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Strengthening social literacy among elementary students through the integration of sdgs into social studies instruction

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Abstract

This study examines the integration of Sustainable Development Goals (SDGs) values into Social Studies learning in elementary schools and its relation to the development of students' social literacy. The research was conducted in three public elementary schools and involved twelve participants, consisting of three principals, six teachers, and three students. Using a qualitative case study design, data were collected through classroom observations, in-depth interviews, and document analysis. Data were analyzed using the interactive model of data condensation, data display, and conclusion drawing. The findings indicate that SDG values were integrated into Social Studies through (1) contextual discussions of local socio-environmental issues, (2) participatory learning activities such as group investigations and collaborative projects, and (3) guided critical reflection sessions. This integration was reflected in observable indicators of social literacy, including students' ability to identify social and environmental problems in their surroundings, express reasoned opinions during classroom discussions, and participate in school-based environmental initiatives. The study contributes to a contextual description of SDGs integration practices in elementary Social Studies and clarifies their linkage to specific dimensions of students' social literacy development.

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1. Introduction

Elementary education plays a strategic role in shaping students' foundational character, cognitive development, and social awareness. At this stage, children are highly receptive to values and experiences that influence how they understand social realities and relate to others. Masriah (2024) highlights the importance of early education in developing moral character, while Utaminingsih (2023) and Ocsis (2024) emphasize its contribution to fostering critical thinking skills necessary for navigating complex 21st-century challenges. In this context, Social Studies

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learning at the elementary level is positioned as a key arena for cultivating civic values, empathy, and awareness of social and environmental issues. Strengthening social literacy through Social Studies is therefore essential to enable students to identify social phenomena, express reasoned opinions, and participate responsibly in their immediate environment (Wals, 2023).

Following the adoption of the Sustainable Development Goals (SDGs) by the United Nations in 2015, the education sector has been encouraged to integrate sustainability values into curricula as part of a broader global agenda (Rajabifard et al., 2021). The 17 SDGs, particularly Goal 4 on quality education, underline the importance of inclusive and equitable learning that contributes to wider global targets such as poverty reduction (SDG 1), gender equality (SDG 5), reduced inequalities (SDG 10), and climate action (SDG 13). Incorporating SDG-related concepts into elementary Social Studies is aligned with transformative pedagogy (Sedwal, 2024), enabling students to engage with global issues through locally meaningful contexts (Miao & Nduneseokwu, 2024). At the elementary level, such integration is particularly significant because it connects abstract global goals with students' lived social and environmental realities.

Theoretically, the integration of SDG values in Social Studies can be framed within critical pedagogy (Giroux, 2010) and social constructivist perspectives (Wibowo, Wangid, & Firdaus, 2025), which emphasize active participation, dialogue, and the co-construction of knowledge. Through contextual discussions of socio-environmental issues, participatory learning activities, and guided critical reflection, Social Studies can function as a space where students learn to analyze real-world problems and develop responsible civic dispositions. However, practical challenges remain. Teachers often face limitations in contextualized teaching resources and professional preparation for addressing complex sustainability themes in age-appropriate ways. Zong (2021) notes that many elementary teachers struggle to connect global agendas with local classroom realities due to insufficient contextual materials and training.

Previous studies have demonstrated the relevance of SDGs-based education in primary settings. Putri et al. (2025) found that introducing sustainable development concepts at the elementary level increases students' environmental and social sensitivity. Rusdi and Cahyani (2025) further reported that SDGs-oriented teaching tools enhance students' critical thinking related to human rights, social justice, and inequality. While these studies underline the importance of sustainability education, research specifically examining how SDG values are integrated into elementary Social Studies classroom practices and how such integration is reflected in observable dimensions of students' social literacy remains limited. In particular, the construct of social literacy has not been sufficiently operationalized in relation to concrete classroom indicators and student participation.

Based on this gap, this study aims to analyze how SDG values are integrated into Social Studies learning in elementary schools and to examine how such integration relates to the development of students' social literacy. Specifically, this study addresses the following research questions:

1. How are SDG values integrated into Social Studies learning in elementary schools?
2. How are the dimensions of social literacy manifested in classroom practices and student participation?

2. Method

2.1 Research design

This study employed a qualitative case study design (Creswell, 2016; Yin, 2018) to examine how Sustainable Development Goals (SDGs) values are integrated into elementary school Social

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Studies learning and how such integration relates to the development of students' social literacy. The case study approach was selected to enable an in-depth exploration of teaching practices and social interactions within real school contexts that cannot be fully captured through quantitative methods. The research was conducted in three public elementary schools that had implemented the Merdeka Curriculum and demonstrated openness to integrating sustainability values into classroom learning. Schools were selected through purposive sampling based on these criteria.

The study involved twelve participants: three principals (one from each school), six Social Studies teachers (two from each school), and three upper-grade student representatives (one from each school). This composition allowed cross-case comparison across different sociocultural school settings. Data were collected through classroom observations, semi-structured interviews, and document analysis. Semi-structured interviews were used to explore participants' perspectives on SDGs integration and social literacy development in depth. Non-participant observations were conducted during Social Studies lessons to document instructional strategies, student participation, and classroom interactions related to socio-environmental issues.

The researcher analyzed using the interactive model proposed by Miles et al. (2014), There are three critical stages, as shown in Figure 1, namely data condensation, data display, and drawing and verifying conclusions.

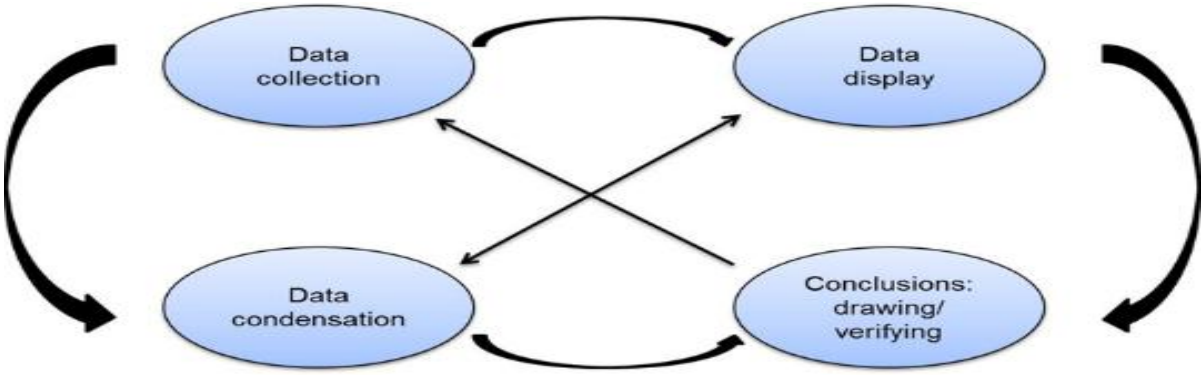


Figure 1. Interactive model data analysis

Documents analyzed included lesson plans and students' worksheets that reflected the incorporation of SDGs-related content. Data were analyzed using the interactive model proposed by Miles, Huberman, and Saldaña (2014), consisting of data condensation, data display, and conclusion drawing and verification. The analytic process involved initial/open coding of interview transcripts, observation notes, and documents; categorization of recurring patterns; and the development of themes related to (1) forms of SDGs integration and (2) observable dimensions of social literacy in classroom practices. Themes presented in the findings were systematically derived from coded raw data, and an audit trail was maintained to enhance analytic transparency.

To ensure credibility and trustworthiness, methodological triangulation (observation, interview, and document analysis), data source triangulation (principals, teachers, and students), and member checking procedures (Bogdan & Biklen, 2007) were applied. Ethical considerations were addressed explicitly: institutional approval was obtained from the relevant authorities and participating schools; informed consent was secured from principals and

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teachers; parental consent and student assent were obtained for student participants; and anonymity and confidentiality were ensured through data anonymization and secure data management procedures.

3. Results

The results of the research that was conducted regarding the SDGs were obtained using the results of interviews with respondents, as explained previously, from three public elementary schools. The findings are presented in relation to the two research questions: (1) how SDG values are integrated into social studies learning, and (2) how the dimensions of social literacy are manifested in classroom practices and student participation.

Table 1. Summary of interview and observation findings on sdg integration in social studies instruction

Theme	School Context	Instructional Practice	Students' Response	Identified Challenges
Integration of SDGs in social studies	Public Elementary School A	The teacher linked topics of waste management and clean water to health and the environment related to SDGs through guided discussion and questioning.	High engagement; students related content to daily practices and raised questions about social and environmental issues	Limited teacher understanding of SDGs
Contextual Social Learning	Public Elementary School B	Use of local narratives, photographs, and discussions on social inequality and access to education	Increased empathy, critical thinking, and participation	Need for structured thematic materials
Traditional Instruction	Public Elementary School C	Predominantly textbook-based instruction with minimal contextualization	Limited initial social awareness	Insufficient textbooks and SDG-aligned teaching resources
Experiential Learning	Public Elementary School B	Mini-project mapping waste sources within the school environment	Reflective behaviour and responsible actions (e.g., reminding peers to dispose of waste properly)	Time constraints
Teacher's Pedagogical Role	Schools A and B	Shift from lecture-based delivery to facilitation through group discussions and role-based questioning.	More interactive dialogue and higher-order thinking responses	Teachers' hesitation toward complex global topics
Environmental Awareness	Public Elementary School C	Observation-based activities on cleanliness and energy conservation	Emerging environmental consciousness	Lack of explicit SDG framing
Student Critical Engagement	Schools A and B	Structured questioning on social issues such as poverty, disasters, and homelessness	Increased curiosity and reflective inquiry	Limited professional development

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Theme	School Context	Instructional Practice	Students' Response	Identified Challenges
Institutional Support	All Schools	Informal and inconsistent SDG integration	Potential for sustained social literacy development	Absence of systematic training and policy support

The findings are presented based on cross-case analysis of three public elementary schools (A, B, and C) to distinguish empirical evidence from interpretation and to explicitly relate emerging patterns to the predefined dimensions of social literacy: social empathy, critical thinking toward socio-environmental issues, and active participation.

3.1 Forms of sdgs integration

Across the three schools, SDG values were integrated into Social Studies through: (1) contextual discussions of local socio-environmental issues, (2) participatory learning activities, and (3) guided reflective dialogue. However, the depth, explicitness, and consistency of implementation varied.

At Public Elementary School A, SDG-related content was embedded implicitly within topics such as waste management and access to clean water. Classroom observations showed that the teacher initiated discussion by asking students how their families managed household waste and conserved water. Field notes documented that 18 of 24 students actively responded during the discussion session, sharing personal experiences related to flooding and water scarcity. In a semi-structured interview, the teacher stated: *"I do not really understand the SDGs formally, but I try to discuss issues close to students' daily lives, such as trash and clean water."* Although explicit SDG terminology was not used in lesson plans, document analysis of the teaching module revealed learning objectives aligned with environmental responsibility. This case illustrates implicit integration grounded in local relevance.

At Public Elementary School B, integration was more explicit and dialogic. Teachers introduced themes of social inequality and unequal access to education using locally contextualized examples. During observation of a Grade 5 lesson, students were shown photographs of substandard housing in their region and were asked to identify possible causes and impacts. One student commented: *"Some people cannot repair their houses because they do not have stable jobs."* The lesson plan explicitly referenced sustainable development and social justice values. In addition, students conducted a mini-project mapping waste sources in the school environment. Observation records showed students categorizing waste types and proposing solutions such as placing additional bins near the canteen. Compared to School A, document artifacts and student outputs in School B provided clearer evidence of structured SDG integration.

In contrast, Public Elementary School C demonstrated limited and less systematic integration. Lessons were predominantly textbook-centred and relied on memorization. One teacher reported in an interview: *"It is difficult to connect SDG themes to the curriculum because we lack specific teaching materials."* Classroom observation indicated minimal dialogic interaction, with most students responding only when directly called upon. Although SDG terminology was absent from formal documents, students produced simple posters about energy conservation, suggesting partial exposure to sustainability-related themes. However, supporting documentary evidence and structured reflective activities were less evident compared to Schools A and B.

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Manifestation of Social Literacy Dimensions

Cross-case synthesis indicates that the three dimensions of social literacy appeared with varying intensity.

1. Social empathy was observed when students expressed concern about unequal housing conditions and environmental problems. In School B, several students discussed how communities might collectively support disadvantaged families. In School A, students related flooding to neighbours' waste disposal habits, showing awareness of shared responsibility.
2. Critical thinking toward socio-environmental issues was most visible in Schools A and B, where teachers encouraged analytical questioning. Students asked why floods occur more frequently and how local behaviours contribute to environmental degradation. Observation data recorded instances of students proposing cause–and–effect explanations rather than merely recalling textbook content.
3. Active participation was reflected in group discussions, mini-project implementation, classroom presentations, and peer reminders regarding responsible behaviour. In School B, students independently reminded peers to dispose of trash properly after completing the waste-mapping project. In School C, participation was more limited and primarily teacher-directed.

Overall, the cross-case comparison demonstrates that contextual and participatory pedagogical strategies are associated with stronger observable indicators of social literacy. Schools that combined local issue discussion, structured student projects, and reflective dialogue (particularly School B, followed by School A) exhibited clearer alignment between SDG integration practices and the predefined dimensions of social literacy. Conversely, where instruction remained predominantly transmissive (School C), manifestations of social literacy were less evident and less systematically supported by documentary artefacts.

These findings suggest that meaningful SDG integration in elementary Social Studies depends not merely on thematic inclusion but on the depth of contextualization, dialogic engagement, and opportunities for participatory action within classroom practice.

4. Discussion

The findings indicate that the integration of SDGs in elementary Social Studies learning was primarily enacted through contextual–dialogic teaching strategies rather than explicit labelling of SDG terminology in lesson plans. In Schools A and B, sustainability-related issues such as waste management, access to clean water, housing inequality, poverty, and disaster response were connected to students' immediate environments and lived experiences. Classroom observations showed that students negotiated meanings collectively by asking questions, comparing experiences, and proposing possible solutions to socio-environmental problems. Teachers avoided directly providing answers; instead, they posed probing questions and encouraged peer responses, enabling students to elaborate on causes, consequences, and potential actions. These practices reflect a social constructivist orientation in which knowledge is co-constructed through interaction and shared inquiry (Zajda, 2021). As Vonitsanos et al. (2024) argue, learning becomes meaningful when grounded in collaborative interpretation of concrete experiences.

The dialogic scaffolding observed in Schools A and B is consistent with the concept of the Zone of Proximal Development, where teacher mediation structures but does not dominate inquiry. Students who initially offered surface-level descriptions gradually developed more complex reasoning when supported through guided questioning. In contrast, School C

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demonstrated a more procedural pattern of SDG integration. Lessons were largely textbook-centred and oriented toward short-answer recall questions. Although sustainability themes were present in the curriculum content, they were not explored through extended dialogue or collaborative analysis. As a result, learning remained descriptive rather than reflective. From a Freirean perspective, the dialogic practices in Schools A and B embody conscientização, where education becomes a process of critically reading social reality rather than passively receiving information (Freire, 2021). Takona (2024) emphasizes that such dialogical education fosters collective awareness and transformative potential. The contrast between dialogic and procedural approaches thus illustrates how pedagogical methods directly shape the depth of SDG-related learning.

Teacher facilitation emerged as a critical mediating factor in this process. In classrooms where teachers actively scaffolded reasoning by clarifying arguments, prompting justification, and encouraging peer interaction, students demonstrated stronger causal analysis and more sustained discussion. This facilitative role aligns with reflective scaffolding approaches that adjust instructional support to students' developing reasoning (2024). However, teachers in School C reported limited understanding of the SDG framework and insufficient access to teaching materials (Suanto, 2024). The persistence of memorization-oriented practices echoes Shih (2024) observation that curriculum reform does not automatically transform classroom pedagogy. As Canagarajah (2023) notes, pedagogical innovation requires not only curricular alignment but also teacher preparedness and institutional coherence. Without structured professional development and adequate resources, SDG integration risks remaining fragmented and dependent on individual initiative.

Institutional support further influenced implementation consistency. Although SDG integration aligns conceptually with the Merdeka Curriculum's emphasis on contextual and project-based learning (Utami et al., 2024), alignment at the policy level did not guarantee uniform classroom practice. SDG-related learning was more coherent in schools where teachers collaborated and incorporated local issues into lesson planning. Jordan (2023) argues that transformative educational ecosystems depend on collaborative planning and institutional commitment, while Gallin (2022) highlights the importance of shared coordination in sustainability-oriented pedagogy. The findings therefore suggest that systemic support strengthens the sustainability of dialogic practices and indirectly enhances opportunities for social literacy development.

The study also reveals conceptual challenges in students' understanding of SDGs. While many students were able to discuss environmental degradation and social inequality, they did not consistently connect these issues to the broader SDG framework. In some cases, sustainability topics were treated as isolated content rather than interconnected global goals. This indicates a conceptual boundary issue between social literacy and broader environmental awareness. Lin and Li (2022) argue that sustainability education fosters responsibility when learners connect real-world experiences with structured conceptual frameworks. Without explicit conceptual integration, students' understanding may remain fragmented, limiting the coherence of social literacy development.

Across the observed classrooms, social literacy developed through cognitive, affective, and participatory dimensions. Cognitively, students demonstrated causal reasoning when linking waste disposal practices to flooding and proposing environmental solutions. This aligns with Wals' (2023) argument that sustainability education should cultivate action-oriented competencies rather than merely transmit factual information. Affectively, students expressed empathy toward disadvantaged peers and concern about inequality, reflecting findings by Lin and

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Li (2022) that sustainability-oriented learning can foster social responsibility through direct engagement with real-world issues. Participatory dimensions were evident in mini-projects, peer reminders about responsible behaviour, energy-saving initiatives, and recycled-material gardens. Ardoin and Heimlich (2021) emphasize that connecting global concerns to local contexts strengthens students' sense of agency, while Williams and McEwen (2021) note that contextualized environmental challenges enhance both comprehension and engagement. Suarlin (2023) further suggests that hands-on community involvement fosters belonging and civic identity, and (2024) argues that structured interaction with social problems integrates empathy, critical analysis, and civic responsibility. The findings of this study empirically support this integrated model of social literacy development.

Despite these contributions, several limitations must be acknowledged. The study involved three purposively selected public elementary schools within specific local contexts, limiting statistical generalization. Although triangulation of interviews, observations, and document analysis was conducted, interpretations remain context-bound and influenced by participants' perspectives. The focus was primarily on classroom pedagogy and did not systematically examine governance structures, parental engagement, or cross-sector collaboration that may influence long-term sustainability. Moreover, the absence of longitudinal data prevents claims about enduring developmental impact. Future research employing multisite and longitudinal designs could provide deeper insight into the institutionalization of SDG integration and its sustained influence on social literacy development.

5. Conclusion

This study examined how SDG values are integrated into elementary Social Studies and how this relates to students' social literacy. Drawing on evidence from three purposively selected Indonesian public elementary schools implementing the Merdeka Curriculum, the findings show that SDG integration is most effective when enacted through contextual–dialogic pedagogies rather than explicit curricular labelling. When teachers connected socio-environmental issues such as waste management, clean water access, inequality, and disaster response to students' lived experiences and facilitated structured inquiry, students demonstrated cognitive (causal reasoning), affective (social empathy), and participatory (active engagement) dimensions of social literacy. Recall-oriented instruction, by contrast, limited reflective and participatory development. The study contributes by demonstrating that SDG integration is less about adding new content and more about transforming pedagogical processes through teacher facilitation, contextualization, and dialogic scaffolding. These findings are analytically transferable but not statistically generalizable, given the purposive sampling and focus on three cases, as well as the emphasis on classroom-level practices rather than broader governance or long-term outcomes. Operationally, the findings suggest the need for structured professional development on SDG concepts and dialogic teaching strategies, the development of thematic SDG-based Social Studies modules with inquiry and project tasks, and collaborative teacher planning mechanisms to ensure coherent implementation. Overall, SDG integration can strengthen elementary students' social literacy when supported by contextual, dialogic, and participatory approaches within enabling school environments.

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Credit authorship contribution statement

Ani Rosidah: Developed the methodological framework, conducted formal analysis, performed data curation, and contributed to the conceptualization of the study. **Indani Damayanti**: Managed data resources, handled project administration, and contributed to the methodology. **Siti Zazak Soraya**: Contributed to formal analysis and data curation.

Declaration of competing interest

The authors declare that they have no financial interests with any institution and no personal relationships with any organization that could have influenced the research presented in this article.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request. Because the data include human participant information, they are not publicly available to protect participant privacy.

Ethical Declaration

This study involved participants from three elementary schools that served as the research subjects. All participants provided informed consent prior to their involvement in the study. They were informed about the purpose of the research, the procedures involved, and their right to withdraw at any time without any consequences.

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Declaration of AI statement

Portions of this manuscript were drafted/edited/enhanced using ChatGPT-4. The authors used this tool to improve grammar. All content generated by the AI was thoroughly reviewed, edited, and validated by the authors, who take full responsibility for the final content

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