

# Environment-Based Science Learning to Enhance Elementary Students' Social Skills

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## Abstract:

This study examines an environmental-contextual Science and Social Studies (IPAS) learning strategy for improving elementary students' social skills. Using a qualitative case study design, data were collected through interviews, observations, and documentation involving principals and teachers at Mekarwinaya and Budisetra State Primary Schools. The findings show that learning activities integrated local environmental issues—such as waste management, water conservation, and reforestation—through collaborative projects, group discussions, direct experiences, and reflection. Supervision was conducted through academic monitoring, document evaluation, and teacher reflection forums. The strategy supported the development of students' cooperation, communication, empathy, and responsibility, while aligning with the Merdeka Curriculum, Character Education Strengthening, and the Adiwiyata Program. The study recommends integrating environmental-contextual learning systematically into the curriculum and supporting it through teacher collaboration, school leadership, and reflective supervision.

**Keywords:** contextual approach; free curriculum; learning strategy; primary school; social skills.

## INTRODUCTION

Elementary education is a crucial foundation for developing students' character and social skills (Lickona, 1992), as children are experiencing rapid social development at this stage. However, in practice, elementary school instruction, particularly in Natural and Social Sciences (IPAS), is still largely conventional and teacher-centered (Fedulova et al., 2017). The learning process, which emphasizes only cognitive aspects through lecture methods, tends to neglect the social context and environment surrounding students. This situation leads to academic anxiety because students are undertrained in basic social skills, such as cooperation, assertive communication, empathy, and environmental awareness (Mustari & Rahman, 2014b).

The main gap identified was the suboptimal utilization of the school environment as a contextual learning resource. However, based on the Independent Curriculum, learning should be designed to connect academic material with students' real-life experiences. This gap was evident at Mekarwinaya Elementary School and Budisetra Elementary School, where students still exhibited poor social skills, such as limited interaction with teachers and peers, and low concern for the environment. Therefore,

learning strategies are needed to bridge the gap between curriculum demands and real-world practices in schools (Anwar et al., 2021).

This is evident in the still-poor social skills of some students, such as a tendency to be passive in interacting with teachers and peers, and a lack of initiative and concern for the surrounding environment. This situation suggests that the learning process has not fully facilitated students' direct engagement with the social and ecological realities around them. Yet, authentic interaction with the environment significantly contributes to developing skills in cooperation, communication, empathy, and social responsibility—competencies that are highly emphasized in the Pancasila Student Profile (Rahman, 2016).

The disconnect between the contextual demands of the curriculum and the predominantly theoretical learning that occurs in the classroom underscores the urgency of developing more integrative, participatory, and situational learning strategies that enable the school environment to become a living learning laboratory. This approach is expected to bridge the gap between curriculum design and learning practice, while also meaningfully improving students' social skills and environmental awareness.

Previous research studies have shown that contextual learning can improve student learning outcomes, both cognitively and socially. For example, Putri & Hadi (2020) found that environmental-based projects enhance students' collaboration and social responsibility. Ramadhani (2021) demonstrated the effectiveness of Contextual Teaching and Learning (CTL) in fostering empathy and assertive communication in students. Similarly, Suryani (2022) demonstrated that environmental-based learning significantly impacts students' mutual cooperation. However, previous studies have focused more on cognitive aspects or social skills, leaving room for in-depth studies that integrate environment-based science learning with comprehensive social skills development.

The novelty of this research lies in its strategic approach, which combines the Natural Sciences (IPAS) learning model with POAC (Planning, Organizing, Actuating, Controlling) management within a contextual, environment-based learning framework. This approach not only focuses on the general implementation of CTL but also emphasizes a structured management system to make the learning process more focused, measurable, and consistent in improving students' social skills. Thus, this research provides a new contribution in the form of a more comprehensive, contextual-based IPAS learning strategy model that is also relevant to strengthening the profile of Pancasila students (Mustari & Rahman, 2014a).

By combining Science and Environmental Studies (IPAS) and POAC, this study positions the learning process not only as a pedagogical activity but also as a systematic managerial process. The planning stage is aimed at ensuring that environmental utilization is not spontaneous, but rather designed with attention to Science and Environmental Studies competencies, student characteristics, and the potential of the school environment. The organizing stage ensures a clear division of teacher-student roles, the availability of learning resources, and a flow of activities that supports safe and meaningful environmental exploration (Anwar et al., 2019).

Next, the actuating phase focuses on how contextually-based science strategies are translated into investigative, collaborative, and observational activities that enable students to experience the science process directly. The controlling phase ensures ongoing monitoring and evaluation of students' social skill development, the effectiveness of field activities, and teachers' consistency in implementing environment-based learning.

With this integrated management structure, learning becomes not only more focused and measurable but also more consistent in producing tangible pedagogical impacts. This directly supports the strengthening of the Pancasila Student Profile dimensions, particularly mutual cooperation, critical reasoning, and environmental awareness. Therefore, this research presents a new scientific contribution in the form of a contextual-based science and science learning strategy model that focuses not only on pedagogical aspects but also on the governance of the learning process. The integration of POAC is a significant added value that distinguishes this research from similar studies, making it relevant and innovative in supporting the transformation of learning in the Independent Curriculum.

Based on the above description, the purpose of this study is to describe and analyze a contextual environmental approach-based science learning strategy in improving elementary school students' social skills, with a case study at SDN Mekarwinaya and SDN Budisetra. This study is expected to produce recommendations for learning models that are able to integrate cognitive, social, and environmental dimensions, thereby contributing to improving the quality of holistic elementary education.

## METHOD

This research uses a qualitative approach with a case study method. This design was chosen because it aligns with the research objective, which is to deeply and holistically understand the application of a contextual environmental approach-based science learning strategy to improve students' social skills in two elementary schools. Case studies allow researchers to explore phenomena in real-world contexts through direct observation, interviews, and document analysis (Sugiyono, 2013). The qualitative approach was chosen because the research focuses on the processes, perceptions, and experiences of the research subjects, which cannot be measured quantitatively.

The research was conducted at SDN Mekarwinaya and SDN Budisetra, located in Cianjur Regency. The locations were selected purposively, considering that both schools have natural environments that support contextual learning and demonstrate students' social skills issues that need to be addressed.

The research procedure begins with site observation, official permit application, observation, interviews, and documentation, and continues through data compilation and validation. The subjects of this study include: (a) Headmaster; (b) Teachers who teach IPAS; (c) Students from classes that implement contextual learning strategies; (d) Parents of students (as a source of support).

The sampling technique used purposive sampling, where informants were selected based on their ability to provide relevant and in-depth information related to the research focus. Data collection was carried out using three main techniques: (a) Observation: Used to observe the learning process, student social interactions, and the implementation of contextual strategies based on the environment. The observation sheet contains indicators of social skills such as cooperation, communication, responsibility, and empathy. The observation instrument is structured as an observation sheet containing indicators of social skills relevant to the research objectives. These indicators include the ability to work together, the quality of communication between students and with the teacher, the level of responsibility in carrying out group and individual tasks, and the ability to demonstrate empathy towards friends and the environment. Each indicator is operationalized into a description of observable behavior, thereby minimizing observer subjectivity and increasing data reliability. Furthermore, observations are not only directed at student behavior but also examine the implementation of learning strategies carried out by teachers, including how the environment is used as a learning resource, how students are guided to explore, and the extent to which learning activities reflect the principles of contextual learning. In this way, observations provide a complete picture of the effectiveness of the learning process while also revealing supporting and inhibiting factors that arise in the field. (b) Semi-Structured Interviews: Conducted with principals, teachers, and students to explore perceptions, experiences, and challenges in implementing learning strategies. The interview guide was developed based on the POAC (Planning, Organizing, Actuating, Controlling) components. (c) Document Study: Includes analysis of lesson plans, teacher reflection journals, student work, activity photos, and relevant school policy documents.

The research procedure is carried out through the following stages: (a) Preparation Stage: Preparation of instruments, expert validation (expert judgment), and instrument trials. (b) Data Collection Stage: Conducting observations, interviews, and collecting documents in both schools in parallel. (c) Data Analysis Stage: Data is analyzed interactively through data reduction, data presentation, and drawing conclusions. (d) Data Validation Stage: Triangulation of sources and methods is carried out to ensure the validity of the data.

After that, there is Data Analysis which is analyzed qualitatively using the Miles and Huberman interactive analysis model (Miles & Huberman, 1994), which includes: (a) Data Reduction: Selecting, focusing, and simplifying raw data. (b) Data Presentation: Presenting data in narrative, matrix, or diagram form to facilitate drawing conclusions. (c) Conclusion Drawing: Verification and interpretation of data to answer research questions. The analysis is also supported by triangulation techniques to increase the credibility of the findings.

## RESULTS AND DISCUSSION

This case study aims to analyze the implementation of a social and natural sciences (IPAS) learning strategy based on an environmental contextual approach in improving the social skills of elementary school students at SDN Mekarwinaya and SDN Budisetra, Cianjur Regency. Using a qualitative descriptive method with data collection techniques through observation, interviews, and documentation, the findings show that the

planning, organizing, implementing, and monitoring (POAC) of the strategy significantly improved students' cooperation, communication, and empathy. The discussion is examined with the theory of Contextual Teaching and Learning (CTL), environmental education, and social skills theory, which confirms that integrating the local environment into learning provides an authentic context for the natural development of social competencies (Inns & Slavin, 2018). This study concludes that the environmental contextual approach is an effective pedagogical strategy for fostering academic and social-emotional learning in accordance with the principles of the Independent Curriculum.

The implementation of the environmental contextual approach-based science and science learning strategy was observed through the POAC (Planning, Organizing, Actuating, Controlling) framework. The results for each component are described as follows.

### **Learning Strategy Planning**

The planning phase at both schools involved developing learning programs that utilized the school's natural environment. Teachers developed Learning Implementation Plans (RPP) that integrated outdoor activities and environmental exploration projects, in line with Minister of Education, Culture, Research, and Technology Regulation No. 22 of 2016 concerning Educational Process Standards. Instruments such as environment-based science and education modules, interactive digital media, and social skills assessment rubrics were prepared. These findings align with Johnson's (2002) CTL theory (Alwasilah, 2010) which emphasizes the importance of authentic tasks. Thorough planning creates a foundation for meaningful learning that connects academic material to real-world contexts, a crucial first step in contextual learning.

During the planning process, teachers identify environmental elements, such as school gardens, green spaces, water sources, or mini-ecosystems around the school, that students can directly observe. These elements are then integrated into exploratory and investigative science learning activities, such as observation activities, simple data recording, group discussions, and problem-solving projects based on environmental phenomena.

To support effective implementation, various learning instruments were systematically prepared. An environment-based science module was developed to guide student activities and provide reference material relevant to the local school context. Interactive digital media was also developed to strengthen science literacy and facilitate concept visualization, enabling students to connect field findings with theoretical concepts. Additionally, a social skills assessment rubric was designed to ensure that aspects such as cooperation, communication, responsibility, and empathy could be measured objectively and consistently.

Thus, the planning stage does not only focus on preparing learning materials, but also reflects strategic efforts to ensure that science learning runs in a structured manner, is relevant to the surrounding environment, and is able to encourage the development of students' social skills more comprehensively.

### **Organizing Learning Strategies**

The organizing phase focuses on arranging resources to support contextual learning processes. This involves heterogeneous student grouping to encourage collaboration, managing environmental learning resources (e.g., designating garden areas and creeks as "living laboratories"), and scheduling outdoor activities. This organization facilitates the collaboration component of Johnson's (2002) CTL theory (Alwasilah, 2010). Effective resource management and student groups create a learning environment that naturally requires social interaction, teamwork, and role negotiation among students, which directly supports the development of their social skills.

One key step is heterogeneous student grouping based on academic ability, character, and learning style. This grouping creates a rich collaborative dynamic, allowing each group to exchange perspectives, complete tasks cooperatively, and develop essential social skills such as communication, leadership, and empathy. This strategy is also consistent with the principles of collaborative learning in Contextual Teaching and Learning (CTL) theory, which emphasizes the importance of learning through social interaction and group work.

In addition, teachers manage and organize environmentally-based learning resources by designating certain areas, such as school gardens, small parks, and streams around the school, as "living laboratories." These areas serve not only as objects of observation but also as practice spaces for students to explore, solve problems, and conduct mini-investigations relevant to the science material. The designation of outdoor learning

spaces is carried out by considering aspects of safety, accessibility, and the environment's suitability for learning objectives.

Organization also includes developing a planned schedule of extracurricular activities, including student mobility, the use of outdoor learning spaces, and teacher support mechanisms during the activities. This scheduling ensures that exploratory activities do not disrupt other learning structures and can be carried out consistently without compromising the efficiency of learning time.

Thus, the organizing phase is not merely a technical arrangement, but a strategic managerial effort to create a conducive contextual learning ecosystem. This planned resource management ultimately strengthens collaboration and the connection of the material to students' real-life experiences—two key components of the CTL theoretical framework.

### **Actuating Learning Strategies**

The implementation phase is the core of the strategy, where students are actively involved in environmental projects such as observing ecosystems, recycling projects, and maintaining school gardens. In these activities, students collaborate, discuss, solve real-life problems, and report their findings. Results show visible improvements in student engagement, ability to express opinions, and appreciation for diversity.

In implementing the strategy, students are involved in various environmental projects such as observing the school ecosystem, simple recycling activities, mapping biotic and abiotic components, and maintaining the school garden as part of a "living laboratory." Through these activities, students engage in the scientific process, from observing and recording data, discussing results, to drawing conclusions. These activities align with the characteristics of contextual learning, which emphasizes the connection between real-world phenomena and academic concepts learned in the classroom.

Furthermore, the entire project is designed to stimulate collaboration and social interaction among students. In pre-formed heterogeneous groups, students discuss roles, identify field problems, formulate alternative solutions, and prepare reports on their findings. This process provides students with opportunities to practice expressing their opinions, listening to peers' input, resolving minor conflicts constructively, and appreciating diverse perspectives. This type of interaction not only hones social skills but also fosters a sense of environmental stewardship and shared responsibility.

Observational findings indicate that the implementation of this strategy had a significant impact on student learning behavior. There was a clear increase in active student participation, both in exploration activities and group discussions. Their ability to express ideas also improved, marked by their courage to speak up, provide arguments, and present observations more coherently. Furthermore, the atmosphere of cooperation among students became more positive, reflected in attitudes of mutual assistance, tolerance of differences of opinion, and appreciation for the contributions of each group member.

Thus, the implementation phase not only proves the effectiveness of the learning strategy in improving science and science understanding but also strengthens students' social competence through contextual learning experiences that are more lively, relevant, and aligned with the objectives of forming the Pancasila Student Profile. This is consistent with the findings of Putri & Hadi (2020) and Ramadhani (2021), which prove that project-based and contextual learning significantly improve cooperation, responsibility, and assertive communication. From the perspective of Gresham & Elliott's social skills theory (Gresham & Elliott, 1990), activities such as group projects provide a direct and natural platform for students to practice and develop competencies in cooperation (Wentzel, 1991), assertive communication, and empathy (Ladd, 2005).

### **Supervision (Controlling) of Learning Strategies**

The monitoring phase involves ongoing evaluation through observation and assessment using a social skills rubric. Teachers conduct reflections with students to discuss their learning experiences and social interactions. This monitoring ensures that the learning process remains focused on achieving cognitive and social skill objectives. The function of reflection in Johnson's (2002) CTL theory (Alwasilah, 2010) is clearly evident here, helping students build self-awareness and social empathy. Furthermore, evaluation results are used as feedback for teachers to refine subsequent learning designs (Zubaedi, 2015), creating a cycle of continuous improvement.

Teachers conduct this monitoring not only as an assessment process but also as a diagnostic tool to identify students' social dynamics during contextual learning. Observations are conducted continuously at each stage of the activity, allowing for a more accurate mapping of students' social behavior development.

Furthermore, monitoring includes analyzing the quality of student engagement in projects, the accuracy of scientific work procedures, and the consistency of the application of science and natural science principles.

One important aspect of this phase is the implementation of reflection activities with students. The teacher provides a space for directed discussions where students are invited to express their learning experiences, including challenges, successful collaboration strategies, and the dynamics of interactions with group members. This reflection process aligns with the function of reflection in the theory of Contextual Teaching and Learning (CTL) according to Johnson (2002) as explained by Alwasilah (Alwasilah, 2010), which emphasizes the importance of students' mental and emotional involvement in understanding their own learning experiences. Through reflection, students are trained to develop self-awareness, assess their attitudes and contributions within the group, and build social empathy by recognizing the perspectives of their peers.

The results of the monitoring and reflection are then analyzed by the teacher as a basis for decision-making to refine the learning design. This feedback serves as a mechanism for continuous improvement, both in pedagogical strategies and in the management of environment-based activities. Thus, the monitoring phase not only ensures the achievement of cognitive objectives and the development of students' social skills, but also serves as an important foundation for developing more effective and responsive learning interventions to meet students' needs in subsequent sessions. This stage ultimately confirms that environment-based contextual learning requires an adaptive and reflective monitoring system so that its learning impact is not only measurable academically, but also felt socially and emotionally by students.

### **Discussion on Improving Social Skills**

Overall results indicate that the contextual environmental approach effectively improves students' social skills at SDN Mekarwinaya and SDN Budisetra. This improvement is evident in several key indicators:

- a. Collaboration: Students demonstrate a greater ability to work collaboratively in groups, contribute ideas, and respect the opinions of others.
- b. Assertive Communication: Students become more confident in expressing their opinions politely and effectively, and are more willing to listen to their peers.
- c. Empathy and Caring: Through direct interaction with the environment and involvement in community-related projects, students demonstrate increased concern for their surroundings and peers.

These findings reinforce the theory that active learning interventions, such as environmental projects, are effective in fostering social-emotional constructs (Goleman, 2005) because students directly experience the dynamics of cooperation and shared responsibility. The local environmental context provides an authentic and meaningful setting for students to learn and practice social skills, making the learning process more impactful and sustainable than conventional, abstract methods.

Furthermore, this strategy supports the principles of the Independent Curriculum, which emphasizes differentiated learning and the development of 21st-century skills, including collaboration, creativity, and social awareness. The success of this approach also depends on the support of the school community and policies that encourage open-minded learning, as suggested by Suyanto and Asep Jihad (Jihad, 2013).

In conclusion, a contextual approach to science learning is not only effective in enhancing students' conceptual understanding but also plays a crucial role in developing their social skills. The POAC framework provides a systematic and measurable structure for implementing this strategy, ensuring that the planning, implementation, and evaluation processes are effective in achieving the desired educational goals.

### **Planning a Science Learning Strategy Based on an Environmental Contextual Approach**

The results of the study indicate that teachers at Mekarwinaya Elementary School and Budisetra Elementary School designed science lessons by considering the potential of the surrounding environment, such as school gardens, small rivers, and open areas that serve as living laboratories. Teachers developed lesson plans that included field observations, group discussions, and environmental projects. However, not all teachers were able to optimally integrate the environmental context, resulting in some learning remaining theoretical in nature. This supports Johnson's (Alwasilah, 2010) view that contextual learning is only effective when teachers are able to connect academic material to students' real-life experiences.

**Table 1: Planning of Science Learning Strategy**

| Planning Indicators                          | Field Findings                                              | Information                       |
|----------------------------------------------|-------------------------------------------------------------|-----------------------------------|
| Using the environment as a learning resource | Teachers use the school garden and small river              | Not consistent across all classes |
| Preparation of CTL-based lesson plans        | There are teachers who include field exploration activities | There are still conventional RPPs |
| Differentiation of learning                  | Students are grouped based on interests and abilities       | Not yet comprehensive             |

### Organizing Science Learning Strategies

During the organizational stage, teachers form heterogeneous learning groups that encourage collaboration among students. They also allocate time for field activities and discussions. However, observations indicate that some groups are still dominated by active students, while passive students tend to participate less. This situation indicates the need to strengthen classroom management skills to ensure all students are actively involved.

In addition to group structure, teachers also plan time allocations for field activities, environmental observations, and group discussion sessions. This time allocation is crucial to ensure that out-of-class exploration activities are not sporadic but structured and produce meaningful learning experiences. Teachers regulate the pace of activities so that students have sufficient time for observation, dialogue, and reporting on findings, while maintaining the stability of intraclass learning.

However, based on observations made during implementation, it was found that group dynamics were not entirely ideal. Some groups still showed dominance by more active and confident students. Meanwhile, students who tended to be passive showed lower levels of participation, both in discussions and in decision-making processes. This imbalance in participation has the potential to hinder the goals of collaborative learning because not all group members receive equal opportunities to contribute and develop their social skills.

This situation indicates that forming heterogeneous groups alone is not enough to ensure equitable participation. Strengthening classroom management skills is needed, particularly in terms of group facilitation, assigning clearer roles to each member, and using more intensive monitoring strategies to encourage passive student engagement. Interventions such as role rotation, individual assignments within a group context, and providing more specific directions can help reduce the dominance of certain students and provide space for less vocal students to engage more actively.

Thus, the organizational stage in implementing contextual learning is not only concerned with group structure and time allocation, but also requires teachers to be able to manage group dynamics adaptively. Strengthening classroom management skills is crucial to optimally achieving collaborative goals in CTL and ensuring all students receive equal and meaningful learning experiences.

### Implementation of Science Learning Strategy

Contextual learning was implemented through environmental observations, group discussions, waste recycling projects, and planting plants around the school. These activities have been shown to improve students' social skills, such as cooperation, empathy, and assertive communication. Observation data showed that over 70% of students were active in group discussions, while the remainder required teacher encouragement. This finding aligns with Ramadhani's (2021) research that CTL can develop students' empathy and communication skills through real-life experiences.

During the environmental observation phase, students are encouraged to identify biotic and abiotic components, observe interactions between living things, and record simple ecological phenomena. This activity not only strengthens their understanding of science but also trains students' skills in collaboration, sharing tasks, and assisting each other in data collection. Group discussions then provide a space for students to process their findings, express opinions, clarify their understanding, and formulate conclusions collaboratively.

The waste recycling project and plant-planting activities broadened student engagement in concrete actions that support environmental sustainability. Through these activities, students not only learned theoretical concepts but also developed a sense of responsibility, environmental stewardship, and social awareness. The

interactions that emerged during the group work process demonstrated significant improvements in social competencies, including the ability to express opinions assertively, manage differences of opinion, and foster empathy for group members.

Observational data shows that the implementation of these contextual activities has had a measurable positive impact. More than 70% of students were actively engaged in group discussions, demonstrating initiative to speak up, respond to peers' opinions, and contribute to the problem-solving process. Meanwhile, approximately 30% of students still needed encouragement, either in the form of prompting questions, verbal guidance, or specific role assignments from the teacher to engage more meaningfully. These findings indicate that while the contextual approach is effective in increasing participation, its full success still requires the teacher's facilitation role to be adaptive and responsive to each student's needs.

Thus, the implementation phase not only validated the effectiveness of environment-based learning in improving science and science understanding but also demonstrated its contribution to strengthening students' social skills comprehensively. Contextual activities oriented toward real-life experiences proved effective as a vehicle for fostering cooperation, empathy, and assertive communication, which are highly relevant to strengthening the Pancasila Student Profile.

**Table 2: Improving Students' Social Skills through Learning Implementation**

| <b>Social Skills Indicators</b> | <b>Before (Pre-Intervention)</b>              | <b>After (Post-Intervention)</b>               |
|---------------------------------|-----------------------------------------------|------------------------------------------------|
| Cooperation in groups           | 45% of students are active                    | 78% of students are active                     |
| Assertive communication         | 40% dare to express their opinions            | 73% of students dare to express their opinions |
| Empathy towards friends         | 38% of students showed concern                | 70% of students showed concern                 |
| Responsibility in tasks         | 42% of students completed assignments on time | 75% of students completed assignments on time  |

### Monitoring and Evaluation

Supervision was conducted through direct observation, teacher reflection, and social skills assessment using a rubric. Evaluation results showed significant improvements in cooperation, communication, and social awareness. Teachers also conducted reflections with students to reinforce awareness of the importance of social skills. However, limited learning resources outside the classroom remain a barrier to ongoing supervision.

Assessment using a social skills rubric is a crucial tool for ensuring that students' social competence development can be measured objectively and consistently. This rubric includes indicators representing dimensions of discipline, cooperation, assertive communication, respect for peers' opinions, and social awareness. With clear assessment standards, teachers can identify student progress and areas requiring further intervention.

Evaluation results showed significant improvements in several key aspects of social skills, particularly cooperation, effective communication, and social awareness. Students appeared more proactive in expressing opinions, offering assistance to peers, and demonstrating empathy in the context of completing group assignments. This indicates that contextual learning has a positive impact on students' socio-emotional development, in line with the goal of strengthening the Pancasila Student Profile.

In addition to formal evaluations, teachers also conduct reflection sessions with students to review their learning experiences. These reflections serve as a dialogue space that allows students to express their perceptions, challenges, and learnings related to social interactions. This reflective process has strong theoretical relevance, as reflection is a core component of the CTL model, helping students build self-awareness, understand their contributions to the group, and strengthen social empathy.

However, the ongoing monitoring process still faces several obstacles, one of which is limited learning resources outside the classroom. The lack of supporting facilities, such as structured observation areas, outdoor seating, field documentation equipment, or access to simple monitoring technology, limits the smoothness of evaluation and more intensive mentoring. This situation is an important consideration for schools to consider strengthening environment-based learning resources so that the monitoring process can be carried out optimally and sustainably.

The research findings indicate that a contextually-based social studies learning strategy is able to address the problem of students' low social skills. Planning involving environmental potential, organizing study groups, and implementing real-life projects provide authentic experiences for students in building social skills.

The novelty of this research lies in the integration of the CTL approach with POAC management, which has proven effective in creating structured learning oriented towards developing social skills. The results of this study support Mulyasa's study (Mulyasa, 2014) that the contextual approach increases student engagement, and strengthen the results of Suryani's (2022) study which emphasizes the contribution of CTL to the attitude of mutual cooperation.

## CONCLUSION

The results of this study indicate that the implementation of a contextual environmental approach-based science learning strategy is effective in improving the social skills of elementary school students. Through a structured process of planning, organizing, implementing, and monitoring, students become more involved in collaborative activities, show stronger empathy towards peers, dare to express opinions assertively, and have a higher sense of responsibility in completing tasks. These findings confirm that contextual learning not only enriches cognitive understanding but also becomes an important tool in forming social competencies that are essential for student character development in the 21st century. The integration of a contextual approach with the principles of POAC management provides a directed and sustainable model in achieving learning objectives, both academic and social aspects.

Based on these conclusions, schools and teachers are advised to further integrate the potential of the surrounding environment as a learning resource in science and science lessons, so that students' learning experiences become more meaningful and authentic. Educational policymakers are also expected to provide ongoing support through teacher training, provision of facilities, and collaborative programs with the community that strengthen the implementation of contextual learning. For further research, this model can be tested in schools with different characteristics, examined for its long-term impact on students' socio-emotional development, or combined with the use of digital technology to improve student engagement and learning outcomes.

This study concludes that a contextual approach to science learning based on environmental contexts significantly contributes to improving elementary school students' social skills. Through careful planning, focused organization, implementation involving the surrounding environment, and continuous supervision, students demonstrated significant improvements in cooperation, empathy, assertive communication, and responsibility. Therefore, science learning not only serves as a means to enhance cognitive understanding but also serves as an important medium for shaping students' character and social competencies relevant to the demands of the 21st century.

So, teachers more consistently utilize the potential of the environment as an authentic learning resource in science and science teaching. Schools need to provide support in the form of policies and facilities that support the implementation of contextual learning, as well as open up collaboration spaces with parents and the community so that students' social skills can further develop in real-world contexts. Future research is expected to examine this learning model in schools with different characteristics, examine its long-term impact, or combine contextual approaches with digital technology to increase student engagement. Thus, developing environment-based learning strategies not only strengthens academic competence but also prepares a caring, collaborative, and character-driven young generation.

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