse regions in Indonesia beyond Lebak Regency. This program can enhance the Pancasila Student Profile, especially in the areas of global diversity, critical thinking, and creative qualities, which are essential in the modern era.

Digital textbooks rooted in local wisdom can help preserve culture. In the long term, this can strengthen students' local identity from an early age, foster respect for cultural diversity, and create a generation that is not only technologically literate and academically strong, but also grounded in cultural values and able to adapt and thrive amid the dynamics of global change. Effective, inclusive, and sustainable learning depends on integrating local knowledge into the classroom learning process.

Although this study produced important results, it had some limitations. Due to the limited sample size, we cannot generalize the findings of this research in elementary schools in the Lebak Regency to all regions of Indonesia. In addition, the product trial was conducted only for a short period, so it cannot explain the long-term consequences of using digital textbooks based on local expertise. To assess the reproducibility and sustainability of these results, follow-up studies with broader geographic coverage and longer durations are recommended.

VI. CONCLUSION

This study successfully created an Indonesian digital textbook based on the local wisdom of Baduy culture, which has proven effective in improving the narrative and descriptive writing skills of elementary school students in Lebak Regency. Qualitative data indicated positive responses from teachers and students, especially in terms of increased engagement and a deeper understanding of local cultural values. The quantitative data showed a clear improvement in students' writing skills after using the textbook. Integrating Baduy cultural values into the digital learning tool enhanced the learning materials and helped students connect with their cultural identity, creating a more meaningful and relevant learning environment. This digital textbook supports the implementation of the Merdeka Belajar curriculum, which focuses on education that incorporates culture and technology, making it a tool for improving literacy and preserving the culture.

Although the results of this study are positive, there is still potential for further improvements. Future research could broaden its scope by involving a larger and more diverse group of participants and evaluating the effectiveness of digital textbooks across various local cultures in Indonesia. Subsequent studies should consider integrating other technologies, such as mobile applications or augmented reality, to enhance the engagement and appeal of learning tools. Based on local wisdom, this approach aims to provide a more comprehensive understanding of the capabilities of digital media to improve literacy while maintaining the sustainability of local cultures in a rapidly changing digital world.

REFERENCES

- [1] Abdulrahim, N. A., & Orosco, M. J. (2020). Culturally Responsive Mathematics Teaching: A Research Synthesis. *The Urban Review*, 52(1), 1–25. <https://doi.org/10.1007/s11256-019-00509-2>
- [2] Alwi, N. A., Kenedi, A. K., Arwin, A., Anita, Y., Handrianto, C., & Rasool, S. (2024). Sociocultural Approach through Digital Teaching Modules: A Solution to Improve Beginning Reading Skills in Elementary Schools. *Journal of Ecohumanism*, 3(7).

- <https://doi.org/10.62754/joe.v3i7.4552>
- [3] Asteria, D., Alvernia, P., Kholila, B. N., Husein, S. I., & Asrofani, F. W. (2024). Forest conservation by the indigenous Baduy community through customary law. *Journal of Cultural Heritage Management and Sustainable Development*, 14(2), 175–189. <https://doi.org/10.1108/JCHMSD-12-2020-0171>
 - [4] Boginskaya, O. (2025). Culture-specific Writing Styles in Postgraduate Students' Research Proposals. *Forma y Función*, 38(1). <https://doi.org/10.15446/fyf.v38n1.111314>
 - [5] Breton, T. R. (2023). National culture plays a crucial role in students' acquisition of mathematics and reading skills. *Compare: A Journal of Comparative and International Education*, 53(1), 55–71. <https://doi.org/10.1080/03057925.2020.1870100>
 - [6] Bukhori Muslim, A. (2021). Disadvantaged but more resilient: The educational experiences of indigenous Baduy children in Indonesia. *Diaspora, Indigenous, and Minority Education*, 15(2), 99–112. <https://doi.org/10.1080/15595692.2020.1839408>
 - [7] Caraballo, L. (2017). Students' Critical Meta-Awareness in a Figured World of Achievement: Toward a Culturally Sustaining Stance in Curriculum, Pedagogy, and Research. *Urban Education*, 52(5), 585–609. <https://doi.org/10.1177/0042085915623344>
 - [8] Chang, C.-C., & Chen, T.-C. (2023). Effects of digitisation/mobilisation and emotional design of textbooks on emotion, cognitive load, and cognitive performance. *Education and Information Technologies*, 28(11), 14827–14855. <https://doi.org/10.1007/s10639-023-11779-5>
 - [9] Del Toro, J., & Wang, M. (2021). School Cultural Socialization and Academic Performance: Examining Ethnic-Racial Identity Development as a Mediator Among African American Adolescents. *Child Development*, 92(4), 1458–1475. <https://doi.org/10.1111/cdev.13467>
 - [10] Enjang. (2022). Customary Values and Daily Communication of the Baduy Community in Indonesia. *Academic Journal of Interdisciplinary Studies*, 11(6), 164. <https://doi.org/10.36941/ajis-2022-0158>
 - [11] Gall, J. P., Gall, M. D., & Borg, W. R. (2014). *Applying Educational Research: How to Read, Do, and Use Research to Solve Problems of Practice*. Longman Publishing, Inc.
 - [12] Guo, K., Bussey, F., & Adachi, C. (2020). Digital learning across cultures: An account of activity theory. *Intercultural Education*, 31(4), 447–461. <https://doi.org/10.1080/14675986.2020.1747259>
 - [13] Hudhana, W. D., Sumarlam, & Sumarwati. (2025). Digital comics featuring folktales serve as learning media to enhance the ecoliteracy of elementary school students. *Theory and Practice in Language Studies*, 15(2), 443–451. <https://doi.org/10.17507/tpls.1502.14>
 - [14] Julia, P., & Jeyanthi, B. (2024). Exploring the Role of English Literature in Developing Cultural Competence in ESL Students. *World Journal of English Language*, 14(6), 432. <https://doi.org/10.5430/wjel.v14n6p432>
 - [15] Keifert, D. T. (2021). Family Culture as a Context for Learning through Inquiry. *Cognition and Instruction*, 39(3), 242–274. <https://doi.org/10.1080/07370008.2021.1913162>
 - [16] Kempe, A.-L., & Grönlund, Å. (2019). Collaborative digital textbooks – a comparison of five different designs shaping teaching and learning. *Education and Information Technologies*, 24(5), 2909–2941. <https://doi.org/10.1007/s10639-019-09897-0>
 - [17] Kertih, I. W., & Sriartha, I. P. (2022). Supplement Book of Social Studies Teaching Materials Through the Empowerment of Bali Local Wisdom as A Learning Source. *Jurnal Pendidikan Dan Pengajaran*, 55(1), 182–193. <https://doi.org/10.23887/jpp.v55i1.45487>
 - [18] Lareau, A. (2015). Cultural Knowledge and Social Inequality. *American Sociological Review*, 80(1), 1–27. <https://doi.org/10.1177/0003122414565814>
 - [19] Lee, S., Lee, J.-H., & Jeong, Y. (2023). The Effects of Digital Textbooks on Students' Academic Performance, Interest, and Learning Skills. *Journal of Marketing Research*, 60(4), 792–811. <https://doi.org/10.1177/00222437221130712>
 - [20] Lestariningsih, D. N., Sihombing, M., Okitasari, I., Wardhani, A. N., Budihastuti, E. (2023). Multimodal Linguistic Landscape in Lombok: A Case Study of Product Branding. *Theory and Practice in Language Studies*, 13(12), 3330–3337. <https://doi.org/10.17507/tpls.1312.31>
 - [21] Lin, F.-L., Lin, H.-H., & Chang, S.-L. (2023). Programming E-Books: Culture, English, and Scratch for Schoolchildren in Rural Taiwan. *IEEE Transactions on Education*, 66(1), 62–72. <https://doi.org/10.1109/TE.2022.3185318>
 - [22] Maulidiah, R. H., Nisa K., Rahayu S., Irma, C. N., & Fitrianti, E. (2023). Multicultural Education Values in Indonesian Textbooks: A Critical Discourse Analysis. *Theory and Practice in Language Studies*, 13(3), 624–635. <https://doi.org/10.17507/tpls.1303.11>
 - [23] Moutsinas, G. A., Orosco Gavilán, J. C., Cubas Ramirez, C. E., Panduro, B. C., Aníbal, O. G., Ngoc Dieu, D. L., & Naz, S. (2023). Reading comprehension and behavior in children using e-books vs. printed books. *World Journal of English Language*, 13(3), 172. <https://doi.org/10.5430/wjel.v13n3p172>
 - [24] Napan, K., Connor, H., & Toki, L. (2020). Cultural pedagogy and transformative learning: Reflections on teaching in a Māori environment in Aotearoa, New Zealand. *Journal of Transformative Education*, 18(1), 59–77. <https://doi.org/10.1177/1541344619858978>
 - [25] Netra, I. M., Pramarta, C. R. A., & Eddy, I. W. T. (2023). Digitizing Cultural Practices: Efforts to Increase Students' Cultural Knowledge and Reading Interest in Bali. *Journal of Language Teaching and Research*, 14(1), 142–152. <https://doi.org/10.17507/jltr.1401.15>
 - [26] Pang, V. O., Alvarado, J. L., Preciado, J. R., & Schleicher, A. R. (2021). Culturally Relevant Education: Think Local, Within a Holistic Orientation. *Multicultural Perspectives*, 23(1), 3–16. <https://doi.org/10.1080/15210960.2021.1877546>
 - [27] Pipitone, J. M., & Raghavan, C. (2022). Art as a cultural tool: Deconstructing exoticized notions of Balinese society during an American study abroad program. *Pedagogy, Culture & Society*, 30(5), 659–680. <https://doi.org/10.1080/14681366.2020.1844788>
 - [28] Plakans, L., & Gebril, A. (2017). Exploring the relationship between organization and connection with scores in integrated writing assessment. *Assessing Writing*, 31, 98–112. <https://doi.org/10.1016/j.asw.2016.08.005>
 - [29] Preusche, Z. M., & Göbel, K. (2021). Does a Strong Bicultural Identity Matter for Emotional, Cognitive, and Behavioral Engagement? *Education Sciences*, 12(1), 5. <https://doi.org/10.3390/educsci12010005>
 - [30] Rafalow, M. H., & Puckett, C. (2022). Sorting Machines: Digital Technology and Categorical Inequality in Education. *Educational Researcher*, 51(4), 274–278. <https://doi.org/10.3102/0013189X211070812>
 - [31] Ramadhani, Y. R., Tambunan, E. E., Harputra, Y., Sibuea, B., & Harahap, N. (2025). Integrating Critical Literacy and Local

- Wisdom: A Study of Batak Angkola Cultural Discourse in Indonesian EFL Higher Education. *Jurnal Ilmiah Spectral*, 11(1), 017–034. <https://doi.org/10.47255/90m30d28>
- [32] Rahim, H., & Daghigh, A. (2020). Locally Developed vs. Global Textbooks: An Evaluation of Cultural Content in Textbooks Used in ELT in Malaysia. *Asian Englishes*, 22(3), 317–331. <https://doi.org/10.1080/13488678.2019.1669301>
- [33] Rohmah, Z., Hamamah, H., & Junining, E. (2024). “I know this is good, but I am confused”: English teachers’ self-efficacy in implementing the Independent Curriculum. *Studies in English Language and Education*, 11(2), 820–837. <https://doi.org/10.24815/siele.v11i2.34804>
- [34] Roychoudhury, S. (2022). Artlikeness: Enargeia, Imagination, and the Enlivening of Shakespeare’s Hero. *English Literary Renaissance*, 52(3), 426–438. <https://doi.org/10.1086/721066>
- [35] Santoso, T., Nurasa, H., Rusli, B., & Sumadinata, R. W. S. (2025). Synergy of Environmental Management and Public Policy for Adat-Based Tourism: A Study on the Baduy Cultural Saba, Indonesia. *Journal of Ecohumanism*, 3(8). <https://doi.org/10.62754/joe.v3i8.5707>
- [36] Selasih, N. N., & Sudarsana, I. K. (2018). Education Based on Ethnopedagogy in Maintaining and Conserving Local Wisdom: A Literature Study. *Jurnal Ilmiah Peuradeun*, 6(2), 293. <https://doi.org/10.26811/peuradeun.v6i2.219>
- [37] Sholihah, U., Yuwono, S. E., & Kustinah, K. (2022). Primary School Teacher Education Students’ English Competence in Writing Viewed from Error Analysis of Making a Composition. *Lingua*, 18(2), 207–215. <https://doi.org/10.34005/lingua.v18i2.2160>
- [38] Slakmon, B. (2022). Effects of Dialogic Education on Sensemaking: Changes in Teachers’ Narrative Structure. *Teaching and Teacher Education*, 115, 103748. <https://doi.org/10.1016/j.tate.2022.103748>
- [39] Sobarna, C., Yulianti, S., & Afsari, A. S. (2024). Bynames in Baduy Dalam as a Conception of Family Relationships. *Journal of Language Teaching and Research*, 15(3), 853–862. <https://doi.org/10.17507/jltr.1503.18>
- [40] Sotero, M. C., Alves, A. G. C., Arandas, J. K. G., & Medeiros, M. F. T. (2020). Local and scientific knowledge in the school context: characterization and content of published works. *Journal of Ethnobiology and Ethnomedicine*, 16(1), 23. <https://doi.org/10.1186/s13002-020-00373-5>
- [41] Su, H., & Ma, F. (2021). Language Acquisition and Cultural Identity Among Modern Chinese Minority College Students. *Theory and Practice in Language Studies*, 11(10), 1203–1216. <https://doi.org/10.17507/tpls.1110.08>
- [42] Suharno, Pambudi, N. A., & Harjanto, B. (2020). Vocational education in Indonesia: History, development, opportunities, and challenges. *Children and Youth Services Review*, 115, 105092. <https://doi.org/10.1016/j.chilyouth.2020.105092>
- [43] Suri, D. & Chandra, D. (2021). Teachers’ Strategies for Implementing Multicultural Education Based on Local Cultural Values and Character Building for Early Childhood Education. *Journal of Ethnic and Cultural Studies*, 8(4), 271–285. <https://doi.org/10.29333/ejecs/937>
- [44] Tsertsvadze, M. (2021). About some methods of working with linguistic and cultural material while learning a foreign language. *Linguistics*, 2(44), 120–124. <https://doi.org/10.12958/2227-2631-2021-2-44-120-124>
- [45] Uzum, B., Yazan, B., Zahrawi, S., Bouamer, S., & Malakaj, E. (2021). A comparative analysis of cultural representations in collegiate world language textbooks (Arabic, French, and German). *Linguistics and Education*, 61, 100901. <https://doi.org/10.1016/j.linged.2020.100901>
- [46] Wardani, N. E., Suwandi, S., & Ulya, C. (2023). Feasibility Assessment of the Merdeka Curriculum in Bahasa Indonesia Digital Textbooks for Class VII Junior High Schools. *Theory and Practice in Language Studies*, 13(12), 3268–3278. <https://doi.org/10.17507/tpls.1312.25>
- [47] Wedin, A. (2020). Negotiating identities through multilingual writing: a local school policy that opens up spaces for students’ diverse languages. *Linguistics and Education*, 55, 100775. <https://doi.org/10.1016/j.linged.2019.100775>
- [48] Zhang, L., & Liu, Y. (2022). Multimodal E-Textbook Development for the Course of Intercultural Communication of National Image. *International Journal of Computer-Assisted Language Learning and Teaching*, 12(5), 1–14. <https://doi.org/10.4018/IJCALLT.313055>



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