



The effectiveness of the SEPTIA model integrating *Taneyan Lanjhang* local values on elementary students' social-cultural literacy

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Article info	Abstract
Keywords: elementary school, problem-based learning, SEPTIA model, social-cultural literacy, <i>Taneyan Lanjhang</i>	This study aims to evaluate the effectiveness of the SEPTIA model (Solving Education through Problem, Tradition, and Indigenous Approach) in enhancing fourth-grade students' socio-cultural literacy in elementary natural and social science studies (IPAS). The model integrates Problem-Based Learning (PBL) with the local cultural values of <i>Taneyan Lanjhang</i> to develop four dimensions of socio-cultural literacy: intellectual (analysis of social issues), social (empathy and tolerance), cultural (appreciation of local values), and collaborative (cooperative problem-solving skills). A quasi-experimental pretest-posttest control-group design was implemented, involving 50 fourth-grade students from two elementary schools in Pamekasan (25 in the experimental group and 25 in the control group). Data were collected using a validated socio-cultural literacy test and structured observation sheets, and were analyzed through paired-sample t-tests, independent-sample t-tests, and Cohen's d effect size. The results indicate that the experimental group demonstrated a statistically significant improvement in socio-cultural literacy scores compared to both their pre-test performance and the control group ($p < .001$). The mean score increased from 59.39 to 77.03 in the experimental group, whereas the control group exhibited a comparatively smaller gain. The effect size was large ($d = 1.72$), indicating a substantial impact of the SEPTIA model. All four dimensions of socio-cultural literacy improved, with the most pronounced gains observed in the social and cultural dimensions. These findings suggest that integrating local cultural values into a PBL framework is an effective pedagogical strategy for enhancing students' socio-cultural literacy. This study advances culturally responsive and context-based instructional models in elementary education, particularly by fostering social and cultural competencies alongside cognitive development.

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DOI: <http://dx.doi.org/10.33578/jpfkip.v15i3.576-591>

Received 28 December 2025; Received in revised form 31 March 2026; Accepted 8 April 2026

Available online 30 June 2026

e-ISSN 2598-5949 | p-ISSN 2303-1514 © The Authors.

1. Introduction

Primary education plays a fundamental role in human resource development in Indonesia, as it represents a critical period for shaping students' knowledge, skills, and character. Accordingly, education at this level should not only emphasize cognitive achievement but also foster socio-cultural literacy and character development. Socio-cultural literacy extends beyond basic literacy skills to include the ability to understand, evaluate, and apply social and cultural values in everyday contexts. It encompasses the capacity to recognize social issues, develop inclusive attitudes, and engage in culturally responsive actions within local, national, and global contexts (Kementerian Agama, 2024). In this regard, socio-cultural literacy is increasingly recognized as a multidimensional competence that integrates cognitive, affective, and social domains, enabling learners to function effectively in diverse and interconnected societies (Jagers et al., 2020; OECD, 2021). This perspective highlights the importance of integrating socio-cultural dimensions into elementary education to prepare students for the demands of 21st-century learning (Chang et al., 2026; UNESCO, 2021).

The implementation of the *Merdeka* Curriculum emphasizes this orientation by promoting the *Profil Pelajar Pancasila*, which underlines values such as collaboration, global diversity, and independence. These dimensions are closely aligned with socio-cultural literacy and require students to actively participate in social and cultural practices. Such competencies are not merely theoretical constructs but must be cultivated through meaningful learning experiences that encourage dialogue, reflection, and interaction within authentic social contexts (Gaudelli, 2016; Hess & McAvoy, 2015). However, despite this policy direction, classroom practices often remain dominated by teacher-centered approaches and cognitive-oriented assessments, limiting opportunities for students to meaningfully develop socio-cultural competencies (Lubis et al., 2025). Consequently, there is a growing need for instructional models that facilitate contextual, participatory, and value-based learning experiences in elementary education.

Previous studies have highlighted the potential of Problem-Based Learning (PBL) to enhance students' critical thinking, collaboration, and engagement. As an inquiry-based instructional approach, PBL encourages learners to construct knowledge through real-world problem-solving and collaborative interaction, which are essential processes in developing higher-order thinking skills (Hmelo-Silver, 2004; Kirschner & Hendrick, 2020). Nevertheless, most PBL implementations in elementary education have primarily focused on cognitive outcomes and have not systematically integrated local cultural values as a core component of the learning process (Yu & Zin, 2023). At the same time, research on socio-cultural literacy has often treated it as a secondary outcome rather than a primary instructional objective. This tendency reflects a fragmented approach to educational practice, in which cognitive and socio-cultural dimensions are addressed separately rather than holistically. This indicates a clear research gap: the lack of integrative instructional models that explicitly combine active learning approaches with culturally grounded content to holistically develop socio-cultural literacy.

Local wisdom, such as *Taneyan Lanjhang* in Madura, offers a valuable foundation for contextualized learning. This cultural system embodies values of mutual cooperation, deliberation, solidarity, and social responsibility that are highly relevant to socio-cultural literacy development (Majid et al., 2022). Based on a socio-cultural theoretical perspective, learning is deeply embedded in cultural contexts, and students' understanding is shaped through interaction with their social environment (Mercer et al., 2019; Vygotsky, 1978). Despite its pedagogical potential, the integration of such local values into formal classroom instruction remains limited and often incidental rather than systematically designed. As a result, students learn about cultural concepts theoretically without experiencing their practical relevance in real-life contexts. This gap highlights the need for culturally responsive pedagogical models that position local wisdom not as supplementary content, but as a central component of the learning process (Gay, 2018; Hammond, 2015).

To address these limitations, this study proposes the SEPTIA model (Solving Education through Problem, Tradition, and Indigenous Approach) as an instructional innovation that integrates PBL with local cultural values. The novelty of the SEPTIA model lies in positioning socio-cultural literacy as the primary learning outcome while embedding *Taneyan Lanjhang* as a contextual basis for problem-solving activities. By combining inquiry-based learning with culturally grounded content, the SEPTIA model seeks to create meaningful learning experiences that simultaneously develop students' cognitive abilities, social awareness, cultural appreciation, and collaborative skills within a unified instructional framework. Unlike previous approaches, this model explicitly connects cognitive, social, cultural, and collaborative dimensions within a coherent pedagogical design.

Therefore, this study aims to examine the effectiveness of the SEPTIA model in enhancing fourth-grade students' socio-cultural literacy in elementary natural and social science studies. It is hypothesized that students taught using the SEPTIA model demonstrate significantly higher socio-cultural literacy outcomes than those receiving conventional instruction. Through this investigation, the study not only provides empirical evidence of the effectiveness of culturally integrated instructional models but also advances context-based and culturally responsive pedagogy in elementary education.

2. Literature review

Socio-cultural literacy extends beyond basic literacy skills and refers to individuals' ability to interpret, evaluate, and apply social and cultural values in real-life contexts. It encompasses four interrelated dimensions: intellectual, social, cultural, and collaborative competencies, which collectively support the development of critical, empathetic, and socially responsible learners (Kementerian Agama, 2024). In contemporary educational discourse, socio-cultural literacy is increasingly conceptualized as a multidimensional construct that integrates cognitive understanding with social interaction and cultural awareness, enabling pupils to participate effectively in diverse and dynamic societies (Jagers et al., 2020; OECD, 2021). Despite functioning as isolated competencies, these dimensions operate interactively, where cognitive understanding (intellectual) informs social behavior, cultural awareness shapes attitudes, and collaboration enables the practical enactment of these values. In the context of elementary education, socio-cultural literacy is particularly crucial, as it contributes to the formation of students' identity and their capacity to engage constructively in diverse social environments (Chang et al., 2026; UNESCO, 2021).

Social science studies (IPS) serve as a strategic domain for fostering socio-cultural literacy because it directly addresses social interaction, cultural diversity, and civic responsibility.

As a discipline, social science studies provides a platform for students to explore social realities, develop civic competencies, and engage in reflective inquiry about societal issues (Barton & Levstik, 2004; Parker et al., 2013). However, existing instructional practices in elementary social science studies tend to emphasize content transmission rather than the development of socio-cultural competencies, resulting in students' limited ability to connect theoretical knowledge with real-life social contexts (Lubis et al., 2025). This limitation reflects a broader issue in traditional pedagogy, where learning is often decontextualized and lacks opportunities for meaningful social engagement and critical reflection (Fitchett et al., 2014). This limitation suggests that effective socio-cultural literacy development requires pedagogical approaches that actively engage students in meaningful social inquiry and contextual problem-solving.

Problem-Based Learning (PBL) has been widely recognized as an instructional approach that promotes critical thinking, collaboration, and student engagement through real-world problem-solving (Smith et al., 2022). Within a constructivist paradigm, PBL emphasizes learner-centered processes in which knowledge is actively constructed through inquiry, dialogue, and interaction with authentic problems (Hmelo-Silver, 2004; Kirschner & Hendrick, 2020). Within this framework, PBL positions pupils as active participants who construct knowledge through interaction with authentic problems and social dialogue. In relation to socio-cultural literacy, PBL provides a pedagogical mechanism through which students can explore social issues, negotiate meaning, and develop empathetic understanding. However, prior studies have predominantly focused on cognitive outcomes, with limited attention to the systematic integration of cultural contexts and affective dimensions in the learning process (Yu & Zin, 2023). This indicates that while PBL is effective in promoting higher-order thinking, its potential to foster socio-cultural competencies remains underutilized when cultural contexts are not explicitly embedded in the learning design. This indicates that PBL might be insufficient to fully address the multidimensional nature of socio-cultural literacy.

The incorporation of local wisdom into learning has been identified as a critical strategy for enhancing contextual relevance and cultural identity in education. Local cultural systems, such as *Taneyan Lanjhang* in Madura, embody values of mutual cooperation, deliberation, and social cohesion that are highly compatible with socio-cultural literacy development (Bhanuwati & Subroto, 2024; Majid et al., 2022). Based on a socio-cultural theoretical perspective, learning is inherently situated within cultural contexts and mediated through social interaction, making local wisdom a powerful resource for meaningful learning (Mercer et al., 2019; Vygotsky, 1978; Wegerif, 2021). Despite this potential, the use of local wisdom in classroom instruction remains fragmented and is rarely embedded within a structured pedagogical framework, limiting its impact on students' learning outcomes (Nugrahani S., 2025). Consequently, there is a need for instructional models that systematically integrate local cultural values into learning processes rather than treating them as supplementary or incidental content (Gay, 2018; Hammond, 2015).

Based on the synthesis of these perspectives, an effective approach to developing socio-cultural literacy requires the integration of three key elements: (1) active learning processes that engage students in problem-solving (PBL), (2) culturally grounded content that reflects students' social realities (local wisdom), and (3) a multidimensional literacy framework that encompasses cognitive, social, cultural, and collaborative competencies. The absence of such integration in existing studies indicates a critical gap between theoretical frameworks and classroom practice, particularly in elementary education contexts. However, existing studies have not sufficiently combined these elements into a unified instructional model, resulting in a gap between theoretical potential and classroom practice.

The SEPTIA model (Solving Education through Problem, Tradition, and Indigenous Approach) is proposed to address this gap by integrating PBL with local cultural values as a structured pedagogical framework. The model positions socio-cultural literacy as the primary learning outcome and operationalizes it through culturally contextualized problem-solving activities. By embedding *Taneyan Lanjhang* values into each stage of the learning process, the model facilitates the simultaneous development of intellectual understanding, social awareness, cultural appreciation, and collaborative competencies.

Thus, this study contributes to the literature by providing an empirical examination of a culturally integrated PBL model that explicitly targets socio-cultural literacy as a multidimensional construct. This contribution is significant in advancing the theoretical and practical discourse on culturally responsive pedagogy and contextualized learning in elementary education.

3. Method

This study employed a quantitative, quasi-experimental, nonequivalent control group design to examine the effectiveness of the SEPTIA model in improving fourth-grade students' socio-cultural literacy (Creswell, 2014). This design is widely used in educational research where random assignment is not feasible, allowing researchers to examine causal relationships while maintaining ecological validity in natural classroom settings (Darling-Hammond et al., 2020). Although classroom observations and student reflections were collected, these data were used solely to support the interpretation of quantitative findings and did not constitute a mixed-methods design. Thus, the study remains methodologically grounded in a quantitative paradigm, with qualitative data functioning only as complementary evidence. The study focuses on measuring differences in socio-cultural literacy outcomes between students exposed to the SEPTIA model and those receiving conventional instruction.

The research was conducted in two public elementary schools in Pamekasan, namely SDN Kangenan 1 and SDN Panglegur 2. A total of 50 fourth-grade students participated in the study, with 25 students assigned to the experimental group and 25 to the control group. The use of intact classroom groups reflects the practical constraints of school-based research while preserving the authenticity of instructional conditions (Sinnema et al., 2022). The selection of two different schools introduces a potential institutional bias; therefore, efforts were made to ensure baseline equivalence by selecting schools with comparable accreditation status, student characteristics, socio-cultural backgrounds, and implementation of the *Merdeka* Curriculum. Furthermore, pre-test scores were statistically analyzed to confirm initial equivalence between groups, thereby reducing selection bias and strengthening internal validity.

The intervention was conducted over four weeks, comprising eight 70-minute instructional sessions. The experimental group was taught using the SEPTIA model, which integrates Problem-Based Learning (PBL) with local cultural values of *Taneyan Lanjhang*, while the control group received conventional teacher-centered instruction. The duration and structure of the intervention were designed to ensure sufficient exposure to the instructional treatment while maintaining alignment with regular classroom schedules. The learning content was aligned with the IPAS topic "Togetherness in Diversity," which is directly related to socio-cultural literacy development.

The primary instrument was a socio-cultural literacy test constructed based on four dimensions: intellectual (analysis of social issues), social (empathy and tolerance), cultural (appreciation of local values), and collaborative (group problem-solving skills). This multidimensional framework is consistent with contemporary perspectives on socio-cultural

competence, which emphasize the integration of cognitive, affective, and social domains (Jagers et al., 2020; OECD, 2021). The test consists of 12 contextual essay items, with each dimension represented by three items. A detailed scoring rubric was developed to assess students' responses across cognitive and affective indicators, using a scale ranging from 1 (low performance) to 4 (high performance). The use of open-ended items was intended to capture deeper levels of understanding and reasoning that could not be adequately measured through objective test formats. In addition, structured observation sheets were used to document student engagement, interaction patterns, and the fidelity of SEPTIA model implementation.

Content validity of the instrument was established through expert assessment involving three specialists in elementary education, natural and social science education, and local culture. Reliability testing using Cronbach's Alpha yielded a coefficient of 0.83, indicating high internal consistency.

This level of reliability suggests that the instrument provides consistent measurement across items and is suitable for assessing multidimensional literacy constructs. To enhance measurement transparency, item distribution, scoring criteria, and alignment with each socio-cultural literacy dimension were explicitly defined prior to data collection.

Data collection was conducted through pre-test and post-test procedures administered to both groups. Students' baseline socio-cultural literacy was assessed in the pre-test, while learning outcomes after the intervention were measured in the post-test using equivalent but non-identical items to reduce testing effects. The use of parallel test forms was intended to minimize practice effects while maintaining construct equivalence. Prior to hypothesis testing, assumptions of normality (Kolmogorov-Smirnov test) and homogeneity of variance (Levene's test) were examined.

To strengthen the rigor of the statistical analysis, this study employed Analysis of Covariance (ANCOVA), using pre-test scores as covariates to control for initial differences between groups. ANCOVA is considered a robust statistical technique in quasi-experimental designs, as it adjusts post-test scores by accounting for baseline variability, thereby improving the accuracy of treatment effect estimation (Nemakhavhani, 2024). In addition, independent-sample t-tests were used to compare post-test scores, and paired-sample t-tests were conducted to examine within-group improvements. Effect size was calculated using Cohen's d to determine the magnitude of the treatment effect, with interpretation criteria of small (0.2), medium (0.5), and large (≥ 0.8).

Ethical considerations were carefully addressed in this study. Permission was obtained from the school authorities prior to data collection, and informed consent was secured from students' parents or guardians. The study adhered to ethical principles for research involving human participants, including confidentiality, voluntary participation, and data protection. All data were treated confidentially, and students' identities were anonymized to ensure privacy and protection.

Through this methodological approach, the study aims to provide robust empirical evidence regarding the effectiveness of the SEPTIA model in enhancing socio-cultural literacy. The integration of a controlled quasi-experimental design, validated instruments, and advanced statistical analysis enhances the internal validity and reliability of the findings, thereby supporting more credible and generalizable conclusions.

4. Results

4.1 Differences in social-cultural literacy levels before and after the implementation of the SEPTIA model

The descriptive statistics indicate that students' socio-cultural literacy in the experimental group improved substantially following the implementation of the SEPTIA model. The mean pre-test score was 59.39 (SD = 6.12), which increased to 77.03 (SD = 5.84) on the post-test. This increase reflects a notable improvement in students' overall socio-cultural literacy performance after the intervention. This pattern of improvement is consistent with previous findings indicating that contextual and problem-based learning approaches can enhance students' learning outcomes and engagement in elementary education (Damayanti et al., 2025; Subadi et al., 2021).

As shown in Table 1, the descriptive data demonstrate a consistent increase in scores, suggesting that the improvement is experienced broadly across students in the experimental group rather than being limited to a small number of individuals.

Table 1. Descriptive statistics of pre-test and post-test scores

Groups	Tests	Mean	SD
Experimental	Pretest	59.39	6.12
Experimental	Posttest	77.03	5.84
Control	Pretest	60.18	6.05
Control	Posttest	66.02	5.97

A paired-sample t-test was conducted to examine the significance of this improvement. The results reveal a statistically significant difference between pre-test and post-test scores, $t(24) = 14.27$, $p < .001$, indicating that the SEPTIA model has a significant effect on students' socio-cultural literacy.

The relatively low standard deviation values in both pre-test and post-test scores indicate that the improvement was consistently observed among students. This consistency strengthens the reliability of the findings and suggests that the intervention was effective across different levels of student ability.

Improvements were observed across all four dimensions of socio-cultural literacy (intellectual, social, cultural, and collaborative). The largest gains were found in the social and cultural dimensions, particularly in students' ability to demonstrate empathy, tolerance, and appreciation of local values. Similar findings have been reported in studies highlighting the role of culturally responsive learning in strengthening students' social awareness and character development (Marlini et al., 2025; Suwartini et al., 2025).

4.2 Effectiveness of the SEPTIA model in enhancing social-cultural literacy compared to conventional instruction

A comparison of gain scores between the experimental and control groups was conducted to evaluate the effectiveness of the SEPTIA model relative to conventional instruction. The experimental group revealed a mean gain of 17.65 (SD = 4.21), whereas the control group showed a mean gain of 5.84 (SD = 3.76). This substantial difference suggests that students exposed to the SEPTIA model experienced significantly greater improvement than those receiving conventional instruction.

This result supports previous research indicating that student-centered and context-based instructional models are more effective than traditional approaches in improving learning outcomes (Alyusfitri et al., 2024; Gunawan et al., 2024).

An independent-samples t-test indicates that the difference in gain scores between the two groups was statistically significant, $t(48) = 10.21$, $p < .001$, confirming that the SEPTIA model was significantly more effective than traditional teaching approaches. As shown in Table 2, the inferential analysis results further support the intervention's effectiveness.

Table 2. Inferential analysis results

Analyses	Values	Df	p-value
t-test (gain score)	10.21	48	< .001
ANCOVA (model effect)	96.35	(1, 47)	< .001
Effect size (Cohen's d)	1.72	—	Large

To control for potential baseline differences, an Analysis of Covariance (ANCOVA) was conducted using pre-test scores as a covariate. The results confirm a significant effect of the instructional model on post-test scores, $F(1, 47) = 96.35$, $p < .001$, $\eta^2 = .67$. This large effect size indicates that a substantial proportion of the variance in post-test scores is attributable to the intervention.

Furthermore, the magnitude of the treatment effect, as measured by Cohen's d, was 1.72, indicating a large effect. This finding is in line with studies showing that integrating active learning strategies with contextual content can produce substantial educational impact (Abdillah et al., 2025; Suarmika et al., 2025).

4.3 Evaluation of the integration of *taneyan lanjhang* local values in strengthening the four dimensions of social-cultural literacy (intellectual, social, cultural, and collaborative)

Structured observation data, as described in the methodology, were used to support the quantitative findings. The results indicate that students in the experimental group demonstrated higher levels of engagement, participation in discussions, and collaborative interaction compared to those in the control group. These findings are consistent with previous studies emphasizing that culturally integrated learning environments can enhance student engagement and participation in elementary classrooms (Sari & Kumalasani, 2025; Yuliantika et al., 2025).

Students in the experimental group were observed to:

- actively express opinions and respond to peers' perspectives,
- demonstrate increased empathy and respect for differences,
- engage more effectively in group problem-solving activities.

These observable behaviors reflect key components of socio-cultural literacy, particularly in the social and collaborative dimensions, where interaction, communication, and mutual understanding are essential (Jagers et al., 2020; OECD, 2021).

Furthermore, the integration of *Taneyan Lanjhang* local values appears to play a significant role in strengthening students' socio-cultural competencies. As a cultural system rooted in values of mutual cooperation, deliberation, and social harmony, *Taneyan Lanjhang* provides an authentic context for students to experience and internalize socio-cultural values in meaningful ways (Majid et al., 2022; Uge et al., 2019).

In the intellectual dimension, students demonstrated an improved ability to analyze social issues by connecting abstract concepts to culturally relevant contexts. This indicates that

contextualized learning supported deeper cognitive processing and critical reflection (Hmelo-Silver, 2004; Kirschner & Hendrick, 2020).

In the social dimension, students exhibited increased empathy, tolerance, and respect for diverse perspectives, reflecting the internalization of social values embedded in local culture. These findings align with socio-cultural learning theory, which emphasizes that social interaction plays a central role in shaping learners' attitudes and understanding (Mercer et al., 2019; Vygotsky, 1978).

In the cultural dimension, students revealed greater appreciation for local traditions and values, indicating that integrating cultural content enhanced their cultural awareness and identity formation. This supports the notion that culturally responsive pedagogy can strengthen students' connection to their cultural context and promote meaningful learning (Gay, 2018; Hammond, 2015).

In the collaborative dimension, students became more actively involved in group discussions and collective problem-solving activities. This reflects the influence of *Taneyan Lanjhang's* values, which emphasize cooperation and communal decision-making as core social practices.

Compared to the control group, where students tend to engage passively, the experimental group exhibited more dynamic interaction patterns, suggesting that culturally integrated instructional design plays a crucial role in fostering active participation and social engagement.

These findings support the quantitative results by showing that improvements in socio-cultural literacy were not only reflected in test scores but also in observable classroom behaviors. The convergence of quantitative and observational data strengthens the validity of the findings and indicates that the SEPTIA model effectively promotes holistic socio-cultural literacy development by integrating cognitive, social, cultural, and collaborative dimensions within a meaningful learning environment.

5. Discussion

5.1 Differences in social-cultural literacy levels before and after the implementation of the SEPTIA model

The increase in social-cultural literacy scores following the implementation of the SEPTIA model demonstrates that learning grounded in local values is more effective in fostering students' social awareness. Contextual learning that integrates local wisdom strengthens students' sense of identity and attachment to their communities (Sukadari et al., 2020). The SEPTIA model serves as a bridge between natural and social studies content and real-world social practices, enabling students to understand sociocultural values more easily, as these values are derived from their lived experiences.

Regarding the theoretical perspective, problem-based learning, as adopted in the SEPTIA Model, positions students as active participants in the learning process. This aligns with constructivist learning theory, which emphasizes that meaning is constructed through experience. By analyzing sociocultural issues closely related to students' daily lives, pupils can internalize these values more deeply. Importantly, this improvement should not be interpreted merely as an increase in test scores, but as an indication of a deeper transformation in students' socio-cultural understanding and engagement, encompassing both cognitive and affective domains (Jagers et al., 2020; OECD, 2021).

Significant changes in students' empathy and social awareness indicate the success of instruction that extends beyond cognitive orientation. Values such as mutual cooperation, deliberation (*musyawarah*), and social responsibility became integral parts of classroom discussions. This finding aligns with the principles of social-cultural literacy, which emphasize not

only critical thinking skills but also awareness of one's role within society. However, the extent to which these attitudinal changes are sustained over time remains uncertain, particularly given the intervention's relatively short duration.

High levels of student engagement throughout the learning process further demonstrate the effectiveness of interactive instructional approaches in building cultural awareness. Group-based projects and simulations of local cultural practices provided reflective spaces for students to reconsider values that could have previously been overlooked. Authentic social interaction has been shown to strengthen cognitive and affective dimensions simultaneously (Hernández-Ramos et al., 2021). While these findings are promising, they should be interpreted cautiously, as improvements can also be influenced by contextual factors such as classroom dynamics and teacher facilitation. This highlights the need for further investigation into the consistency of implementation across different learning environments.

These findings contribute meaningfully to the development of more contextualized curricula in elementary education. The application of the SEPTIA model provides concrete evidence that integrating local values is not only feasible but also highly effective in enhancing character education. Despite the broad generalizations, these findings should be viewed as context-specific evidence that requires further validation across diverse educational settings.

5.2 Effectiveness of the SEPTIA model in enhancing social-cultural literacy compared to conventional instruction

The findings demonstrating the superior effectiveness of the SEPTIA model in enhancing social-cultural literacy compared to conventional instruction are consistent with contextual learning theory, which posits that understanding is more readily achieved when learning is connected to students' real-life experiences. By integrating Problem-Based Learning with local cultural contexts, the SEPTIA model creates opportunities for students to think critically and relate learning materials to their everyday lives. This approach aligns with Vygotsky's perspective on the essential role of social and cultural contexts in children's cognitive development (Vygotsky, 1978).

Beyond conceptual understanding, the PBL approach embedded in the SEPTIA model fosters the development of social skills such as collaboration and communication. Learning activities that require group work, discussion, and collective decision-making train students to listen, understand, and respect diverse perspectives. This finding supports previous research indicating that student-centered and inquiry-based approaches are more effective in developing higher-order thinking and socio-cultural competencies compared to traditional instruction (Fitchett et al., 2014; Parker et al., 2013).

The high effectiveness of the SEPTIA model can also be explained through students' active construction of knowledge. Despite passively receiving information, students actively construct meaning through exploration and reflection. The incorporation of local values, such as *Taneyan Lanjhang*, strengthens the affective dimension of learning by engaging students with content closely tied to their personal and communal experiences. Such contextual relevance has been shown to increase student motivation and engagement, thereby enhancing the overall effectiveness of the learning process (Niman, 2025; Uge et al., 2019).

Conversely, conventional learning approaches have been shown to inadequately address the demands of 21st-century education, which emphasizes critical thinking, collaboration, and contextual competence. Traditional methods that rely heavily on memorization and lecturing are insufficient for cultivating strong social-cultural awareness. However, it is crucial to acknowledge

that the effectiveness of the SEPTIA model varies depending on the quality of implementation, teacher readiness, and contextual factors within the school environment.

Based on these results and analyses, the SEPTIA model is not only effective in improving the social-cultural literacy of fourth-grade elementary students but also provides a critical foundation for character development and 21st-century competencies. Nevertheless, claims about its broader applicability should be made cautiously, as the findings are based on a limited sample and specific contextual conditions.

5.3 Evaluation of the integration of *taneyan lanjhang* local values in strengthening the four dimensions of social-cultural literacy (intellectual, social, cultural, and collaborative)

The integration of *Taneyan Lanjhang*'s local values into the SEPTIA model has proven effective in strengthening all four dimensions of social-cultural literacy. *Taneyan Lanjhang* functions not merely as a cultural element but as a pedagogical instrument that bridges conceptual knowledge and students' social experiences. This tradition embodies social-emotional values that are highly relevant to character education (Majid et al., 2022). Based on the socio-cultural perspective, learning is inherently shaped by cultural context, and the use of local wisdom enables students to construct meaning through culturally relevant experiences (Mercer et al., 2019; Vygotsky, 1978).

Regarding the intellectual dimension, students did not merely memorize social concepts but analyzed them through the lens of local culture. This supports the constructivist approach to education, in which understanding is built upon familiar contexts and experiences. This indicates that contextualized learning can enhance students' critical thinking by linking abstract concepts to real-world cultural practices.

The social and collaborative dimensions were developed simultaneously through group-based activities grounded in *Taneyan Lanjhang* values. This finding is in line with research showing that collaborative and context-based learning environments can improve students' interaction and participation in classroom settings (Susilowati et al., 2025; Wegerif, 2021).

Improvements in the cultural dimension strongly indicate that students began to perceive their identities more positively. Culturally responsive learning environments provide opportunities for students to develop a sense of belonging and cultural awareness, which are essential components of socio-cultural literacy (Gay, 2018; Hammond, 2015).

Overall, the evaluation of the four dimensions demonstrates that the SEPTIA model effectively integrates cognitive, affective, and social aspects of learning. However, the effectiveness of this integration depends on systematic instructional design; without structured implementation, local cultural values remain superficial and fail to produce meaningful learning outcomes.

Despite these positive findings, several limitations should be acknowledged. The use of a quasi-experimental design without random assignment introduces potential bias, and the relatively short duration of the intervention limits the ability to assess long-term impacts. In addition, the focus on a specific cultural context (*Taneyan Lanjhang*) limits the generalizability of the findings.

Therefore, future research should explore the application of culturally integrated instructional models in diverse contexts, employ longitudinal approaches, and examine the sustainability of socio-cultural literacy development over time.

6. Conclusion and implications

6.1 Conclusion

This study provides empirical evidence that the SEPTIA model is effective in enhancing fourth-grade students' socio-cultural literacy in elementary natural and social science studies. The findings suggest that students exposed to the SEPTIA model achieved higher socio-cultural literacy outcomes compared to those receiving conventional instruction, particularly in the social and cultural dimensions. These results indicate that integrating Problem-Based Learning with local cultural values supports not only cognitive development but also social awareness, cultural appreciation, and collaborative competencies.

However, these conclusions should be interpreted within the specific context of the study. The findings are based on a limited sample of two schools within a single regency, which limits the generalizability of the results to broader educational settings. In addition, the relatively short duration of the intervention limits the ability to assess the long-term sustainability of socio-cultural literacy development. Furthermore, the use of a quasi-experimental design without random assignment introduces potential bias, despite efforts to ensure baseline equivalence between groups.

Therefore, while the SEPTIA model underscores the promise of a culturally integrated instructional approach, its broader applicability warrants caution. Further validation across diverse contexts and longer implementation periods is required to strengthen the generalizability of these findings.

6.2 Implications

6.2.1 Implications for Teachers

The findings suggest that teachers can benefit from incorporating culturally relevant contexts into active learning approaches such as Problem-Based Learning. By integrating local cultural values into instructional design, teachers can create more meaningful and engaging learning experiences that support the development of socio-cultural literacy. However, effective implementation requires careful planning to ensure that cultural content is not treated as supplementary material but is meaningfully embedded within the learning process.

6.2.2 Implications for Schools and Educational Institutions

For schools and educational institutions, the results highlight the potential value of supporting culturally responsive and context-based instructional practices. This includes providing professional development programs focused on culturally responsive pedagogy, facilitating collaborative lesson planning among teachers, and integrating local cultural resources into the curriculum. Nevertheless, institutional readiness, teacher capacity, and contextual factors should be considered when implementing such models at a broader level.

6.2.3 Implications for Future Research

This study contributes to the growing body of research on culturally integrated instructional models. However, further investigation is needed to strengthen its empirical foundation. Future research is recommended to involve larger, more diverse samples, employ longitudinal designs to examine long-term effects, and explore the adaptability of similar models across different cultural contexts. Additionally, future studies can examine how implementation fidelity and teacher practices influence the effectiveness of culturally responsive learning models.

Overall, this study suggests that integrating local cultural values into active learning frameworks holds considerable promise for enhancing socio-cultural literacy in elementary education. At the same time, it underscores the importance of aligning instructional practices with students' socio-cultural realities while acknowledging contextual limitations and the need for further empirical validation.

Credit Authorship Contribution Statement

Nanda Septiana: Conceptualization, Methodology, Investigation, Data Curation, Formal Analysis, Writing – Original Draft, and Project Administration. **Wahono Widodo:** Supervision, Validation, Methodology, Writing – Review & Editing. **Ganes Gunansyah:** Supervision, Validation, Writing – Review & Editing. **Gül Erkol Bayram:** Validation, Writing – Review & Editing, and International Perspective Enhancement.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available due to ethical considerations and the protection of participants' privacy and confidentiality.

Ethical Declaration

This study was conducted in accordance with ethical principles for research involving human participants. Permission was obtained from the participating schools before data collection. Written informed consent was obtained from students' parents or legal guardians prior to participation. Participation was voluntary, and participants were informed of their right to withdraw from the study at any time without consequence. All personal information was kept confidential, and participants' identities were anonymized throughout the research process.

Declaration of AI Statement

The authors used Scopus AI solely to assist in identifying relevant scholarly literature and supporting the literature review process. No AI tool was used to generate research data, conduct data analysis, interpret findings, or develop the conclusions. All research content and interpretations were prepared independently by the authors, who take full responsibility for the accuracy and integrity of the manuscript.

References

- Abdillah, C., Rusilowati, A., Isdaryanti, B., & Anggara, D. S. (2025). Child-friendly learning media for inclusive schools: A systematic literature review. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 14(6), 852–870. <https://doi.org/10.33578/jpfkip.v14i6.852-870>
- Alyusfitri, R., Gistituati, N., & Yerizon, Y. (2024). Needs analysis for the development of interactive multimedia-assisted contextual learning model based on elementary school student characteristics. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 13(1), 1–11. <https://doi.org/10.33578/jpfkip-v13i1.p1-11>
- Barton, K. C., & Levstik, L. S. (2004). *Teaching history for the common good*. Lawrence Erlbaum Associates/Routledge. <https://doi.org/10.4324/9781410610508>

- Bhanuwati, S. A. D., & Subroto, R. B. G. (2024). Gender Dynamics in the Built Environment: A Study of Madurese Taneyan Lanjhang Houses. *IOP Conference Series: Earth and Environmental Science*, 1404(1). <https://doi.org/10.1088/1755-1315/1404/1/012053>
- Chang, X., Yan, Z., & Wong, G. K. W. (2026). Young children's understanding of artificial intelligence: A draw-a-picture analysis. *British Journal of Educational Technology*, 57(1), 346–372. <https://doi.org/10.1111/bjet.70022>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.
- Damayanti, T., Herpratiwi, Fatkhur Rohman, & Nurhanurawati. (2025). Cultivating critical thinking: the development and impact of PBL worksheets in elementary science learning. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 14(6), 1011–1025. <https://doi.org/10.33578/jpfkip.v14i6.1011-1025>
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97–140. <https://doi.org/10.1080/10888691.2018.1537791>
- Fitchett, P. G., Heafner, T. L., & Lambert, R. G. (2014). Examining elementary social studies marginalization: A multilevel model. *Educational Policy*, 28(1), 40–68. <https://doi.org/10.1177/0895904812453998>
- Gaudelli, W. (2016). *Global citizenship education: Everyday transcendence*. Routledge. <https://doi.org/10.4324/9781315683492>
- Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice* (3rd ed.). Teachers College Press.
- Gunawan, I., Kartikowati, S., & Afrianto, A. (2024). The role of the principal in implementing the Kurikulum Merdeka at the driving school SDN 004 Sungai Piring, Batang Tuaka district, Indragiri Hilir regency. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 13(2), 78–85. <https://doi.org/10.33578/jpfkip-v13i2.p78-85>
- Hammond, Z. (2015). *Culturally responsive teaching and the brain*. Corwin.
- Hernández-Ramos, J., Perna, J., Cáceres-Jensen, L., & Rodríguez-Becerra, J. (2021). The Effects of Using Socio-Scientific Issues and Technology in Problem-Based Learning: A Systematic Review. *Education Sciences*, 11(10), 640. <https://doi.org/10.3390/educsci11100640>
- Hess, D. E., & McAvoy, P. (2015). *The political classroom: Evidence and ethics in democratic education*. Routledge. <https://doi.org/10.4324/9781315738871>
- Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review*, 16(3), 235–266. <https://doi.org/10.1023/B:EDPR.0000034022.16470.f3>
- Jagers, R. J., Rivas-Drake, D., & Williams, B. (2020). Transformative social and emotional learning. *Educational Psychologist*, 55(3), 162–184. <https://doi.org/10.1080/00461520.2020.1766201>
- Kementerian Agama. (2024). *Modul Literasi Sosial Budaya*. Direktorat GTK Madrasah, Direktorat Jenderal Pendidikan Islam.
- Kirschner, P. A., & Hendrick, C. (2020). *How learning happens: Seminal works in educational psychology and what they mean in practice*. Routledge. <https://doi.org/10.4324/9780429061523>
- Lubis, F. U., Ramadani, E., & Rahmi, R. (2025). The constructivist approach in social studies learning to develop social literacy in elementary school students. *International Journal of*

- Education, Social Sciences and Management, 2(1), 54–65. <https://lppipublishing.com/index.php/ijessm/article/view/883>
- Majid, A. N., Muzakki, Z., & Amini, I. (2022). Harmonisasi Sosial Berbasis Kearifan Lokal Islami dalam Masyarakat Tanèan Lanjâng Madura. *Jurnal Asy-Syukriyyah*, 23(2). <http://jurnal.asy-syukriyyah.ac.id/index.php/Asy-Syukriyyah/article/view/264>
- Marlini, S., Alim, J. A., & Putra, Z. H. (2025). Development of geometry teaching materials based on RME in the context of the perahu baganduang tradition. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 14(6), 970–983. <https://doi.org/10.33578/jpfkip.v14i6.970-983>
- Mercer, N., Wegerif, R., & Major, L. (Eds.). (2019). *The Routledge international handbook of research on dialogic education*. Routledge. <https://doi.org/10.4324/9780429441677>
- Nemakhavhani, R. B. (2024). Enhancing Student Engagement Through Problem-Based Learning: A Case of the Built Environment. *Proceedings of the International Conference on Education Research*, ICER 2024, 247–254. <https://doi.org/10.34190/icer.1.1.3053>
- Niman, E. M. (2025). Embedding local culture in social studies to enhance social-emotional learning. *Frontiers in Education*, 10, 1655528. <https://doi.org/10.3389/feduc.2025.1655528>
- Nugrahani S., F. & S. (2025). Bringing the Value of Local Wisdom to Life: Optimizing Indonesian Language Learning with the PBL Model. *Canadian Journal of Educational and Social Studies*. <https://cjess.ca/index.php/home/article/view/318>
- OECD. (2021). *Beyond academic learning: First results from the OECD social and emotional skills survey*. <https://www.oecd.org>
- Parker, W. C., Lo, J., Yeo, A. J., Valencia, S. W., Nguyen, D., Abbott, R. D., Bransford, J. D., & Vye, N. J. (2013). Beyond breadth-speed-test: Toward deeper knowing and engagement in an Advanced Placement course. *American Educational Research Journal*, 50(6), 1424–1459. <https://doi.org/10.3102/0002831213504237>
- Sari, A. P., & Kumalasani, M. P. (2025). Integrating local culture into IPAS learning: A culturally responsive teaching approach in elementary school. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 14(6), 941–956. <https://doi.org/10.33578/jpfkip.v14i6.941-956>
- Sinnema, C., Meyer, F., & Aitken, G. (2022). Curriculum reform and teacher decision-making. *Journal of Curriculum Studies*, 54(1), 1–20. <https://doi.org/10.1080/00220272.2021.1960697>
- Smith, K., Maynard, N., Berry, A., Stephenson, T., Spiteri, T., Corrigan, D., Mansfield, J., Ellerton, P., & Smith, T. (2022). *Principles of Problem-Based Learning (PBL) in STEM Education: Using Expert Wisdom and Research to Frame Educational Practice*. *Education Sciences*, 12(10), 728. <https://doi.org/10.3390/educsci12100728>
- Suarmika, P. E., Hidayat, N., Syarifah, M., Afira, A., & Arifa, N. (2025). Developing an e-student worksheet on natural disasters to train elementary school students' scientific reasoning and environmental sensitivity. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 14(6), 998–1010. <https://doi.org/10.33578/jpfkip.v14i6.998-1010>
- Subadi, T., Nugroho, S. E., & Wardani, D. K. (2021). Strengthening character education through integrated learning in primary schools. *Journal of Education and Learning*, 15(3), 215–228. <https://doi.org/10.11591/edulearn.v15i3.20492>
- Sukadari, Prihono, E. W., Singh, C. K. S., Syahrurah, J. K., & Wu, M. (2020). The implementation of character education through local wisdom based learning. *International Journal of Innovation, Creativity and Change*, 4, 389 – 403. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081209938&partnerID=40&md5=bdf41e943685b7626d914cb74a5ac019>

- Susilowati, D., Saputro, B. A., & Sutono, A. (2025). The effect of strengthening the literacy movement in natural and social sciences (IPAS) learning on improving students' scientific literacy and critical thinking skills. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 14(1), 11–28. <https://doi.org/10.33578/jpfkip-v14i1.p11-28>
- Suwartini, S., Ferryka, P. Z., Rofisian, N., & Rahmawati, I. (2025). Improving Pancasila education learning outcomes with the CRT approach for grade V students of SDN 2 Prambanan. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 14(6), 957–969. <https://doi.org/10.33578/jpfkip.v14i6.957-969>
- Uge, S., Neolaka, A., & Yasin, M. (2019). Development of social studies learning model based on local wisdom. *International Journal of Instruction*, 12(3), 375–388. <https://doi.org/10.29333/iji.2019.12323a>
- UNESCO. (2021). Education for sustainable development: A roadmap. <https://unesdoc.unesco.org/ark:/48223/pf0000374802>
- Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press.
- Wegerif, R. (2021). Dialogic education and technology. *Learning, Culture and Social Interaction*, 30, 100488. <https://doi.org/10.1016/j.lcsi.2021.100488>
- Yu, L., & Zin, Z. M. (2023). The critical thinking-oriented adaptations of problem-based learning models: a systematic review. *Frontiers in Education*, 8. <https://doi.org/10.3389/feduc.2023.1139987>
- Yuliantika, A. A., Handini, O., & Hastini, D. (2025). Analysis of a traditional Dhakon game-based learning model in preserving local wisdom of fifth grade students at SDN 2 Sarimulyo Kemusu. *Journal of Educational Sciences*, 9(6), 5625–5634. <https://doi.org/10.31258/jes.9.6.p.5625-5634>