

Implementation of Digital Teaching Materials Based on Local Wisdom of the Banten Region as a Media for Indonesian Language Literacy in Elementary Schools

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ABSTRACT

Community Literacy Development (IPLM) and reading interest. The method used is Research and Development (R&D) with the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The teaching materials developed are interactive animated videos highlighting Bantenese folktales. Implementation was carried out on 75 students (N = 75) from three elementary schools in Pandeglang Regency using a purposive sampling technique. The results showed a significant increase in students' literacy skills, with an average pre-test score of 26.0 increasing to 76.7 in the post-test. Analysis using a paired t-test showed a significant difference ($p < 0.001$). Student responses to the teaching materials were very positive: 89% stated that the material was interesting, 85% found it easier to understand the reading, and 82% were motivated to read other folktales. From the teacher's perspective, 92% acknowledged the ease of the learning process and 90% felt more confident in integrating technology. This proves that the implementation of digital teaching materials based on Banten local wisdom is effective in improving students' Indonesian language literacy skills, both in reading and writing skills and understanding of local culture. This study concludes that digital teaching materials based on local wisdom are not only relevant for improving student literacy, but also able to strengthen cultural identity, instill character values, and provide interactive and contextual learning. These findings support the theory of Culturally Responsive Teaching (CRT) by showing that the integration of local culture in digital learning can increase student engagement, motivation, and learning outcomes, thus contributing to the development of culturally responsive educational practices in a global context.

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1. INTRODUCTION

Education in Indonesia is developing rapidly with the use of information and communication technology in learning. Digital teaching media offers opportunities to improve literacy, including Indonesian language literacy (UNESCO, 2023; Yaumi, 2018). However, the application of digital teaching materials based on local wisdom, especially in the Banten region, remains limited. Based on data from the National Library of the Republic of Indonesia (2024), the Community Literacy Development Index (IPLM) for Pandeglang Regency, Banten, was recorded at 46.72 percent, a decrease from 51.77 percent in 2023. This decline indicates that reading interest and literacy levels in Pandeglang still need to be improved. In comparison, the national IPLM in 2024 reached 73.52, exceeding the target of 71.4 and an increase from the previous year's 69.42 (National Library of the Republic of Indonesia, 2024). This indicates that Pandeglang's IPLM (Learning and Learning) is still far below the national average, necessitating further steps to improve literacy in the region. Despite progress in some schools, student literacy in Pandeglang City still requires greater attention. National findings indicate that Indonesian students' literacy skills, including in Banten, remain below the ASEAN average. Improvement requires collaboration between the government, schools, teachers, parents, and the community, with a focus on strategies to increase the use of innovative learning media (Fajriati et al., 2026; Goldfarb & Tucker, 2019; Saifuddin & Putra, 2024; Sari et al., 2024).

Banten, with its rich culture and distinctive local wisdom, has the potential to become an educational resource that can enrich learning materials. Local wisdom, such as folklore, customs, and regional languages, contains relevant character education values and should be instilled in students from an early age. However, the integration of local wisdom into education in Pandeglang Regency remains suboptimal, particularly in the form of digital learning media. This is due to various factors, such as limited technological infrastructure, lack of teacher training, and low levels of digital literacy in most rural areas. Most digital teaching materials available in elementary schools are still general and do not incorporate local wisdom as part of the learning materials (Suyitno, 2021). One way to address this is to develop digital teaching materials based on local wisdom to improve students' Indonesian language skills in a more contextual and meaningful way. The implementation of digital teaching materials based on Banten's local wisdom as a medium for Indonesian language literacy in elementary schools is expected to improve students' understanding of local culture, enrich their Indonesian language literacy, and instill good moral values through folklore relevant to everyday life (Alwanda, 2026; Fathurrochman et al., 2026; Mukaromah et al., 2025; Sibarani, 2012).

This research will present the results of the development of digital teaching materials based on Banten's local wisdom in Indonesian language learning in elementary schools, the implementation of digital teaching materials based on Banten's local wisdom in Indonesian language learning in elementary schools, and the effectiveness of digital teaching materials based on Banten's local wisdom in improving elementary school student literacy. The urgency of this research is to develop digital teaching materials based on local wisdom to improve Indonesian language literacy in elementary schools, particularly in Pandeglang Regency. This is in line with findings showing low literacy rates in Pandeglang Regency, which are recorded far below the national average. This research focuses on solutions to improve student literacy skills by utilizing digital technology that integrates local cultural values. Furthermore, by highlighting Banten's local wisdom, such as folklore, this research aims to preserve local culture and instill positive character values in students.

Although various studies have developed digital learning media based on local wisdom in Indonesia, most still focus on integrating local culture as supporting learning materials and have not been specifically designed to improve Indonesian language literacy through folklore structured as interactive digital teaching materials. Several previous studies have highlighted local wisdom from other regions, such as Java, Bali, Sumatra, and Kalimantan, with an emphasis on character education, cultural preservation, or thematic learning. Meanwhile, research developing digital teaching materials based on Banten's local wisdom, particularly Bantenese folklore, to improve Indonesian language literacy in elementary school students is still very limited. Furthermore, most previous studies have not comprehensively tested the effectiveness of the products through the ADDIE Research and Development (R&D) model, which includes needs analysis, product development, implementation, and evaluation in an elementary school context. Therefore, there is a research gap in the development of digital

teaching materials that integrate Bantenese folklore as a literacy resource, strengthen local cultural identity, and simultaneously improve Indonesian language skills. This research aims to fill this gap by developing interactive animated videos based on Bantenese folk tales that not only function as digital learning media, but also as a means of strengthening literacy, preserving local culture, and instilling character values in elementary school students (Natacy et al., 2026; Oktavianti et al., 2026).

Table 1. Research Comparison Matrix

Comparative Aspect	Previous Research Based on Local Wisdom	Research Reviewed
Budaya Context	Generally, it raises local culture from various regions in Indonesia (Java, Bali, Sumatra, Kalimantan, and other regions).	Focusing specifically on Banten's local wisdom, especially Banten's folklore.
Development Goals	Instilling character values, preserving culture, or supporting learning.	Improving Indonesian language literacy while preserving local culture in Banten.
Product Form	E-modules, learning multimedia, educational applications, or general digital teaching materials.	Interactive animated video based on Banten folk stories.
Local Wisdom Material	Local culture is used as supporting learning material.	Bantenese folk tales are the core material for literacy learning.
Educational level	Various (elementary, middle, high school).	Focus on elementary school students.
Model Development	Most of them do not implement the complete R&D stages.	Using the ADDIE Research and Development (R&D) model systematically.
Effectiveness Measurement	Generally limited to expert validation and user feedback.	Measuring the improvement of literacy skills through pre-test and post-test.
Research Locations	Various regions in Indonesia.	Three elementary schools in Pandeglang Regency, Banten.
Practical Contributions	Supporting contextual learning and preserving local culture.	Supporting literacy improvement, character building, preserving Bantenese culture, and integrating technology into learning.
Novelty	Not yet integrating Indonesian language literacy, Bantenese	Integrate Indonesian language literacy, Bantenese folklore, interactive animation

	folklore, and interactive animation media into one learning product.	videos, and the Culturally Responsive Teaching (CRT) approach into one digital learning model.
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This research is based on the relationship between Indonesian language literacy, local culture-based learning, and the use of digital media in elementary school learning. Literacy is not only defined as the ability to read and write, but also the ability to understand, use, and critically evaluate information (Ministry of Education and Culture, 2017). In the context of 21st-century learning, the Multiliteracy theory proposed by the New London Group (1996) emphasizes that students need to master various forms of meaningful representation, including text, images, audio, and video, which are key characteristics of digital learning materials. To explain literacy skills more comprehensively, this research refers to the Four Resource Model developed by Freebody and Luke (1990), namely the ability to act as a codebreaker, text participant, text user, and text analyst. Through the digital presentation of Bantenese folktales, students learn not only to read and understand texts but also to use and reflect on the meaning and values contained within them (Lankshear & Knobel, 2011; Mubin & Aryanto, 2024).

The local wisdom of Banten, embodied in folktales, holds important cultural value to be passed on to the younger generation. UNESCO (2003), through the concept of Intangible Cultural Heritage (ICH), places folklore as part of the intangible cultural heritage that needs to be preserved because it embodies the knowledge, values, traditions, and cultural identity of a society. In line with this, Throsby (2010) explains that cultural heritage is a form of cultural capital possessing social, educational, and identity value that can be passed down between generations. Therefore, integrating Bantenese folklore into Indonesian language learning serves not only as a reading resource but also as an effort to preserve culture and strengthen students' local identities (Mier & van den Hurk, 1975). The use of Bantenese folklore in learning also aligns with the Culturally Responsive Teaching (CRT) approach. According to Gay (2018), learning will be more effective if it links the material to the students' cultural backgrounds and life experiences. Ladson-Billings (1995) adds that culturally relevant learning can improve academic achievement while maintaining students' cultural competence. In this study, Bantenese folklore serves as a means to connect students' cultural experiences with Indonesian language learning, making the material learned more meaningful and contextual. This approach also aligns with the concept of Place-Based Education proposed by Smith (2002), which emphasizes the importance of utilizing local culture, history, and the environment as learning resources relevant to students' lives.

To ensure optimal understanding of the material by elementary school students, the teaching materials were designed in the form of interactive animated videos based on Mayer (2020) Cognitive Theory of Multimedia Learning (CTML). This theory explains that students learn more effectively through a combination of words and images than through text alone. Therefore, the development of digital teaching materials in this study applied the principles of multimedia, coherence, signaling, and personalization to help students understand the content of folktales more easily and engagingly. Thus, the use of interactive animated videos not only supports the improvement of Indonesian language literacy skills but also strengthens understanding of local culture through learning experiences that align with the cognitive characteristics of elementary school students. Based on the interconnectedness of these theories, digital teaching materials based on Bantenese folktales are seen as a medium capable of integrating the development of Indonesian language literacy, the preservation of local cultural heritage, culturally responsive learning, and effective multimedia design. This integration becomes the conceptual basis for research in improving elementary school students' literacy skills in a contextual and meaningful manner.

2. METHOD

This study applies Research and Development (R&D) methods to design and implement digital teaching materials that highlight Bantenese local wisdom in elementary schools in Pandeglang Regency. This study links digital teaching materials based on Bantenese local wisdom with improving

Indonesian language literacy at the elementary school level. In addition, this study also links the use of educational technology with the preservation of regional culture, making the teaching materials a relevant and contextual learning tool for students. The main strategies in this study involve integrating local culture into interactive digital media, using teaching materials, and implementing a collaborative and step-by-step learning approach. The process includes analyzing student needs, designing effective teaching materials, developing and validating products, implementing them in the classroom by teachers, and evaluating their effectiveness through pretests, posttests, observations, interviews, and satisfaction questionnaires. The main strategies include incorporating local culture into interactive digital media and implementing collaborative learning methods in stages to ensure the successful use of these teaching materials. The data collected in this study are quantitative data. Data collection was carried out through tests, observations, interviews, questionnaires, and documentation to obtain comprehensive research results. The test instrument included multiple-choice, short-answer, and essay questions that assessed students' reading comprehension, vocabulary, and writing skills (Sugiyono, 2019). The research procedure encompassed several research stages, including preparation, implementation, and analysis and reflection, as shown in Figure 1 (Perdana et al., 2023; Prastowo, 2015; Widodo & Jasmadi, 2018).

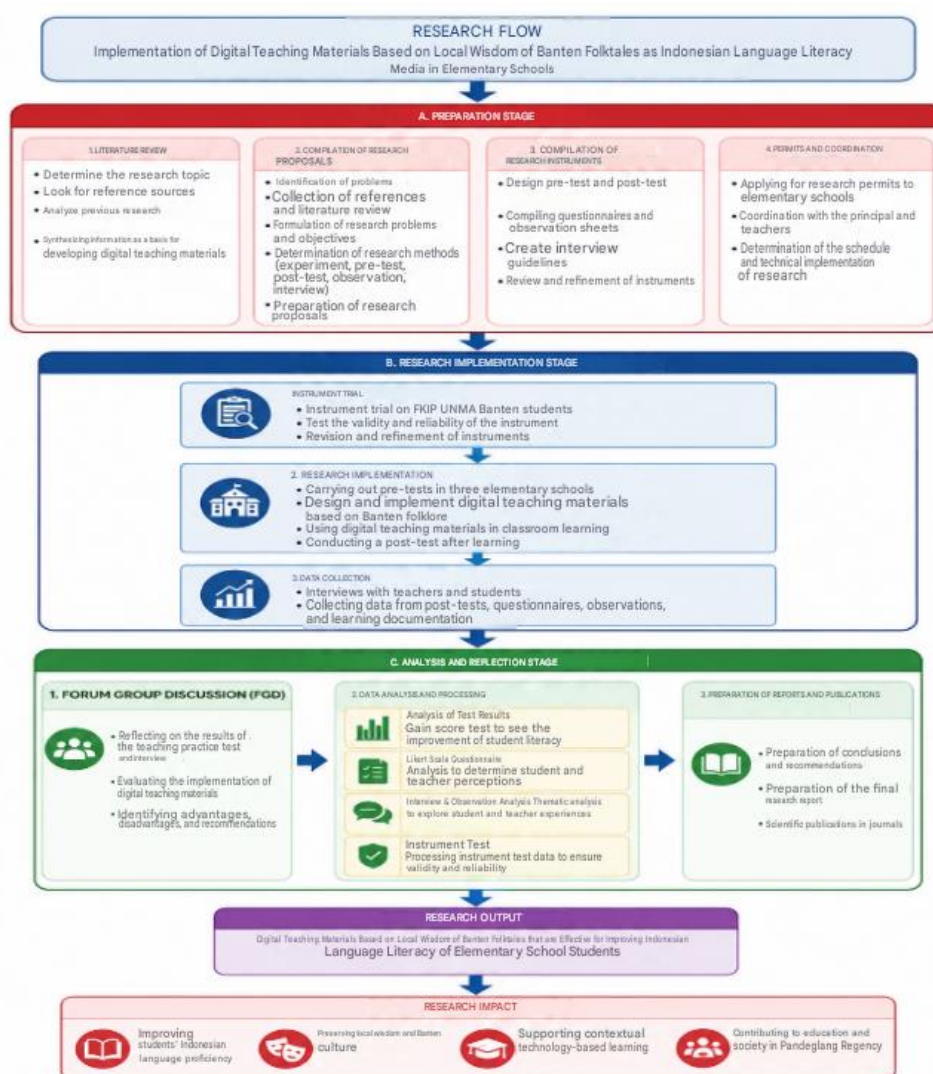


Figure 1. Research Flow

Figure 1 shows the stages, starting with the preparation stage, which is a crucial initial stage in the research because it serves as the foundation for the entire research process. The first activity in this stage is conducting an in-depth literature review. The researcher determined a research topic focused on the implementation of digital teaching materials based on the local wisdom of Bantenese folklore as a medium for Indonesian language literacy in elementary schools. After determining the topic, the researcher collected various relevant reference sources, including books, scientific articles, national and international journals, and other supporting documents related to digital teaching materials, Indonesian language literacy, and Bantenese local wisdom. Next, the researcher reviewed and analyzed various previous research findings addressing the use of digital teaching materials in language learning in elementary schools to identify findings, strengths, weaknesses, and research gaps that still need to be developed. The research results were then synthesized and systematically organized as a theoretical and conceptual basis for developing digital teaching materials based on Bantenese folklore.

After completing the literature review, the next step was to develop a research proposal. At this stage, the researcher identified various issues related to the effectiveness of using digital teaching materials based on local wisdom in improving Indonesian language literacy skills in elementary school students. Based on the identification results, the researcher collected and reviewed references supporting the formulation of the research problem. Next, the researcher formulated research questions, research objectives, and research benefits, aiming to measure the contribution of digital teaching materials based on Bantenese local wisdom in improving students' literacy skills. Furthermore, the researcher also determined the appropriate research method, including an experimental design with pre- and post-tests, observations, interviews, and other data collection techniques. All of these components were then systematically compiled into a research proposal that served as a guideline for the research implementation.

The next stage was the development of research instruments. At this stage, the researcher designed pre- and post-test instruments to measure students' Indonesian language literacy skills before and after using digital teaching materials. Furthermore, the researcher developed questionnaires and observation sheets to obtain data on student and teacher responses, perceptions, and engagement during the learning process using digital teaching materials based on Bantenese folklore. The researcher also developed interview guidelines to gather more in-depth information about the experiences, obstacles, and benefits perceived by teachers and students during the use of digital teaching materials. All instruments were then reviewed and refined to align with the research objectives. Before being used on the research subjects, all instruments were first piloted on students from the Faculty of Teacher Training and Education (FKIP) at Mathla'ul Anwar University (UNMA) in Banten. This pilot test aimed to determine the validity and reliability of the instruments and to obtain feedback on the clarity of the questions, the level of difficulty, and the consistency of the instruments in measuring the research aspects. The pilot test results were analyzed and used as a basis for revising and refining the instruments to ensure their suitability for use in the main research (Munshi et al., 2023).

The preparation phase concluded with obtaining permits and coordinating the research. The researchers submitted research permits to the three elementary schools serving as research locations: SDN Cihanjuang 1, SDN Cigeulis 1, and SDN Ciburial 1 in Pandeglang Regency. Next, the researchers coordinated with the school principals and class teachers regarding the research schedule, use of learning facilities, and technical aspects of the research implementation to ensure all activities proceeded as planned. After the instruments were declared valid and reliable, the research was conducted at SDN Cihanjuang 1, SDN Cigeulis 1, and SDN Ciburial 1 in Pandeglang Regency. The activity began with a pre-test to determine students' Indonesian language literacy skills before receiving treatment. Next, researchers implemented digital teaching materials based on Bantenese folktales that had been developed in the form of interactive animated videos. These teaching materials were used in various literacy activities, such as reading, understanding reading content, identifying story elements, and developing writing and speaking skills. Throughout the learning process, researchers conducted observations to assess student engagement, teacher activities, and the effectiveness of the use of digital

teaching materials in supporting Indonesian language literacy learning. After the entire learning series was completed, students were given a post.

3. FINDINGS AND DISCUSSION

3.1. Research Results Based on Digital Teaching Materials in 3 Schools in Pandeglang Regency

This research has successfully developed digital teaching materials based on Bantenese local wisdom in the form of animated videos highlighting the stories of Sheikh Maulana Yusuf, Prabu Pucuk Umun, and the Origin of the One-Horned Rhinoceros in Ujung Kulon. The development of these teaching materials follows a research and development model that includes needs analysis, design, development, implementation, and evaluation, in accordance with the R&D approach recommended in current literature (Borg & Gall, 2003; CEDTech, 2022). (Danandjaja, 2002) These teaching materials are designed to improve students' literacy skills while instilling positive cultural values and character. (Nurgiyantoro, 2019) The use of folklore as learning content has proven effective in strengthening students' character and cultural understanding. The implementation of digital teaching materials based on Bantenese local wisdom can be seen in Figure 2 (Sims & Stephens, 2011; Sumitri, 2023).



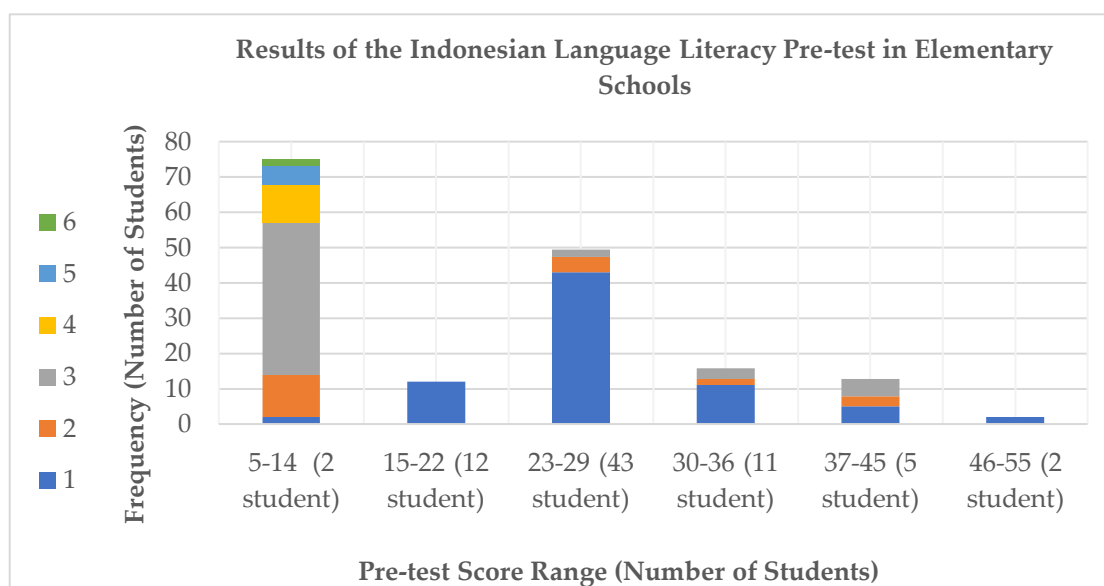
Figure 2. Digital Teaching Materials: Banten Folktales

Figure 2 shows digital learning materials based on local wisdom or folklore from Banten, implemented in three elementary schools in Pandeglang Regency: SDN Cihanjuang 1, SDN Cigeulis 1, and SDN Ciburial 1. Pre-test and post-test analysis showed a significant increase in students' literacy skills, from an average of 26.0 in the pre-test to 76.7 in the post-test, representing an increase of 50.69 points. This finding is consistent with the principles of socio-cultural context-based learning described by Vygotsky (1978) and supports recent research on digital storytelling in literacy (Robin, 2008). Student responses to the teaching materials were very positive, with 89% of students stating that the animated videos were engaging, 85% found it easier to understand the reading content, and 82% were more motivated to read other folktales (Smith, 2002). These findings support research showing that digital storytelling can significantly improve students' motivation and literacy skills (Leu et al., 2015). From a teacher perspective, 92% stated that digital teaching materials facilitated the literacy learning process, and 90% felt more confident in integrating technology into their learning, in line with the TPACK concept (Mishra & Koehler, 2006; Van Alten et al., 2019). In the long term, the development of these teaching materials has the potential to be replicated by other schools in Pandeglang Regency and other

regions, supporting equitable distribution of educational quality, cultural preservation, and strengthening national literacy (Ministry of Education and Culture, 2020; Rizkiah et al., 2026; Yang & Wu, 2012).

3.2. Indonesian Language Literacy Pretest and Posttest Results

The following graph shows the results of Indonesian language literacy learning in three elementary schools in Pandeglang Regency using a local wisdom-based approach through Bantenese folklore. The data presented includes a comparison of students' achievement or success levels in the learning process before and after the use of folklore-based digital video media. The pretest graph illustrates wide variations in initial abilities, with most participants at a low level of understanding. This provides an important basis for evaluating the effectiveness of the intervention, as seen in the comparison with the posttest results. The pretest results can be seen in graph 1.



Graph 1. Results of the Indonesian Language Literacy Pre-Test in Elementary Schools

The results of the posttest, conducted after the pretest, showed very positive results after the intervention, with the average score increasing drastically to 76.72 (from 26.03 in the pretest), and the score range shifting to the 58-100 range. The distribution of scores had quite high variability (standard deviation 13.57), indicating that although most participants achieved excellent results, there was still variation in achievement among them, with some achieving a perfect score (100), while others were in the middle range. This indicates the overall success of the intervention, but also highlights the need for a more individualized approach for participants who have not achieved optimal results. The results of this study prove that the use of digital teaching materials based on Banten local wisdom is more effective than conventional learning. In every school that used digital teaching materials, there was a higher increase in literacy achievement, both in terms of reading comprehension, writing skills, and appreciation of the teaching materials. Digital teaching materials are able to present interactive and engaging learning media. Digital features such as illustrated text, animation, and interactive exercises help students more easily understand the content of the reading and practice language skills. The role of Bantenese local wisdom in learning. The integration of Bantenese local wisdom into teaching materials adds contextual value to Indonesian language learning. Fairy tales such as the Origin of the One-Horned Rhinoceros, Pucuk Umun, and the story of Syeih Maulana Yusuf not only serve as reading texts but also strengthen cultural identity, instill moral values, and shape students' character. The posttest results can be seen in graph 2 below (Istiqomah et al., 2025).

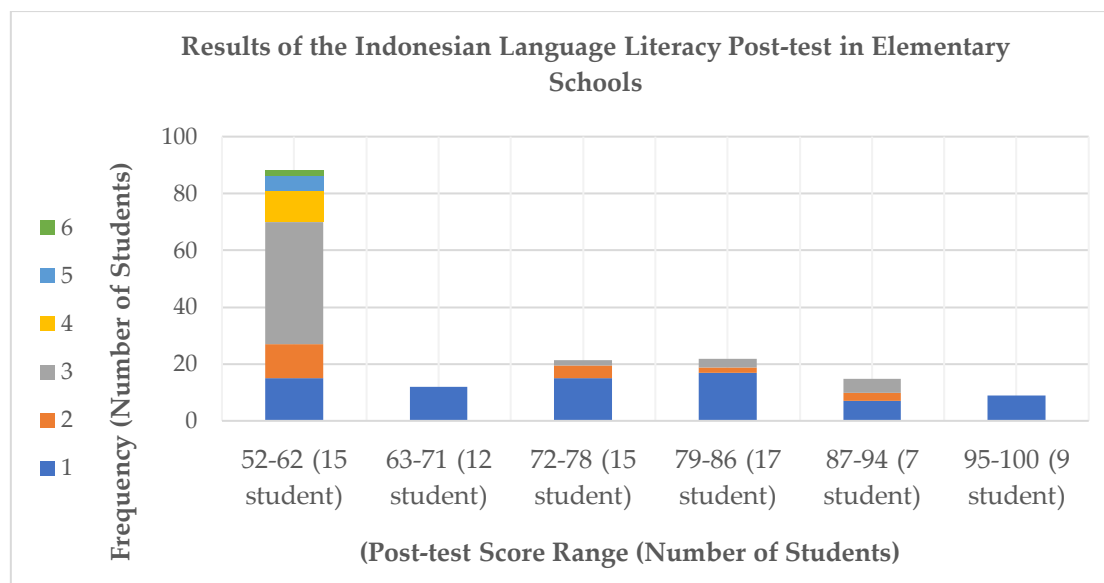


Chart 2. Results of the Indonesian Language Literacy Post-Test in Elementary Schools

Thus, the literacy developed is not just technical reading and writing skills, but rather critical literacy rooted in local culture. Significant improvements in literacy learning outcomes in the experimental class indicate that students are better able to understand main ideas, construct sentences correctly, and express their ideas in writing. This supports the idea that local wisdom-based learning can bridge students' everyday experiences with academic skills, making literacy more meaningful. Although the average improvements at SDN Cihanjuang 1, SDN Ciburial 1, and SDN Cigelis 1 were relatively high, the results indicate significant gains. Scores or results vary across schools, and this may be influenced by external factors such as student background, infrastructure, or students' level of familiarity with digital technology (Kusumaningrum, 2018; Patrisiana et al., 2020).

The results showed a standard deviation of 13.56 for the post-test scores, with a range of 58 to 100, indicating that although the Banten local wisdom-based digital learning material intervention was successful on average (an increase of 50.69 points), there were significant disparities in achievement among students. Some students achieved excellence with a perfect score of 100, while others stagnated in the range of 58 to 70. This difference is not simply a normal individual variation, but rather a reflection of accumulated structural inequalities involving early cultural capital, multimodal literacy skills, the quality of technological infrastructure, geographical-cultural resonance, and the quality of pedagogy implemented by teachers in three elementary schools in rural Pandeglang. Analysis using Throsby's Theory (2001) revealed that students who achieved a score of 100 possessed strong embodied cultural capital, namely Bantenese folktales internalized since childhood through oral traditions in their families or communities. When the animated video was played, these students only needed to activate their existing cognitive schemas, so that understanding was quick, deep, and meaningful. In contrast, students who stagnated in the range of 58 to 70 had no prior exposure to these stories, so the content presented felt unfamiliar and new, forcing them to work harder to process the information without a "cultural bridge" connecting the material to their lived experiences. This aligns with the UNESCO ICH framework, which emphasizes that intangible cultural heritage serves as a living resource; students who are connected to it have a competitive advantage, while those who are disconnected lose a crucial bridge of meaning in locally-based learning.

From the perspective of the Multiliteracies and Literacy Resource Model proposed by Freebody and Luke (1990), it appears that students with excellent grades are able to master all four roles of competent readers: codebreaker, meaningmaker, textuser, and textanalyst. They not only understand the story literally but are also able to identify moral messages, connect the story's values to everyday life, and critically appreciate narrative structures. Meanwhile, stagnant students remain stuck at the

superficial level of codebreaker and meaningmaker; they struggle with new vocabulary and causal relationships between events, so their understanding never reaches the depth necessary to answer analytical questions, which is reflected in their mid-range scores. Mayer (2009) explains that multimodal teaching materials such as animated videos should reduce extrinsic cognitive load. However, in the rural context of Pandeglang, the digital infrastructure challenges mentioned in the introduction create significant new extrinsic burdens. Limitations such as projectors with poor image quality, broken speakers, unstable electricity, and screens that are too small result in students' cognitive energy being drained on dealing with technical glitches, rather than on comprehending the story. Students who achieve a score of 100 likely come from schools or classes with more adequate technical conditions, while students who are stagnant face severe technical obstacles. This analysis is reinforced by Capra (1996), who views learning as an interconnected system. The failure of one element in the ecosystem, in this case digital infrastructure, will weaken the entire learning system and make student stagnation a systemic failure, not an individual one.

Ethnographic or place-based education, according to Sobel (2004) and UNESCO, provides an additional lens in that students who live near the story's setting, for example around Ujung Kulon or areas with historical traces of the Banten Sultanate, have a strong emotional and geographical resonance with the learning material. For them, Folktales are not simply academic texts, but rather explorations of self-identity and personal connections to their homelands, thus triggering high intrinsic motivation and deep cognitive engagement, ultimately leading them to achieve excellent grades. In contrast, students located culturally or geographically further from the narrative's center do not feel a sense of place; they perceive the stories as foreign and irrelevant to their daily lives, resulting in low motivation and abstract learning, contributing to their stagnant grades.

Finally, Culturally Responsive Teaching (CRT) by Gay (2018) and Ladson-Billings (1995) emphasizes that cultural content alone is not enough to guarantee success for all students; what is far more important is how teachers teach, using culture as a vehicle for achieving academic goals. Students who achieve 100s likely have teachers who intuitively or are trained to apply the CRT approach, namely by facilitating critical dialogue, connecting stories to students' lived experiences, and providing space for students to share local stories from their families. Conversely, stagnant students are likely in classes where teachers simply play videos and assign worksheets without reflective discussion. Learning remains transmissive and conventional, rather than transformative. Without the teacher's role as a cultural mediator, even rich digital learning materials become mere consumer products, not meaningful experiences capable of uplifting all students, especially those who are most marginalized (Fullan, 2014; Rusman, 2018).

Overall, the standard deviation of 13.56 and the presence of scores of 100 and 58 in one distribution are not statistical anomalies, but rather honest diagnoses of the accumulation of multidimensional inequalities in rural Pandeglang. Students who achieve perfect scores are those at the intersection of multiplicative advantages: strong cultural capital, mature literacy skills, access to adequate digital infrastructure, high sense of place, and teachers who implement culturally responsive pedagogy. In contrast, stagnant students face accumulated obstacles across all five aspects. Local wisdom-based digital interventions have proven effective on average, but without a holistic approach that includes strengthening cultural capital through community programs, instructional differentiation for students with low foundational skills, improvements to digital infrastructure, teacher training in CRT and TPACK, and the involvement of traditional leaders and parents, these interventions risk widening existing gaps—an effect known in the literature as the Matthew Effect. With an integrated and systemic strategy, these digital teaching materials can transform from simply improving averages to becoming a tool for equitable educational distribution for all students in Pandeglang Regency (Yusnan et al., 2025).

4. CONCLUSION

Based on the research objective to develop and implement digital teaching materials grounded in Banten's local wisdom to enhance the Indonesian language literacy of elementary school students it can be concluded that the study successfully achieved its intended goals. The digital teaching materials, developed by integrating Banten's local wisdom specifically through regional folklore provided learning content that was contextual, interactive, and closely aligned with the students' lives and cultural environments. Implementation results at SDN Cihanjuang 1, SDN Cigeulis 1, and SDN Ciburial 1 demonstrated an improvement in Indonesian language literacy skills following the use of these digital materials, particularly in reading comprehension, information identification, vocabulary enrichment, and the development and expression of ideas both orally and in writing. Integrating local wisdom into digital teaching materials also fostered a more meaningful learning experience, as students engaged with content relevant to their social and cultural backgrounds. The use of interactive, multimodal digital technology further boosted student motivation, participation, and engagement throughout the learning process. Beyond enhancing literacy skills, the use of Banten folklore and cultural values served as an educational tool to introduce and preserve local cultural identity among the younger generation. The values embedded in the materials supported character development, fostering traits such as cultural appreciation, responsibility, cooperation, empathy, and critical thinking.

This research demonstrates that digital teaching materials based on Banten's local wisdom offer an innovative and effective alternative for improving Indonesian language literacy at the elementary school level, while simultaneously supporting character education and the preservation of local culture. Successful implementation was contingent upon the specific learning ecosystem within each school. Factors such as the availability of technological infrastructure, teachers' readiness and competence in utilizing digital media, and students' digital literacy skills were crucial considerations in the application of these materials. Optimizing the use of these local wisdom-based digital materials requires adequate technological facilities, the enhancement of teachers' digital and pedagogical competencies, and ongoing support for students. Overall, this study confirms that the use of digital technology in Indonesian language learning can align with the preservation of local culture. Integrating the two fosters learning that is contextual, relevant, and meaningful, while simultaneously strengthening the literacy, character, cultural identity, and 21st-century skills of elementary school students.

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REFERENCES

- Alwanda, M. A. (2026). Integration of local wisdom in character building for elementary school students in Indonesia (2015–2025): A PRISMA-based systematic literature review. *Jurnal Humaniora Teknologi*, 12(1), 1–15. <https://doi.org/10.34128/jht.v12i1.215>
- Fajriati, N., Rusdiyani, I., & Fatimah, A. (2026). Development of Genially-based SERABB interactive learning media to enhance students' independence and IPAS learning outcomes in elementary education. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran, Dan Pembelajaran*, 12(2), 960–970. <https://doi.org/10.33394/jk.v12i2.20224>
- Fathurrochman, I., Asnawan, Monita, D., & Hasan, M. F. (2026). Integration of local wisdom in elementary school local content curriculum: A study in rural areas of Indonesia. *The Curriculum Journal*, 37(3), 696–724. <https://doi.org/10.1002/curj.70029>
- Fullan, M. (2014). *The principal: Three keys to maximizing impact*. San Francisco: Jossey-Bass.
- Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice* (3rd ed.). New York: Teachers

College Press.

- Goldfarb, A., & Tucker, C. (2019). Digital economics. *Journal of Economic Literature*, 57(1), 3–43. <https://doi.org/10.1257/jel.20171452>
- Istiqomah, F., Hasani, A., & Rosidin, O. (2025). Development of teaching materials based on local wisdom using the PQ4R method to improve reading comprehension in grade 5 students at SDN Panyirapan. *Journal of Education and Learning Research*, 3(1), 20–28. <https://doi.org/10.62208/jelr.3.1.p.20-28>
- Kusumaningrum, D. (2018). Environmental literacy in the 2013 curriculum and science learning in elementary schools. *Indonesian Journal of Natural Science Education*, 1(2), 57–64. <https://doi.org/10.31002/nse.v1i2.255>
- Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*, 32(3), 465–491. <https://doi.org/10.3102/00028312032003465>
- Lankshear, C., & Knobel, M. (2011). *New literacies: Everyday practices and social learning* (3rd ed.). Maidenhead: Open University Press.
- Leu, D. J., Forzani, E., Rhoads, C., Maykel, C., Kennedy, C., & Timbrell, N. (2015). The new literacies of online research and comprehension: Rethinking the reading achievement gap. *Reading Research Quarterly*, 50(1), 37–59. <https://doi.org/10.1002/rrq.85>
- Mayer, R. E. (2020). *Multimedia learning* (3rd ed.). Cambridge: Cambridge University Press.
- Mier, P. D., & van den Hurk, J. J. (1975). Lysosomal hydrolases of the epidermis. I. Glycosidases. *The British Journal of Dermatology*, 93(1), 1–10. <https://doi.org/10.1111/j.1365-2133.1975.tb06468.x>
- Ministry of Education and Culture. (2020). *National literacy movement roadmap*. Jakarta: Ministry of Education and Culture.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record: The Voice of Scholarship in Education*, 108(6), 1017–1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Mubin, M., & Aryanto, S. J. (2024). Indonesian language learning in elementary schools. *Edu Cendikia: Scientific Journal of Education*, 3(3), 554–559. <https://doi.org/10.47709/educendikia.v3i03.3429>
- Mukaromah, S., Nugrahani, F., & Sudiyana, B. (2025). Character education in children's story texts in Indonesian language textbooks in elementary schools as a strengthening of the Pancasila student profile. *Elementary School Education Journal*, 9(1), 1–10. <https://doi.org/10.30651/else.v9i1.23502>
- Munshi, A., Biswas, G., Baker, R., Ocumpaugh, J., Hutt, S., & Paquette, L. (2023). Analysing adaptive scaffolds that help students develop self-regulated learning behaviours. *Journal of Computer Assisted Learning*, 39(2), 351–368. <https://doi.org/10.1111/jcal.12761>
- Natacy, T. D., Handoyo, E., Aricindy, A., Armaid, I. E., & Christina, T. Y. (2026). Systematic literature review: Digital media based on local wisdom in improving elementary school students' cognitive outcomes. *Jurnal Didaktika Pendidikan Dasar*, 10(1), 201–228. <https://doi.org/10.26811/didaktika.v10i1.2039>
- New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review*, 66(1), 60–92.
- Oktavianti, S., Hendratno, H., & Subrata, H. (2026). Local wisdom in Indonesian language learning in elementary schools: A systematic literature review on learning media for texts. *Publikasi Pendidikan*, 16(1), 573. <https://doi.org/10.70713/publikan.v16i1.82004>
- Patrisiana, P., Dike, D., & Wibowo, D. C. (2020). Implementation of environmental literacy at SD Negeri 10 Kerapa Sepan, Kayan Hilir District, Sintang Regency. *Journal of Civic Education*, 5(2), 195–208. <https://doi.org/10.31932/jpk.v5i2.939>
- Perdana, R., Sunyono, Putrawan, G. E., Septiawan, T. Y., & Saputra, B. (2023). *Proceedings of the 4th International Conference on Progressive Education 2022 (ICOPE 2022)* (1st ed.). Paris: Atlantis Press.
- Prastowo, A. (2015). *A creative guide to creating innovative teaching materials*. Yogyakarta: Diva Press.
- Rizkiah, A., Nurulpaik, I., & Wulan, N. S. (2026). Effect of digital storytelling on elementary school students' reading literacy: An experimental research. *Journal of Indonesian Primary School*, 3(2), 40–

54. <https://doi.org/10.62945/jips.v3i2.861>
- Robin, B. R. (2008). Digital storytelling: A powerful technology tool for the 21st century classroom. *Theory Into Practice*, 47(3), 220–228. <https://doi.org/10.1080/00405840802153916>
- Rusman. (2018). *Learning models: Developing teacher professionalism*. Depok: PT RajaGrafindo Persada.
- Saifuddin, F., & Putra, L. D. (2024). Digital literacy in elementary schools: A systematic literature review. *Ideas for Indonesian Education*, 5(2), 86–99. <https://doi.org/10.30870/gpi.v5i2.24830>
- Sari, M., Elvira, D. N., Aprilia, N., Dwi R, S. F., & Aurelita M, N. (2024). Digital-based learning media to enhance learning interest in Indonesian language subjects. *Warta Dharmawangsa*, 18(1), 205–218. <https://doi.org/10.46576/wdw.v18i1.4266>
- Sibarani, R. (2012). *Local wisdom: The nature, role, and methods of oral tradition*. Medan: Oral Tradition Association.
- Sims, M. C., & Stephens, M. (2011). *Living folklore: An introduction to the study of people and their traditions*. Logan: Utah State University Press.
- Smith, G. A. (2002). Place-based education: Learning to be where we are. *Phi Delta Kappan*, 83(8), 584–594. <https://doi.org/10.1177/003172170208300806>
- Sugiyono. (2019). *Research and development (R&D) methods*. Bandung: Alfabeta.
- Sumitri, N. W. (2023). The existence of folktales and their functions in the lives of the people of East Manggarai. *Arif: Journal of Literature and Local Wisdom*, 3(1), 43–57. <https://doi.org/10.21009/Arif.031.03>
- Throsby, D. (2010). *The economics of cultural policy* (1st ed.). Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511845253>
- UNESCO. (2003). *Convention for the safeguarding of the intangible cultural heritage*. Paris: UNESCO Publishing.
- UNESCO. (2023). *Global education monitoring report 2023: Technology in education*. Paris: UNESCO Publishing.
- Van Alten, D. C. D., Phielix, C., Janssen, J., & Kester, L. (2019). Effects of flipping the classroom on learning outcomes and satisfaction: A meta-analysis. *Educational Research Review*, 28, 100281. <https://doi.org/10.1016/j.edurev.2019.05.003>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press.
- Widodo, C. S., & Jasmadi. (2018). *Guide to developing competency-based teaching materials*. Jakarta: Elex Media Komputindo.
- Yang, Y.-T. C., & Wu, W.-C. I. (2012). Digital storytelling for enhancing student academic achievement, critical thinking, and learning motivation: A year-long experimental study. *Computers & Education*, 59(2), 339–352. <https://doi.org/10.1016/j.compedu.2011.12.012>
- Yaumi, M. (2018). *Media and learning technology*. Jakarta: Prenadamedia Group.
- Yusnan, M., Munirah, M., & Nappu, S. (2025). Strengthening local wisdom values through challenge-based learning and folklore-based interactive media: A quasi-experimental study in Indonesian elementary education. *PPSDP International Journal of Education*, 4(2), 517–537. <https://doi.org/10.59175/pijed.v4i2.690>

