

## Building Environmentally Conscious Character through the Adiwiyata Program: A Green School Implementation Model

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### Abstract

Increasingly complex environmental problems, such as students' low awareness and concern for the cleanliness and sustainability of the school environment, indicate that environmentally based character education has not been optimally internalized in educational practice, as reflected in behaviors such as littering, poor classroom maintenance, and limited participation in environmental activities. This study aims to analyze the implementation of the *Adiwiyata* Program at SMA Negeri 1 Gending as an effort to build environmental awareness among students. Using a qualitative case study approach, data were collected through interviews with the principal, vice principal, teachers, and students; direct observation of student behavior across various areas of the school; and documentation in the form of activity reports, school policies, and program archives, and were analyzed descriptively. The results indicate that the *Adiwiyata* Program has been comprehensively implemented in learning, student activities, and school management, with the integration of environmental values into lesson materials, student council activities, and school policies encouraging observable changes in student behavior, such as properly disposing of trash, maintaining classroom cleanliness, caring for plants, using reusable food containers, and reminding peers to keep the school clean. Documentation further highlights supporting factors, including the commitment of school principals, the *Adiwiyata* organizational structure, and parental support, alongside obstacles such as budget constraints, low participation among some teachers, and limited ongoing training. The findings demonstrate that the synergy of

policies, learning, school culture, and the participation of all school elements critically influences the success of environmental character building. The implications of this research underscore the importance of institutional strengthening, program sustainability, and the integration of environmental education into school policies and the national curriculum to cultivate ecological character in the next generation.

**Keywords:** Environmental Character Education; *Adiwiyata* Program; Environmental Awareness; Green School; Student Behavior

## INTRODUCTION

One of the most pressing issues facing the world today is the environment. Human survival is threatened by increasing pollution, declining air and water quality, and environmental degradation (Wang, 2004)(Saxena, 2025). One of the leading causes of this problem is low public awareness and concern, which begins at an early age, and the absence of environmental values in everyday life. As a result, ecological education plays a crucial role in shaping students' attitudes toward environmental protection from an early age. One of the main initiatives to address this situation is the *Adiwiyata* program from the Ministry of Environment and Forestry (Maghfiroh & Harmanto, 2025). Through active, collaborative, and continuous classroom learning, this program aims to instill environmental principles. In other words, this research is necessary because it addresses a fundamental national issue by shaping environmental character through formal educational institutions.

Students' knowledge of environmental protection remains relatively low, according to initial observations conducted at SMA Negeri 1 Gending, Sebaung Village, Gending District, Probolinggo Regency. This is evident in the rampant littering, the lack of effort by students to maintain the cleanliness of the school grounds and classrooms, and the low level of participation in environmental initiatives. This situation is caused by an ineffective learning process for instilling environmental values and by a school culture that does not fully promote environmentally friendly ideas. As a result, students lack environmental awareness and responsibility as they grow older. The *Adiwiyata* Program is a concrete way to integrate ecological principles into classroom activities and school life (Roswita, 2020)(Prasetyo et al., 2020). The purpose of this study is to evaluate the level of program implementation and its effect on students' environmental awareness in the school environment.

Previous studies have shown that the Adiwiyata Program significantly improves students' knowledge of environmental issues. For example, research by (Sapitri et al., 2024) shows that schools implementing the Adiwiyata Program have experienced improvements in ecological cleanliness and student participation in environmental conservation activities. Another study by (Nurrochmat et al., 2022) This program was found to be effective in developing environmental values through extracurricular activities. However, few studies have thoroughly examined the process of student character development, especially in affective aspects such as empathy, responsibility, and self-awareness(Qomariyah, 2023). Most studies still focus on concrete, measurable outcomes, such as an increase in the number of plants or green facilities. Therefore, this study aims to fill this gap by focusing on the implementation of the Adiwiyata Program as a strategy for building environmentally conscious character through a qualitative approach that explores students' subjective experiences and school culture holistically.

This study is critical because it responds to the urgent need to educate a new generation that is not only intellectually intelligent but also highly aware of environmental issues. Character education focused on sustainability is essential amid widespread ecological degradation and climate change (Jordan, 2023)(Uralovich et al., 2023). As an official educational institution, schools play a crucial role in shaping this personality. Through the Adiwiyata Program, schools are required not only to implement environment-based learning but also to foster a school culture that supports environmentally friendly behavior. For this program to serve as a model for other local schools with similar characteristics, it is essential to understand how it is implemented in practice, particularly at SMA Negeri 1 Gending. In addition to providing a summary of best practices, this research can be used as a guide for policymakers and those developing more effective environmental education.

This study aims to examine the implementation of the Adiwiyata Program at SMA Negeri 1 Gending to develop students' environmental awareness. More specifically, this study seeks to answer the following questions: (1) How well is the Adiwiyata Program implemented in student affairs, learning activities, and school administration? (2) After the program was implemented, what behavioral changes did students exhibit that reflected environmental awareness? (3) What elements support and hinder the success of school programs? To capture real-time dynamics, the qualitative approach collects data through observation, interviews, and documentation. It is hoped that this study will provide a comprehensive understanding of the effectiveness of the Adiwiyata Program by answering

these questions. By answering these questions, this study is expected to provide a comprehensive understanding of the effectiveness of the Adiwiyata program in shaping students' character in a sustainable, environmentally oriented manner.

Researchers initially claimed that students' environmental awareness could be significantly influenced by the ideal implementation of the Adiwiyata Program at SMA Negeri 1 Gending, based on background information, field observations, and previous studies. This conclusion was drawn from several indicators, including increased self-awareness of the value of cleanliness, changes in behavior in maintaining school facilities, and the development of social empathy towards the environment. The idea that program performance is greatly influenced by the participation of all school personnel, teachers, students, principals, and the local community in continuously fostering an environmental culture is also explored in this study. If this assumption is proven, then this research has important implications for the development of an environment-based character education curriculum, the formulation of environmentally friendly school policies, and the replication of similar programs in other educational institutions. In other words, this research is the first step toward designing sustainable education within schools.

## **METHODS**

This study uses case study methodology and a qualitative approach. Since the purpose of this study is to gain an in-depth understanding of the implementation of the Adiwiyata Program as an effort to develop students' environmental awareness through stakeholders' experiences, opinions, and roles in the school environment, qualitative methods are used. By using a case study, the researcher was able to focus the investigation on one location, namely SMA Negeri 1 Gending, located in Sebaung Village, Gending District, Probolinggo Regency. This school was chosen for its implementation of the Adiwiyata Program and its socio-cultural environment, both of which were suitable for the research. The process of implementing the Adiwiyata Program and its impact on students' environmental awareness served as the unit of analysis in this study. The principal, responsible for policy; the vice principal in charge of curriculum, who implements integration in learning; teachers, who facilitate learning in the classroom; and students, who are the main subjects of the program, served as sources of information in this study. These informants

were selected because they were considered to have direct knowledge and experience with the program.

Three primary methods, namely observation, interviews, and documentation, were used in the data collection procedure. Observations were made directly on school environmental activities, student behavior, and program implementation in everyday school life. Key informants were interviewed in depth to gain a better understanding of the program's design, implementation, and impact on students' moral character. Meanwhile, written materials, including Adiwiyata implementation reports, school work schedules, and photos of environmental activities, were obtained through documentation. After the data were collected, they were analyzed in three stages according to the Miles and Huberman model: data reduction, data presentation, and verification or conclusion drawing. Data reduction involved sorting relevant information according to the research focus. In addition, to facilitate interpretation, the selected data were presented in narrative, tabular, and direct quotation formats. Ultimately, the information was confirmed to produce reliable and responsible findings. This process ensured that the research findings accurately and comprehensively represented the reality in the region.

## **RESULTS**

### **Implementation of the Adiwiyata Program in Learning, Student Affairs, and School Management**

The Adiwiyata Program at SMA Negeri 1 Gending has been implemented in an integrated manner through three main aspects: learning activities, student management, and school management. Based on interviews with the principal, vice principal for curriculum, subject teachers, and student representatives, it appears that environmental awareness values have begun to be integrated into subjects, extracurricular programs, and school policies. In learning, teachers have started to incorporate environmental material into Biology, Geography, and Religious Education lessons. In student affairs, the student council's work program includes ecological cleanup activities and energy conservation campaigns. Meanwhile, at the management level, the school has implemented a plastic waste reduction policy and a school garden management program that involves student participation. This demonstrates the institution's willingness to support the development of environmentally

conscious character through a comprehensive, systematic approach involving the entire school community (Bhoki et al., 2025).

**Table 1. Summary of interviews with informants:**

No.	Informant	Application of learning	Students activities	School management policy
1.	Principal	Supporting the integration of environmental themes in all subjects	Supporting pro-environmental students council activities	Plastic ban and school management
2.	Deputy Head of Curriculum	Adiwiyata integration supervision	Assistance with student hygiene activities	Regular evaluation of programs
3.	Biology Teacher	Material about ecosystems and pollution	Establishing school environmental clubs	Monitoring school greening activities
4.	Islamic Education Teacher	The value of cleanliness is part of faith	Encouraging students to protect the environment	Linking religious values and environmental responsibility
5.	Student Representative	Interested in environmental discussions	Actively participating in cleaning activities	Contribute to the maintenance of the classroom garden

Data from interviews show that the implementation of the Adiwiyata Program has covered academic, non-academic, and administrative aspects. In the learning process, teachers consciously relate lesson material to environmental issues. The principal encourages this integration through supportive policies. In student affairs, students are involved in routine activities that foster environmental awareness, such as cleaning activities and classroom cleanliness competitions. On the managerial side, the school has established a policy prohibiting the use of plastic and has implemented practices for managing gardens and organic waste. The deputy principal in charge of curriculum also actively oversees the implementation of the environmentally friendly curriculum. The collaborative work pattern between teachers, students, and school leaders reflects the success of the holistic approach in implementing the Adiwiyata program at the school (Widodo et al., 2024). All of this shows that the program is not merely symbolic, but has begun to take root in the school culture.

The interview table shows a pattern of mutually reinforcing roles among the school's educational personnel. The principal acts as the main policy director, while the vice principal for curriculum acts as the technical supervisor in the implementation of Adiwiyata. Teachers

play a central role in integrating environmental values into the learning process, both explicitly through teaching materials and implicitly through examples and habit formation. Students participate actively through student council and environmental club activities. This demonstrates a pattern of comprehensive involvement from all components of the school. This reinforces that the implementation of Adiwiyata is not just a formal program, but has become a participatory culture (N. F. Ahmad et al., 2024)(Utari et al., 2025). This collaborative model is a key strength in implementing the program, as each party assumes a role in line with their respective capacities and authorities.

The participatory approach in implementing the Adiwiyata Program at SMA Negeri 1 Gending emerged from a shared awareness of the importance of structured environmental education. The principal had a strong vision for ecological sustainability and incorporated it into the school's strategic plan. Support from teachers and student involvement show that environmental values have begun to be internalized in the school culture. Coordination between departments ensures that the program is implemented fully and in a complementary manner. The interpretation of this data shows that the success of the Adiwiyata program lies in the synergy among the policy structure, curriculum development, and active student involvement. The existence of an internal evaluation system also strengthens program implementation and encourages continuous improvement. This means that when all parties feel responsible for the environment, an environmentally conscious character will naturally and consistently emerge.

### **Changes in Student Behavior after the Adiwiyata Program was Implemented**

Observations were conducted to examine students' actual behavior in interacting with the school environment after the implementation of the Adiwiyata Program. Observations were conducted over two weeks in various areas of the school, including the garden, classrooms, canteen, toilets, and parking area. The results of the observation showed significant changes in student behavior. Students appeared to be accustomed to properly disposing of trash, caring for classroom plants, and working together to maintain the cleanliness of their learning space. Students even reminded each other when a friend did not follow the rules of cleanliness. This behavior indicates that the program has affected character development (Pahru et al., 2021). This change has not only occurred among students who participate in environmental extracurricular activities, but also among students

in general. This shows that environmental values have begun to take root and become part of students' daily habits. This behavior demonstrates positive progress in the internalization of environmental awareness.

Visualization of observation results (documentation)

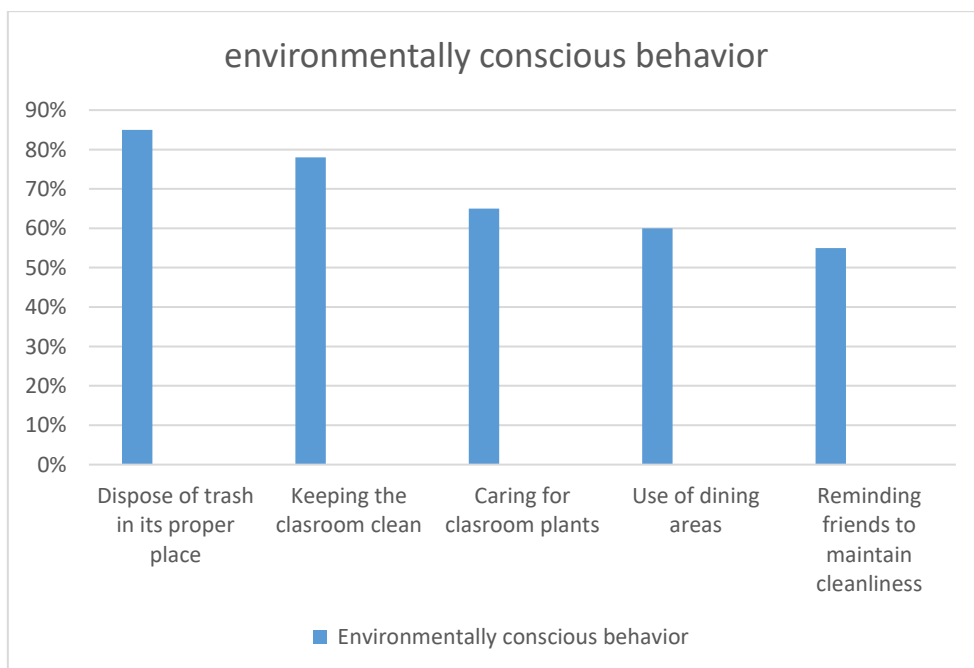


Figure 1. Changes in Student Behavior After the Adiwiyata Program :

The above data were obtained from direct observation and from observation sheets completed by environmental guidance teachers.

From observations, the data show that most students have demonstrated behavioral changes that lead to the formation of environmentally conscious characters. As many as 85% of students routinely dispose of trash in the proper place, 78% maintain classroom

cleanliness, and 65% actively care for the classroom garden. In addition, 60% of students use reusable containers to reduce single-use plastics, and 55% actively remind their friends to protect the environment. These changes show that the Adiwiyata Program is not just a formality, but has a real impact on student behavior. These changes are comprehensive and not limited to specific groups (Arif et al., 2025). This fact shows that the program's approach has an extensive impact on students and reflects success in instilling environmental values both collectively and structurally.

The diagram of observation results shows that littering and maintaining cleanliness are the most dominant behaviors exhibited by students. Daily habits and social control most likely influence this among classmates. Meanwhile, activities such as caring for the classroom garden and conserving water/electricity occupy the middle position, indicating the need to strengthen students' internal motivation. Interestingly, aspects of social awareness, such as reminding friends, are also beginning to develop, although they are not yet dominant. This pattern shows that students' environmental awareness develops gradually, starting with individual behavior and progressing to collective behavior (Oktaviani, 2025). This pattern shows positive results and opens up opportunities for further development through training, habit formation, and consistent character building through student activities and thematic learning.

The behavioral changes observed in students demonstrate the effectiveness of the environment-based character-building strategy. Behaviors such as disposing of trash properly and keeping the classroom clean reflect the internalization of environmental values through various channels, including learning, student council activities, and school policies (Biantoro & Istiqlal, 2025)(Batzon & Zion, 2024). This shows that students respond positively to an environment that supports and shapes new habits. Key factors in this change include teacher role models, active peer involvement, and the integration of habits into daily activities. Therefore, this pattern of behavioral change results from a consistent system supported by all elements of the school. This emphasizes that character building cannot be achieved instantly but rather through a continuous process, exemplified and supported by a conducive environment.

### **Factors Supporting and Hindering Program Success in Schools)**

In identifying the factors that support and hinder the success of the Adiwiyata Program, researchers conducted a documentation study of school activity archives,

Adiwiyata annual reports, photos of activities, and school work programs. Based on the collected data, several documents were found indicating that SMA Negeri 1 Gending had made various systematic efforts to support this program. Among them were school policy documents on environmental conservation, Adiwiyata-based annual work plans, the organizational structure of the implementation team, and environmental activity reports from the student council and supervising teachers. On the other hand, there were also notes on implementation obstacles, such as budget constraints, limited participation from some teachers and students, and difficulties maintaining program continuity during changes in student council or principal leadership. All of this shows that the program's success depends heavily on policy continuity, participatory support, and school managerial readiness.

Table 2, Visualization of Documentation Results

No.	Supporting Factors	Inhibitory Factors
1.	Support from the principal and the adiwiyata team	Limited environmental operating funds
2.	Environment-based annual work plan	Low participation among some and students
3.	The existence of an adiwiyata implementation teams	Lack of follow-up training for new implementation teams
4.	Parent support for environmental activities	Coordination issues between school departments
5.	Regular OSIS activities that are pro-environmental	Challenges during in management changes or teacher rotations

This table summarizes the school work program documents, activity reports, and minutes of Adiwiyata meetings for the 2022–2024 period.

Based on documentation, the success of the Adiwiyata Program implementation is greatly influenced by internal supporting factors, including support from the principal, a clear annual work plan, the implementers' organizational structure, and the student council's involvement in environmental activities. In addition, parental participation is also an external factor that strengthens program implementation (Rosyadi, 2024). However, significant obstacles can undermine the program's sustainability. These obstacles include limited funds, insufficient ongoing training, and poor coordination between departments. When there is a change in student council leadership or teacher rotation, the program tends to lose continuity. Meeting documents show that some activities had to be postponed due to a lack of resources or assistants. These findings confirm that the program's success is highly

dependent on consistent management and collective support from all components of the school.

The table showing the documentation results indicates that the supporting factors are structural and cultural. The principal, as the formal leader, plays a vital role in setting policies and providing program direction. The availability of work plans and implementing organizations are technical factors that assist in managing activities. Meanwhile, the student council and parents create cultural support through active participation. On the other hand, inhibiting factors tend to stem from sustainability and coordination issues. Limited funds, lack of training, and dependence on specific figures (e.g., student council president or supervising teacher) pose a latent threat to the program's sustainability (Raharjo, 2025). This pattern shows that even though the program is running, its success still depends heavily on individual strengths and has not yet been fully institutionalized. This is an essential note for strengthening a system that is more resistant to internal and external changes.

Findings from the documentation show that the success or failure of the Adiwiyata Program implementation is not determined solely by good intentions or ceremonial activities, but also by a strong, participatory management system. When support from the principal, teachers, students, and parents is aligned, the program can run smoothly. However, when structural changes occur, weak coordination and the absence of standard operating procedures (SOPs) become weaknesses that disrupt activities (D. M. Ahmad et al., 2025)(Paturuan et al., 2025). This interpretation of the data underscores the importance of establishing a stable, sustainable institutional system so that the program does not depend on individuals. In addition, regular training, special budget allocations, and strengthening the school culture to make environmental awareness a shared value are needed. Thus, the implementation of Adiwiyata can be sustained and foster a permanent, rather than temporary, character of ecological awareness.

## **DISCUSSION**

The findings of this study align with those of (Sari et al., 2022)(Hnatyuk et al., 2024), which show that integrating environmental values into the learning process, student affairs, and school management can strengthen students' environmental awareness. As is the case at SMA Negeri 1 Gending, the Adiwiyata Program covers aspects ranging from academics to school culture. This is also supported by Bronfenbrenner's Ecological Theory, which states

that interactions between micro and macro systems (e.g., classrooms and school management) shape student behavior. In addition, research (Nasir et al., 2023) emphasizes the importance of all school stakeholders' participation in ensuring the program's sustainability. This comparison shows that a comprehensive, participatory approach is an essential factor in Adiwiyata's success. Therefore, this study not only reinforces previous studies but also highlights the urgency of synergy among teachers, students, and school management as the primary capital for sustainably instilling environmental awareness.

The results of this study show changes in student behavior after the Adiwiyata program was implemented, in line with the research (Uzorka et al., 2024) that found that student involvement in environmental activities directly increases their sense of responsibility towards the environment. This is also in line with behaviorism, which holds that behavior can be shaped by repeated and consistent environmental stimuli (Muslimin et al., 2025).

The documentation in this study shows that structural support, such as the principal's role and annual work plans, is a key factor in the program's success, as described by (Ranisa et al., 2025). This finding also reinforces educational management theory, which holds that the success of school programs depends heavily on planning, coordination, and the continuity of institutional policies (Rahman & Nu, 2023).

The findings showing the integration of Adiwiyata in learning, student affairs, and school management did not happen by chance. This was due to the strong commitment of school leaders and the active involvement of teachers and students (Komalasari et al., 2022)(Zaliyanti & Azani, 2024). The principal of SMA Negeri 1 Gending has a vision aligned with sustainability principles, which is then implemented through school policies, such as the prohibition of plastic use and the development of class-based school gardens. Teachers are also actively incorporating environmental materials into their teaching. This reflects the school's overall approach, in which character education is developed not only in the classroom but also through policy, the physical environment, and the school culture, as explained in the study (zaki Ilman et al., 2025). In addition, reinforcement through curriculum supervision, student council activities, and internal training further strengthened the program's implementation. Therefore, this success arose from a system that ran synergistically, structurally, and sustainably across all school components.

Changes in student behavior, as seen in their habits of maintaining cleanliness, properly disposing of trash, and caring for the school garden, can be explained by several

primary causes. First, habituation through routine activities such as Clean Fridays, classroom cleanliness competitions, and plant adoption programs encourages students to undergo a slow but consistent process of internalizing values. Second, teachers' role as role models is highly influential; students imitate the behavior of teachers who are directly involved in environmental activities. Third, peer social control creates a collective norm requiring every student to protect the environment. In Bandura's social-cognitive theory, behavioral change can occur through observation and social reinforcement (Mujahidah & Yusdiana, 2023)(Rumjaun & Narod, 2025). Therefore, the Adiwiyata program not only provides cognitive insight into the importance of the environment but also creates space for direct actualization, facilitating the formation of habits and character. When students are accustomed to a clean, caring environment, they will naturally adjust their behavior in line with these values.

The presence of supporting and inhibiting factors in the implementation of the Adiwiyata Program is a consequence of the dynamics of school management and available resources (Utomo et al., 2023). Strong support from the principal and implementation team stems from an awareness of the importance of environmental education as part of character building (Thoyib et al., 2021). In addition, the existence of annual work plans demonstrates that schools have a long-term vision and systematic planning (Priyambodo & Hasanah, 2021). However, on the other hand, obstacles arise due to budget constraints, lack of ongoing training, and dependence on specific figures such as the student council president or guidance counselor. When there are changes in the program's structure or resources, the program's continuity is disrupted. This shows the importance of institutionalizing programs that do not depend on individuals. In addition, the lack of synergy between school departments weakens the effectiveness of implementation (Utari et al., 2025). Therefore, these factors result from an imbalance between program idealism and field resource readiness, requiring simultaneous structural and cultural improvements.

The findings of this research have important implications for the development of environment-based character education in schools. The research results confirm that the formation of an environmentally caring character is more effective if carried out through a holistic approach that integrates learning, student activities and school management. The Adiwiyata program not only functions as a supporting activity, but as a strategic instrument for the formation of school culture. The practical implication is that schools need to strengthen leadership, teacher collaboration, and student participation in real environmental

activities. Policy-wise, these findings encourage the integration of environmental education into the curriculum and school planning on a sustainable basis.

This study has several limitations that need to be noted. The focus of the research is only on one school with a case study approach, so the findings cannot be generalized to other school contexts. Qualitative approaches also depend on informant perceptions, which has the potential to give rise to subjectivity in data interpretation. Apart from that, this research has not involved parents and the surrounding community as supporting informants, and has not studied the sustainability of changes in student behavior in the long term. Therefore, further research is recommended using mixed methods and a wider range of objects.

## CONCLUSION

This study concludes that the implementation of the Adiwiyata Program at SMA Negeri 1 Gending has been conducted in an integrated manner through classroom learning, student activities, and school management, and has made a tangible contribution to shaping students' environmentally caring character. This character formation is reflected in observable changes in behavior, including maintaining cleanliness, demonstrating concern for the environment, and actively participating in environmentally friendly activities. The program's effectiveness is supported by the commitment of school leaders, the active involvement of teachers and students, and a supportive school culture, although it still encounters challenges related to limited resources and the sustainability of program implementation.

Scientifically, the study reinforces the perspective that environment-based character education is effective when implemented through a holistic and participatory approach. It also enriches the literature on the Adiwiyata Program by emphasizing the affective and behavioral dimensions of students' environmental responsibility, thereby highlighting how structured school-based interventions can foster enduring pro-environmental dispositions and practices.

Based on these findings, future research is recommended to involve a larger number of schools in diverse socio-cultural and geographical contexts, employ mixed-methods designs to capture both qualitative nuance and quantitative trends, and examine the long-term impact of the Adiwiyata Program on students' environmental attitudes and behaviors. Subsequent studies are also encouraged to incorporate the role of parents and the wider

community in order to understand and strengthen the ecosystem of support for environment-based character education.

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