



Implementation of the Eco School Program in Cultivating Environmental Awareness among Elementary School Students

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ABSTRACT

The increasing complexity of environmental challenges emphasizes the importance of developing environmental responsibility from an early age. SDN Rungkut Menanggal I Surabaya, an elementary school that consistently receives the Environmentally Friendly School Award in the city of Surabaya, provides a relevant context for examining the real role of ecological school activities as ecopedagogical practices. This study aims to describe the implementation of the Ecological School activities, the school program, identify supporting and inhibiting factors, and analyze their contribution to student development. The research method used is a qualitative case study with data collection techniques using three main methods, namely observation, in-depth interviews, and documentation. The research subjects were the principal, teachers, students and the involvement of parents as sources. The results of the study indicate that the implementation of the program has a positive impact on the formation of a culture of environmental care in the school. This is reflected in the increased involvement of the school community and the development of ecological habits in everyday life. This success is supported by strong leadership, parental support, and collaboration with various parties, while obstacles faced are related to limited facilities and inconsistent behavior of some students. The study concludes that Eco School is effective in fostering environmental responsibility in students. The novelty of this research lies in the analysis of implementation in schools that consistently become champions and the disclosure of the mechanism of character formation through real action-based ecopedagogy.

Keywords: Eco School; environmental responsibility; environmental education; ecological habituation; qualitative study

ABSTRAK

Meningkatnya kompleksitas tantangan lingkungan menekankan pentingnya pengembangan Tanggung jawab lingkungan sejak usia dini. SDN Rungkut Menanggal I Surabaya, sebuah sekolah dasar yang secara konsisten meraih Penghargaan Sekolah Ramah Lingkungan di kota Surabaya, memberikan konteks yang relevan untuk meneliti peran nyata kegiatan sekolah ekologi sebagai praktik ekopedagogis. Studi ini

bertujuan untuk mendeskripsikan implementasi kegiatan Sekolah Ekologi tersebut. Program sekolah, mengidentifikasi faktor pendukung dan penghambat, serta menganalisis kontribusinya terhadap perkembangan siswa. Metode penelitian yang digunakan adalah kualitatif studi kasus dengan teknik pengumpulan data menggunakan tiga metode utama, yaitu observasi, wawancara mendalam, dan dokumentasi. Dengan subjek penelitian adalah kepala sekolah, guru, siswa serta keterlibatan orang tua sebagai narasumber. Hasil penelitian menunjukkan bahwa pelaksanaan program memberikan dampak positif terhadap terbentuknya budaya peduli lingkungan di sekolah. Hal ini tercermin dari meningkatnya keterlibatan warga sekolah dan berkembangnya kebiasaan ekologis dalam keseharian. Keberhasilan tersebut didukung oleh kepemimpinan yang kuat, dukungan orang tua, serta kolaborasi dengan berbagai pihak, sementara kendala yang dihadapi berkaitan dengan keterbatasan fasilitas dan belum konsistennya perilaku sebagian siswa. Penelitian menyimpulkan bahwa Eco School efektif menumbuhkan tanggung jawab lingkungan siswa. Kebaruan penelitian terletak pada analisis implementasi di sekolah yang konsisten menjadi juara serta pengungkapan mekanisme pembentukan karakter melalui ekopedagogi berbasis aksi nyata.

Kata kunci: *Eco School; tanggung jawab lingkungan; pendidikan lingkungan hidup; pembiasaan ekologis; studi kualitatif*

INTRODUCTION

Environmental issues have become a global concern that directly impacts the sustainability of human life, including within the field of education. The increasing volume of waste, environmental pollution, and the decline in environmental quality indicate that environmental awareness and responsibility must be instilled from an early age (Misiaszek, 2020). In this context, elementary schools play a strategic role in shaping students' character, particularly in fostering responsibility toward the environment through a planned and sustainable educational process (Purwanti, 2017)

Environmental education in elementary schools should not be limited to conceptual knowledge but needs to be implemented through real-life experiences that are relevant to students' daily lives (Ludiya, 2024). An experiential learning approach based on habituation is considered more effective in developing environmental awareness, as students are directly involved in activities that promote environmental care and protection. Therefore, environmental learning contributes not only to cognitive development but also to shaping students' affective and behavioral aspects in their daily lives (Khasanah et al., 2025) This finding emphasizes that direct student engagement in environmental practices is essential for the sustainable internalization of environmental values.

One program that aligns with this approach is the Eco School Program, which emphasizes the integration of environmental values into school culture (Gunansyah, 2024). This program is closely related to the concept of eco-pedagogy, an educational approach that connects learning processes with concrete actions, enabling environmental values to be not only understood but also practiced in everyday life (Suryaningtyas, 2022). Through activities such as waste management, resource conservation, and the habituation of environmentally friendly behaviors, the program is expected to foster a sustainability-oriented school culture.

However, field conditions reveal a notable inconsistency between program implementation and actual practice. Although SDN Rungkut Menanggal I Surabaya has positioned itself as an Eco School, in reality, some students still demonstrate low awareness of cleanliness and environmental sustainability. This is reflected in inconsistent waste disposal behavior and limited participation in environmental activities. This condition indicates that

the existence of the program alone does not automatically lead to the development of environmental awareness, highlighting the need for a deeper investigation into how the program is implemented and how it influences students' behavior (Gunansyah, 2024)

A review of previous studies shows that most research has focused on the Adiwiyata program or has been limited to general descriptions of environmental programs. Studies examining the contextual implementation of the Eco School Program in specific schools, as well as its relationship with students' behavioral development, remain limited (Uralovich et al., 2023). Therefore, a research gap exists, particularly in understanding how the integration of eco-pedagogy, experiential learning, and school culture contributes to enhancing students' environmental awareness.

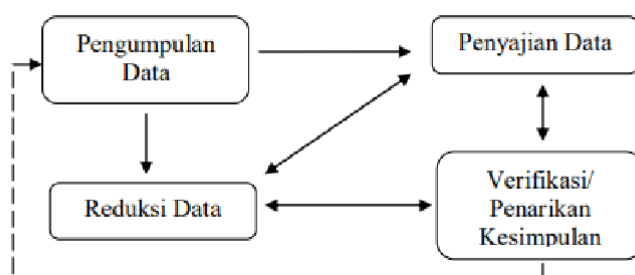
Based on these issues, this study aims to analyze the implementation of the Eco School Program at SDN Rungkut Menanggal I Surabaya and its role in fostering environmental awareness among elementary school students. This study is expected to provide a comprehensive understanding of program implementation, the environmental values developed, and their relationship with changes in students' attitudes and behaviors in preserving the school environment (Aminah & Gunansyah, 2023)

METHODS

Type and Design

This study employed a qualitative approach using an instrumental case study design to examine the implementation of the Eco School Program and its role in fostering environmental awareness among elementary school students at SDN Rungkut Menanggal I Surabaya. The case was selected as a means to provide deeper insight into how the program operates and influences students' environmental behavior within a specific school context. The qualitative approach was chosen because it allows researchers to gain an in-depth understanding of social and educational phenomena by examining meanings, processes, and experiences as they naturally occur in the school setting. This approach is particularly appropriate for investigating programs that emphasize values, attitudes, and habitual actions rather than quantifiable outcomes (Creswell, 2018)

The descriptive case study design enables a comprehensive and contextualized examination of a single case, focusing on how the Eco School Program is implemented and how it contributes to shaping students' environmental care. By concentrating on one school, the study captures the complexity and uniqueness of the program within its real-life context (Achjar et al., 2023). Such a design is suitable when the phenomenon under investigation is closely intertwined with its setting, as is the case with school-based environmental education initiatives



Figur 1; Qualitative Data Analysis Model Flow According to Miles and Huberman

Data analysis followed the interactive model proposed by Miles and Huberman, which consists of data reduction, data display, and conclusion drawing. The data analysis process begins with data collection, where relevant information is gathered from various sources (Sugiyono, 2013). The collected data are then subjected to data reduction, a process of selecting, focusing, simplifying, and transforming the raw data into a more meaningful form.

After being reduced, the data are organized and presented in the data display stage, allowing patterns, relationships, and key findings to be more easily understood. From this stage, the researcher proceeds to conclusion drawing and verification, where interpretations are made and findings are validated (Miles et al., 2014).

Importantly, this process is not linear but interactive and cyclical. Data reduction, data display, and conclusion drawing continuously influence one another. Researchers may return to earlier stages to refine the data, ensure accuracy, and strengthen the validity of the conclusions. Data reduction involved selecting and organizing relevant information from observations, interviews, and documents (Sugiyono, 2013). The data were then categorized into key themes, including program implementation, supporting factors, inhibiting factors, and program impact. Data display was conducted through narrative descriptions and tables to facilitate interpretation. Conclusions were drawn iteratively throughout the research process to identify emerging patterns and relationships among findings (Miles et al., 2014).

To ensure the trustworthiness of the study, several validation strategies were applied. Credibility was enhanced through source, technique, and time triangulation. Member checking was conducted by asking participants to confirm the accuracy of interview interpretations (Poltak & Widjaja, 2024). Peer debriefing was carried out through discussions with fellow researchers to minimize interpretive bias. An audit trail was maintained to document the research process systematically. Transferability was supported by providing a detailed description of the research context, while dependability and confirmability were ensured through consistent data verification across sources. These strategies strengthened the reliability and rigor of the qualitative findings.

Overall, the qualitative case study approach enabled a comprehensive exploration of the Eco School program as an action-based ecopedagogical practice (Waruwu, 2024). The methods employed allowed for a deep understanding of how environmental responsibility is developed through real-world activities within the school environment. This methodological framework provided a solid foundation for analyzing the dynamics, challenges, and impacts of Eco School implementation in elementary education

Data and Data Sources

The data in this study consisted of qualitative descriptive information related to the implementation of the Eco School Program and students' environmental care behaviors. Primary data were obtained directly from selected participants who were actively involved in the program, including the school principal, two classroom teachers, the Eco School program coordinator, and three elementary school students from grades IV and V.

Participants were selected using a purposive sampling technique, considering their direct roles and experiences in planning, implementing, and participating in Eco School activities.

The teachers involved in this study have been engaged in the Eco School Program since 2019, while the school itself has implemented the program for approximately five years. These characteristics were considered important to ensure the relevance and depth of the data collected (Hasan et al., 2025).

Secondary data were obtained from relevant school documents, including Eco School program plans, activity schedules, school regulations related to environmental practices, photographs of activities, and reports on environmental initiatives. These sources were used to complement and strengthen the primary data by providing contextual and institutional insights into the program's implementation (Sugiyono, 2013)

Data collection technique

Data were collected using multiple techniques to obtain a comprehensive and holistic understanding of the research focus.

1. Observation

Observation was conducted using a non-participant observation approach, in which the researcher did not directly intervene in the activities but systematically observed students' behaviors and school practices related to environmental care. The observations were carried out four times within one month to capture consistent patterns of behavior. The focus of observation included waste management practices, classroom cleanliness, and students' participation in environmental activities. To ensure systematic data collection, an observation checklist on environmental behavior and detailed field notes were utilized.

2. In-depth Interviews

Semi-structured interviews were conducted using an interview guide to ensure consistency while allowing flexibility for in-depth exploration. Each interview session involved two participants and lasted approximately one hour. The participants included the school principal, teachers, and students. The interviews aimed to explore participants' perceptions, experiences, and reflections regarding the Eco School Program. One of the key guiding questions was: "How do you integrate environmental education into classroom learning activities?" This approach enabled the researcher to gain deeper insights into the implementation of the program and its influence on students environmental awareness.

3. Documentation Review

Documentation was employed to support and validate data obtained from observations and interviews. The documents analyzed included annual program reports of the Eco School initiative, photographs of school activities (such as "Clean and Healthy Friday" programs, group exercise, and healthy eating activities), and formal school policies in the form of written regulations related to Eco School implementation. These documents provided evidence of program implementation, continuity, and institutional commitment, thereby strengthening the credibility of the research findings.

Data analysis

Data analysis in this study was conducted iteratively throughout the research process using an interactive model consisting of data reduction, data display, and conclusion drawing (Miles et al., 2014). Data obtained from observations, interviews, and documentation were first organized and reduced by selecting information relevant to the research focus. The reduced data were then categorized and presented in a descriptive narrative form to facilitate the identification of patterns and themes.

Subsequently, conclusions were drawn through interpreting the relationships between the implementation of the Eco School Program and students' environmental care behaviors. This continuous and interactive process ensured that the analysis remained closely grounded in the data while allowing meaningful and theoretically informed interpretations to emerge.

RESULTS AND DISCUSSION

Results

The results of this study present empirical findings on the implementation of the Eco School Program at SDN Rungkut Menanggal I Surabaya. The findings were derived from observations, interviews, and documentation. The data indicate that environmental activities are carried out routinely and are embedded in daily school practices. These activities include water conservation efforts, waste management, integration of environmental topics into classroom learning, and the involvement of school members. The implementation is supported by written policies and structured school programs. This data then forms the basis for in-depth analysis in the discussion section.

Table 1 Implementation of the Eco School Program at SDN Rungkut Menanggal I Surabaya

Program Components	Implementation	Findings
Water Conservation	Biopores, rainwater tanks, ablution water filtration	Students use water-saving facilities and follow water-use reminders displayed in school areas
Waste management	Composting, waste sorting, plastic-free canteen	Students sort organic and inorganic waste daily; composting activities observed regularly
Environmental Education	Integration of IPAS, and real action	Environmental topics are taught and practiced through classroom and project-based activities
School Community Participation	Involvement of teachers, parents, community	School members participate in environmental programs and scheduled activities

Source: Observation, interview, and documentation data (2025)

The findings show that the implementation of the Eco School Program is supported by school policies related to environmental practices. Based on document analysis, the school has established written regulations on waste management, water conservation, and the restriction of single-use plastics (Díaz et al., 2025). For example, students are required to bring reusable drinking bottles and food containers. Observations also indicate that students participate in daily routines such as watering plants and disposing of waste according to categories. According to a teacher, "Students are now more aware of sorting waste during daily activities" (Teacher interview, 2025).

In terms of water conservation, observations reveal the presence of biopore holes in several school areas and the use of rainwater storage for watering plants. Documentation also shows the use of a filtration system to reuse ablution water (Asnimawati et al., 2025). Visual data such as posters related to water-saving practices are displayed in classrooms and school corridors. During observation sessions, students were seen turning off water taps after use and following teacher instructions related to water conservation.

Waste management is implemented through daily waste sorting and composting activities. Observations show that students separate organic, inorganic, and residual waste using designated bins (Ismail et al., 2024). School documentation reports a reduction in inorganic waste over time, although no numerical data are specified. Composting activities are conducted regularly, and the resulting compost is used for school plants. A plastic-free canteen policy is also implemented, as confirmed through school regulations and supported by parents providing reusable food containers.

The integration of environmental education is evident in classroom learning activities. Based on classroom observations and teacher interviews, environmental topics are incorporated into science (IPAS) lessons and reinforced through project-based activities, such as composting and environmental observation. Students were observed engaging in hands-on activities rather than only receiving theoretical explanations (Khasanah et al., 2025).

Supporting factors identified from interview data include the role of the school principal in providing policy direction and resources, as well as parental involvement in supporting environmentally friendly practices. Collaboration with external partners, such as the Tunas Hijau community, is also documented in program reports. Teachers reported that students generally show enthusiasm when participating in environmental activities.

However, several challenges were identified. Observations and interviews indicate that the composting area has limited capacity, and some students are not consistently sorting waste. Teachers also noted the need for more intensive supervision to ensure consistent student behavior (Lickona, 1992). In addition, some environmental learning media are still limited, and several water conservation facilities require maintenance.

Overall, the findings describe observable activities, participant statements, and supporting documents related to the implementation of the Eco School Program and students' environmental behaviors in the school context (Rasyad, 2017).

Discussion

1. Implementation of the Eco School Program at SDN Rungkut Menanggal I Surabaya

The findings show that the Eco School Program at SDN Rungkut Menanggal I Surabaya is implemented through structured activities that are integrated into daily school routines.

Environmental practices, such as waste sorting, classroom cleanliness, and plant maintenance, are carried out consistently as part of students' everyday experiences. Rather than functioning as a separate program, Eco School activities are embedded in the school culture through habituation and direct involvement. This indicates that students learn environmental values not only through instruction but also through repeated practices in real contexts.

Observational data revealed that environmental values were introduced gradually through habituation rather than formal instruction alone. Students were encouraged to participate actively in simple yet consistent actions, such as disposing of waste properly, caring for school plants, and reducing the use of plastic materials. This approach reflects the principle that environmental education is more effective when students are involved in real-life practices that connect knowledge with action (Macintyre et al., 2024).

These findings align with the concept of ecopedagogy, which emphasizes learning through experience and contextual engagement with environmental issues. By integrating Eco School activities into routine school life, students were exposed to continuous learning opportunities that foster environmental awareness and responsibility (Supriatna, 2024)

2. Students' Environmental Care as an Outcome

The results reveal observable changes in students' environmental care behaviors. Students demonstrate increased participation in maintaining cleanliness, disposing of waste properly, and reminding peers to follow environmental rules. Interview data also indicate that students begin to show a sense of responsibility toward their school environment. These findings suggest that environmental awareness is gradually internalized through consistent practice and active engagement, rather than through theoretical learning alone (Salazar et al., 2024).

From a constructivist perspective, students constructed their understanding of environmental responsibility through interaction with their environment and social agents within the school. The Eco School Program provided a learning context where students could actively engage, reflect, and apply environmental values, reinforcing the development of environmentally responsible behavior (Vygotsky, 1980)

3. Supporting and Inhibiting Factors

The study identifies several supporting factors, including strong school leadership, active teacher involvement, and the availability of basic environmental facilities. In addition, collaboration with parents and external communities contributes to the continuity of the program. However, several challenges remain, such as inconsistent student behavior, limited facilities, and time constraints within the academic schedule (Halidah, 2018). These findings indicate that while the program is implemented effectively, continuous supervision and improvement are still required.

However, some challenges were also identified, including varying levels of student awareness and limited time allocation for environmental activities within the academic schedule. Despite these constraints, the program remained effective because environmental values were integrated into daily routines rather than relying solely on special events. This

finding is consistent with previous studies suggesting that sustainability education is most effective when embedded in school culture and daily practices (Girardet et al., 2001)

4. Contribution and Research Gap

This study contributes to the existing literature by addressing a gap in research on the implementation of the Eco School Program at the elementary school level. Previous studies have largely focused on the Adiwiyata program or have described environmental initiatives in general terms (Aminah, Sukarno, 2022). In contrast, this study provides empirical evidence on how the Eco School Program is implemented in a specific school context and how it relates to students' behavioral changes. The findings suggest that the integration of environmental practices into daily routines plays a key role in fostering students' environmental care (UNESCO, 2020). However, this study does not aim to compare the effectiveness of Eco School with other programs, which remains an opportunity for future research.

5. Limitations of the Study

This study has several limitations. First, it was conducted in a single school, which may limit the generalizability of the findings. Second, the duration of observation was relatively limited, which may not fully capture long-term behavioral changes. Third, the data on students' environmental behavior were primarily observational and based on participant responses, without quantitative measurement (Muslihah et al., 2025).

6. Recommendations for Future Research

Future studies are recommended to involve a wider range of schools to allow comparative analysis across different contexts. Further research could also examine the effectiveness of the Eco School Program in comparison with other environmental education programs, such as Adiwiyata. In addition, longitudinal studies are needed to explore the long-term impact of the program on students' behavior (Suryani, 2021). The development of more comprehensive evaluation models, including quantitative measures of behavioral change, would also strengthen future research.

CONCLUSION

This study concludes that the implementation of the Eco School Program at SDN Rungkut Menanggal I Surabaya was carried out in a structured manner and integrated into daily school practices. The findings indicate that environmental responsibility among students is fostered through consistent habits, school policies, and direct participation in environmental activities. Observable changes were reflected in students' behaviors, particularly in maintaining cleanliness, participating in environmental actions, and following school regulations related to environmental care. The implementation was supported by school leadership, teacher involvement, and parental participation, although challenges such as limited facilities and inconsistent student behavior were still identified.

This study contributes empirically by providing a contextual description of how the Eco School Program is implemented at the elementary school level and how routine ecological

practices shape students' environmental behavior. Practically, the findings highlight the importance of integrating environmental activities into daily routines to support character formation. Theoretically, this study reinforces the application of ecopedagogy by showing how experiential and habit-based learning can support the development of environmental responsibility in primary education.

However, the findings are limited to a single school context and are based on qualitative observations, which may not fully represent broader conditions or allow for generalized conclusions. Therefore, Eco School has the potential to serve as a model for environmental education practices in similar school contexts, rather than as a universal model.

Future research is recommended to examine the long-term impact of the program, conduct comparative studies across different schools, and develop more comprehensive models for integrating environmental education into diverse educational settings.

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