

Psycholinguistic-Based Digital Interactive Storytelling for Strengthening Literary Literacy and Pancasila Values

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Abstract

The transformation of 21st-century education requires literacy learning that improves reading competence while strengthening character and national values. Although digital storytelling has been widely used to support literacy development, a few studies have integrated psycholinguistic principles with digital interactive storytelling to simultaneously enhance literary literacy and Pancasila values among elementary school students. This study investigated the effectiveness of psycholinguistic-based digital interactive storytelling in improving literary literacy and strengthening Pancasila values among sixth-grade students at SDN Klender 03, East Jakarta. This classroom action research employed the Kemmis and McTaggart model in two cycles involving 31 students. Data were collected through literary literacy tests, observation sheets, interviews, and documentation. Literary literacy indicators included identifying story elements, interpreting meaning, drawing conclusions, and evaluating literary texts, while Pancasila values included cooperation, responsibility, empathy, critical thinking, and respect for diversity. The mean literary literacy score increased from 64.8 in the baseline condition to 74.2 in Cycle I and 84.6 in Cycle II, while learning mastery improved from 43.3% to 90%. Observation results also indicated improvements in Pancasila value indicators. These findings suggest that psycholinguistic-based digital interactive storytelling effectively enhances literary literacy and Pancasila values in elementary education.

Keywords: Digital interactive storytelling; Psycholinguistics; Literary literacy; Pancasila values; Elementary school.

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INTRODUCTION

The development of digital technology in the 21st century has transformed educational practices, including literacy learning in elementary schools. Educational institutions are increasingly expected to integrate digital technology into learning activities to improve student engagement and learning outcomes (Nisa et al., 2023) (Nugroho et al., 2024). In this context, literacy learning should not only develop reading competence but also support students in understanding values and building character through meaningful learning experiences (Masruroh et al., 2025).

Literary literacy plays an important role in elementary education because it helps students develop language skills, creativity, empathy, and analytical thinking (Farahiba, 2025). Through literary texts, students can explore human experiences, moral values, and social issues while strengthening their critical and reflective thinking abilities (Katili & Malik, 2025). Therefore, literary literacy is closely related to efforts to strengthen character education and Pancasila values in schools.

Despite its importance, literary literacy remains a major challenge in Indonesia. PISA 2022 results showed that Indonesian students' reading performance was still below the international average (Ahdiat, 2024). Previous studies also reported that many students experience difficulties in reading comprehension, drawing conclusions, and applying critical thinking skills when interpreting texts (Roomy, 2022) (Medranda-Morales, Miele, & Guevara, 2023). These conditions indicate that literacy learning still requires innovative approaches that encourage deeper understanding and active meaning construction.

In elementary education, literacy learning should not be limited to decoding written texts. Students need opportunities to interpret meanings, reflect on moral messages, and connect literary experiences with real-life situations. Such abilities are essential for developing the competencies emphasized in the Pancasila Student Profile, including critical thinking, collaboration, and social responsibility (Sufyadi et al., 2021).

From a psycholinguistic perspective, reading involves complex cognitive and emotional processes through which learners construct meaning from language (Beibei, 2023). Psycholinguistics explains how students process words, develop interpretations, and respond cognitively and emotionally to literary texts (Sarwar & Fortunasari, 2025). Consequently, literary learning should provide experiences that support language processing, meaning construction, and emotional engagement simultaneously.

One innovation that has gained increasing attention in literacy education is digital interactive storytelling. This approach combines text, images, audio, animation, and interactive features to create more engaging learning experiences (Shahid & Khan, 2022) (Captain & Cakir, 2025). Previous studies have shown that digital storytelling can improve reading comprehension, learning motivation, and critical thinking skills among elementary school students (Wiwikananda & Susanti, 2022) (Brenner et al., 2025).

Digital interactive storytelling is also considered relevant for character education because stories provide opportunities for students to explore moral values, empathy, tolerance, and social responsibility (Prasetyo et al., 2024).. Through interactive narratives, students can actively engage with characters and situations, enabling them to reflect on values that align with the principles of Pancasila.

However, most previous studies have focused primarily on reading comprehension and student engagement. Limited attention has been given to the integration of psycholinguistic principles into digital interactive storytelling to facilitate deeper literary interpretation and the internalization of Pancasila values. Furthermore, studies investigating literary literacy and Pancasila values simultaneously among elementary school students remain scarce.

This gap is particularly relevant to the context of SDN Klender 03 East Jakarta. Preliminary observations indicated that literary literacy learning was still dominated

by printed materials and conventional reading activities, resulting in low student engagement and difficulties in understanding literary texts in depth. Students also had limited opportunities to interpret stories, reflect on moral messages, and connect literary content with real-life experiences.

Therefore, this study investigates the implementation of psycholinguistic-based digital interactive storytelling to improve literary literacy and strengthen Pancasila values among sixth-grade students. The novelty of this study lies in integrating psycholinguistic meaning-construction processes with digital interactive storytelling within a Pancasila-oriented literacy framework. The findings are expected to contribute theoretically to psycholinguistic literacy research and practically to the development of innovative literacy learning models in elementary education.

RESEARCH METHOD

This study employed Classroom Action Research (CAR) based on the Kemmis and McTaggart model, which consists of four stages: planning, action, observation, and reflection (Siregar, 2025). The study was conducted in two cycles during the first semester of the 2025/2026 academic year at SDN Klender 03, East Jakarta. The participants were 31 sixth-grade students selected based on preliminary observations indicating difficulties in understanding literary texts, interpreting implicit meanings, and relating moral messages to everyday life.

The intervention involved psycholinguistic-based digital interactive storytelling using digital storybooks from the Ministry of Elementary and Secondary Education's BUDI platform. The stories integrated text, images, audio, animation, and reflective activities while incorporating Pancasila values such as cooperation, responsibility, empathy, critical thinking, and respect for diversity. Psycholinguistic principles were implemented through activities focusing on language comprehension, vocabulary exploration, meaning construction, story interpretation, identification of cause-and-effect relationships, and reflection on moral messages.

Data were collected through literary literacy tests, observations, interviews, and documentation. The literary literacy test measured students' ability to identify story elements, interpret meanings, draw conclusions, and evaluate literary texts in relation to real-life situations. Observation sheets were used to assess the manifestation of Pancasila values during learning activities. Interviews were conducted with students and teachers to obtain information regarding learning experiences and responses to digital interactive storytelling, while documentation included students' worksheets, reflective journals, photographs, and field notes. The research instruments and indicators are presented in Table 1.

Table 1. Research Instruments and Indicators

Instrument	Indicators
Literary Literacy Test	Identifying story elements (characters, setting, plot) Interpreting meanings and messages in literary texts Drawing conclusions and moral values from stories Evaluating literary texts and relating them to real-life situations

Instrument	Indicators
Observation Sheet of Pancasila Values	Cooperation (Gotong Royong) Responsibility Empathy Critical Thinking Respect for Diversity
Interview Guide	Student learning experiences and responses to digital interactive storytelling
Documentation	Student worksheets, reflective journals, learning activity photographs, and field notes

Observations were conducted collaboratively by the classroom teacher and the researcher during each learning cycle. The observation scores were used to determine the extent to which students demonstrated Pancasila values throughout the learning process. Detailed indicators and scoring procedures for each instrument observation are presented in Table 2.

Table 2. Pancasila Values Observation Sheet

Instrument
Cooperation (Gotong Royong) Responsibility Empathy Critical Thinking Respect for Diversity

A combination of qualitative and quantitative techniques was used to descriptively assess the research data. To reach conclusions, the data was reduced, presented, and analyzed using information gathered from interviews, documentation, and observations (Miles et al., 2020). Meanwhile, we assessed quantitative data from the literary literacy test by looking at how many students were able to complete each learning cycle and how much their average scores improved. The research results were validated using technical and source triangulation (Meydan & Akkaş, 2024). The study was deemed successful if at least 85% of students met the KKTP requirements and demonstrated improved abilities in understanding story content, interpreting moral messages, thinking critically, and demonstrating behaviors that reflected Pancasila values during the learning process.

RESULTS AND DISCUSSION

The implementation of psycholinguistic-based digital interactive storytelling resulted in a progressive improvement in students' literary literacy achievement across the two action cycles. Prior to the intervention, literary literacy learning was predominantly conducted through conventional reading activities using printed textbooks. Students experienced difficulties in identifying story elements, interpreting implicit meanings, understanding moral messages, and relating literary

texts to real-life situations. As shown in Table 3, the baseline assessment revealed a mean score of 64.8, with only 43.3% of students achieving the expected learning mastery.

Table 3. Improvement of Students' Literary Literacy Achievement

Indicator	Baseline	Cycle I	Cycle II
Mean Score	64.8	74.2	84.6
Students Achieving Mastery (n)	13	22	28
Students Not Achieving Mastery (n)	18	9	3
Learning Mastery (%)	43.3	70.0	90.0

The results demonstrate a substantial improvement in literary literacy achievement throughout the intervention. The mean score increased by 19.8 points from the baseline condition to Cycle II, while learning mastery improved from 43.3% to 90.0%. These findings indicate that digital interactive storytelling effectively supported students in understanding, interpreting, and evaluating literary texts. The improvement can be explained by the psycholinguistic processes embedded in the learning activities. Language comprehension involves cognitive and emotional mechanisms through which learners actively construct meaning. In the present study, students interacted with texts, images, audio, animation, and reflective tasks, enabling them to process linguistic information through multiple channels (Perez, 2022). This multimodal experience facilitated vocabulary acquisition, comprehension of cause-and-effect relationships, and deeper interpretation of narrative content (Tseng & Djonov, 2023).

The findings also suggest that guided interpretation and reflective activities played an important role in enhancing literary literacy. Students were encouraged to discuss character motivations, identify moral messages, and relate story events to their own experiences. Psycholinguistic meaning construction occurs when learners connect linguistic input with prior knowledge and personal experiences. Through repeated opportunities to interpret literary texts and exchange perspectives with peers, students gradually developed stronger analytical and reflective skills (Obiegbu, 2023). This finding is consistent with Barua (2023), who reported that digital storytelling promotes literacy development by increasing learner engagement and creating meaningful learning experiences. However, the present study extends previous findings by demonstrating that psycholinguistic-based digital storytelling supports not only reading comprehension but also literary interpretation and reflective thinking.

In addition to improving literary literacy, the intervention contributed to the strengthening of Pancasila values. Observation data revealed positive developments across all observed indicators, including cooperation, responsibility, empathy, critical thinking, and respect for diversity.

Table 4. Improvement of Pancasila Values from Cycle I to Cycle II

Pancasila Value Indicator	Cycle I (%)	Cycle II (%)
Cooperation (Gotong Royong)	72.5	89.3
Responsibility	70.4	87.8
Empathy	68.7	85.6

Pancasila Value Indicator	Cycle I (%)	Cycle II (%)
Critical Thinking	69.8	86.4
Respect for Diversity	71.2	88.1
Average	70.5	87.4

Table 4 shows that all Pancasila value indicators improved from Cycle I to Cycle II. The average achievement increased from 70.5% to 87.4%, indicating that students demonstrated stronger social awareness, collaborative behavior, empathy, responsibility, and respect for diversity during the learning process. The highest increase was observed in responsibility (17.4%), followed by empathy and respect for diversity (16.9%). These findings suggest that digital interactive storytelling provides opportunities for students to experience moral and social values through meaningful narrative contexts.

The strengthening of Pancasila values can be explained by the contextual and reflective nature of digital storytelling. Through literary narratives, students were exposed to situations involving cooperation, responsibility, empathy, and tolerance. Reflection activities encouraged students to evaluate characters' actions, consider alternative decisions, and connect story events with real-life experiences. Character education becomes more effective when values are learned through meaningful experiences rather than direct instruction alone (Fathoni, Sulaeman, Azizah, Styawati, & Ramadhan, 2024). Therefore, digital storytelling functioned not only as a literacy learning medium but also as a vehicle for character formation.

An important finding of this study is that improvements in literary literacy were accompanied by improvements in Pancasila values. Students who became more capable of interpreting literary texts also demonstrated higher levels of empathy, responsibility, cooperation, and respect for diversity. This relationship suggests that literary literacy is not merely an academic competence but also a means of developing moral understanding and social awareness. The meaning construction involves cognitive and emotional engagement, enabling learners to connect textual information with personal and social experiences (Zhu, Raman, Xing, & Slotta, 2021). In this study, such processes allowed students to internalize the values embedded in literary narratives while simultaneously developing literacy skills.

The effectiveness of the intervention can also be understood in relation to the developmental characteristics of elementary school students. The upper elementary students begin to develop more advanced language comprehension, abstract reasoning, and perspective-taking abilities (LaRusso, et al., 2016). Digital interactive storytelling supports these developmental needs by combining textual, visual, and auditory information in a single learning environment. The multimedia-supported storytelling enhances student engagement by facilitating both linguistic and emotional processing (Zhou & Yadav, 2017). Consequently, students became more active participants in literary discussions and demonstrated deeper understanding of literary and moral content.

This study contributes to the growing literature on digital literacy and character education. Previous studies have generally examined digital storytelling as a strategy for improving reading comprehension and learning motivation. The present study contributes new evidence by demonstrating that psycholinguistic-based digital interactive storytelling can simultaneously improve literary literacy and

strengthen Pancasila values among elementary school students. These findings highlight the potential of integrating psycholinguistic principles, digital technology, and character education within a single instructional framework to support more meaningful literacy learning in elementary education.

CONCLUSION

This study demonstrates that psycholinguistic-based digital interactive storytelling is an effective approach for improving literary literacy and strengthening Pancasila values among sixth-grade elementary school students. The integration of multimedia elements, reflective activities, and narrative interpretation enabled students to better understand literary texts while fostering responsibility, empathy, cooperation, tolerance, and critical thinking. These findings indicate that psycholinguistic-based digital storytelling can serve as an innovative literacy learning strategy that supports both academic and character development in elementary education.

The findings have practical implications for elementary school teachers by providing an alternative approach to literacy instruction that is more engaging, meaningful, and relevant to the needs of digital-age learners. Through digital interactive storytelling, teachers can simultaneously promote literary literacy and the internalization of Pancasila values within classroom learning activities.

However, this study has several limitations. The research involved only 31 students from a single elementary school, which may limit the generalizability of the findings. Future studies are recommended to involve larger and more diverse samples, compare different educational contexts, and examine the long-term effects of psycholinguistic-based digital interactive storytelling on students' literacy development and character formation.

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