

Why Foundation Play an Important Role in Environmental Education: A qualitative analysis at the Adiwiyata School

Adhy Setia Putera¹, Samsul Maarif², Desvian Bandarsyah³, Ihsana El Khuluqo⁴, Moh. Suryadi Syarif⁵, Putri Wulandari⁶

^{1, 2, 3 & 4} Universitas Muhammadiyah Prof. DR. HAMKA, Jakarta, Indonesia.

^{5&6} Yayasan Pendidikan Budi Mulia Tangerang, Banten, Indonesia.

*Correspondence to: adhysetiaputera@uhamka.ac.id

Abstract: Environmental education faces increasing challenges in sustaining its implementation beyond formal program requirements, particularly in school-based initiatives such as the Adiwiyata program. This study aims to examine the role of school foundation in supporting the implementation of the Adiwiyata program and its influence on students' environmental awareness in a private junior high school in Tangerang City. A qualitative evaluative approach was employed, with data collected through semi-structured interviews, field observations, and document analysis. The findings reveal that school foundations play a critical role in providing strategic leadership, policy direction, and resource support for environmental education initiatives. However, the effectiveness of these efforts depends on active collaboration among school stakeholders. The study underscores the importance of institutional synergy between foundations and schools to ensure the sustainability of environmental education programs. These findings contribute to the development of best practices for fostering long-term environmental awareness and pro-environmental behavior among student.

Keywords: Environmental awareness; adiwiyata program; foundation.

How To Cite: Putera, A., Maarif, S., Bandarsyah, D., El Khuluqo, I., Syarif, M., & Wulandari, P. (2025). Why Foundation Play an Important Role in Environmental Education: A qualitative analysis at the Adiwiyata School. *Al-Ta'lim Journal*, 32(3). doi:<https://doi.org/10.15548/jt.v32i3.1012>

Article info: Submitted: 14th January 2025 | Revised: 30th October 2025 | Accepted: 29th November 2025

INTRODUCTION

Environmental awareness is a very important topic in this era of globalization, especially among the younger generation who are expected to be able to maintain the sustainability of our planet (Adamczyk & Adamczyk-Kowalczyk, 2022). In Indonesia, the Adiwiyata program plays a key role in increasing environmental awareness through education in educational institutions (Utomo et al., 2023). The aim of this environmental education program is to internalize environmental values in the teaching and learning process, so that students not only understand the important role of environmental issues, but also have the ability and enthusiasm to participate actively (Barron et al., 2022). Supporting foundations play an important role in helping schools to effectively implement the Adiwiyata initiative (Halimah et al., 2022). In addition, program implementation often does not meet expectations, and there are still challenges in improving students' understanding and awareness of environmental issues. Given the importance of this issue, this research aims to consider the extent to which foundation play a role in building environmental awareness among students in junior high schools involved in the Adiwiyata program. It is hoped that the results of this research will provide a deeper understanding

of the effectiveness of foundation initiatives and identify steps that can be taken to strengthen sustainable environmental awareness (Zhang et al., 2023).

Although the Adiwiyata program has been implemented with the hope of increasing environmental awareness among students, this research shows that there are various challenges that hinder its effectiveness. One of the main obstacles encountered is the lack of sufficient understanding of sustainability principles among students, even though they are involved in activities designed to increase such awareness (de Rivas et al., 2024). In addition, there are still difficulties in integrating environmental material into the curriculum as a whole, resulting in fragmented understanding among students (Corpuz et al., 2022). Thus, this research question becomes very relevant to what extent has the foundation succeeded in building environmental awareness among students through the Adiwiyata program? (Saadah et al., 2023). Research into this problem is a crucial step to develop more effective strategies in promoting environmental education at the secondary school level, so that it is hoped that it can encourage students' active participation in environmental issues in the future (Lopez et al., 2023).

This research aims to assess the real impact of the foundation's role in increasing environmental awareness among students in junior high schools involved in the Adiwiyata program (Shabira & Fathoni, 2024). By adopting a qualitative approach, this research seeks to identify effective practices and obstacles faced by foundations in implementing the program (Gehring, 2024). Through a comprehensive analysis of the various activities carried out—including outreach, training, and student participation in outdoor activities—this research aims to investigate the extent to which foundation initiatives can influence students' perceptions and behavior regarding environmental issues (Baierl, Johnson, & Bogner, 2022). In addition, it is hoped that this research can provide clear and measurable recommendations to foundations and schools, in order to maximize the effectiveness of the Adiwiyata program and contribute more to the education of future generations who care and are responsible for the environment. Thus, it is hoped that the results of this research will become an academic and practical reference in efforts to improve the quality of environmental education in Indonesia.

In the field of environmental education research, there has been several pieces of literature that discuss various aspects of environmental awareness among students (Verma & Verma, 2022). However, studies that specifically investigate the role of foundations in the Adiwiyata program are still relatively few. Many studies focus on factors that influence environmental awareness, such as community involvement and educational policies, but do not detail the contribution of foundations in developing a culture of awareness in schools (Wibowo, Sumarmi, Utaya, Bachri, & Kodama, 2023). Additionally, much of the existing research is quantitative and does not provide an in-depth understanding of students' experiences and the challenges they face during program implementation (Aslam et al., 2024). Therefore, this study aims to fill this gap by providing a comprehensive qualitative perspective and collecting data from a variety of stakeholders, including students, teachers, and foundation representatives (Reymond, Nahrgang, Großmann, Wilde, & Fries, 2022). Through this approach, this research not only contributes to the development of theories regarding environmental awareness, but also provides useful information for designing more effective strategies in comprehensive and sustainable environmental education (Pérez-Martín & Esquivel-Martín, 2024).

There is novelty in environmental education studies, namely by highlighting the role of foundations in the Adiwiyata program in junior high schools, a theme that has not been

widely discussed in academic literature (Abu, Subur, & Irra Wahidiyati, 2023). The distinct contribution of this study is reflected in its comprehensive qualitative analytical approach to evaluating the impact of the program on students' environmental awareness (Kosta et al., 2022). In addition, this study explains how the foundation's strategy and implementation can shape students' attitudes and behavior towards environmental issues, as well as identifying factors that can increase the success of these educational initiatives (Fazria et al., 2024). The urgency of this research is rooted not only in its practical application in education in Indonesia, but also in its contribution to the development of sustainable education policy and practice more broadly (Bunyamin, 2020). By providing evidence-based insights, this study seeks to address the following research question: How do school foundations influence the implementation of environmental education programs and contribute to the development of students' environmental awareness? It is hoped that the findings can offer practical guidance for foundations, educators, and policymakers in enhancing environmental awareness among the younger generation, thereby fostering a society that is more environmentally conscious and responsible (Ma et al., 2023).

METHOD

In this study, the author applies a qualitative approach with case study research. A qualitative approach is carried out in a natural environment with the aim of interpreting phenomena that occur through the use of various methods (Denny & Weckesser, 2022). This approach is considered essential for understanding social phenomena and the perspectives of the individuals involved. The procedure in the qualitative approach produces descriptive data in the form of words, both written and verbal, taken from observed individual behavior (McCombie, Esponda, Schmidt, & Lawrence, 2024). The case study itself is a method that is carried out intensively, in detail and in depth to research certain symptoms (Creswell, 2018).

Research Design

The design applied is a single case design, which is a type of case study that focuses on one particular case unit by focusing on one specific object that is studied in depth as a case (Ledford et al., 2023). The main focus of this approach is not on the generalization of results, but rather on the success of a treatment or intervention within a certain time period. One of the advantages of this design is its flexibility, which allows for changes or adjustments to the intervention during the process (Lepink, 2022). The data in this research was collected through interviews with related parties, field observations, and analysis of documents related to the implementation of the Adiwiyata program at the school.

With a qualitative approach to explore the role of foundation in increasing environmental awareness at Budi Mulia Junior High School located in Tangerang City. With this qualitative approach, researchers can gain in-depth insight into the experiences and perspectives of various parties directly involved in implementing the Adiwiyata program (Rahman, Santosa, Basir, Nur, & Arifin, 2023). Through detailed and systematic data collection, encompassing in-depth interviews with key stakeholders, direct observations of school environmental practices, and comprehensive analysis of institutional documents and policy frameworks, this research seeks to identify the factors that influence the success of this environmental education program and to examine how foundations contribute to policy formulation and the provision of strategic support. The Adiwiyata

program, which aims to integrate environmental education into the curriculum and students' daily activities, requires active involvement from various parties, including foundation administrators, teachers, students, and parents (Anggraini et al., 2024). Therefore, this study strongly affirms that the success of the program is intrinsically dependent on robust and continuous collaboration among multiple stakeholders.

Participant

Participants consisted of various parties directly involved in environmental education activities at Budi Mulia Middle School, the sample selection process was carried out with the aim of obtaining various perspectives from individuals who have an important role in the successful implementation of the Adiwiyata program (Suprpto, 2023). The selected sample included the Principal, several teachers involved in the environment-based teaching and learning process, as well as a number of students who actively participated in activities related to the Adiwiyata program (Zaliyanti & Azani, 2024). Apart from that, representatives from foundations were also involved to provide their views regarding the role of foundations in supporting and formulating policies related to environmental education in schools.

The sample was selected purposively based on the relevance and level of involvement in the implementation of the Adiwiyata program. The selection of participants according to these criteria aims to optimize data collection which can provide a clearer picture of the effectiveness of the program in increasing environmental awareness among students. By involving various parties who have direct experience in environmental education activities, this research aims to reveal how collaboration between teachers, students and foundations can influence the achievement of environmental education goals (Altassan, 2023). Apart from that, it also takes into account various external factors that can influence the success of the program, such as foundation policies, administrative support, and active participation from the school community in running the program (Fajria, Aziz, & Aulia, 2024). It is hoped that the results of data collection from various participants will provide comprehensive information about the impact of implementing the Adiwiyata program.

Research Procedures

The research process begins with a preparatory stage which includes a literature review to gain an in-depth understanding of the background and theoretical framework relevant to the topic under study (Waldt, 2024). This stage is important to provide a strong conceptual basis and understand previous research findings related to the Adiwiyata program and environmental education (Su & Zhao, 2023). Next, researchers develop instruments that will be used to collect data, such as interview guides and observation formats, which are adapted to the research objectives. Once the instrument is ready, the next step is Obtain permission from related parties, namely the school and foundation, to ensure the smooth process of data collection and obtain ethical approval for this research.

After preparations were complete, the researcher continued with conducting semi-structured interviews with various relevant sources, such as school principals, teachers, students and foundation administrators (Aravena, 2023). This interview aims to explore their views regarding the implementation of the Adiwiyata program and its impact on environmental awareness. Apart from that, researchers also conducted field observations of activities taking place in the program to understand the dynamics that occurred in the

field, including student reactions to the program. Finally, researchers collected related documents and literature that could enrich the analysis, such as reports on activities and policies underlying the Adiwiyata program. It is hoped that this combination of interviews, observations and document studies can provide a comprehensive picture of the effectiveness of the program in increasing environmental awareness.

Data Collection Technique

Data was collected using three main techniques that complement each other to obtain comprehensive information about the implementation of the Adiwiyata program and its impact on environmental awareness at Budi Mulia Middle School. The first technique is interviews, which are carried out with various related parties, such as school principals, teachers, students and foundation administrators. The purpose of this interview is to obtain direct perspectives from those involved in program implementation, both in terms of policy, teaching, and students' experiences in participating in environmental-based activities (Kariuki, 2023). Through interviews, we hope to gain an in-depth understanding of how the program influences participants' environmental attitudes and actions.

The second technique is field observation, where the researcher directly observes the activities taking place in the Adiwiyata program series. This observation aims to really understand how these activities are carried out, how students react to this program, and how involved they are in the environmental initiatives carried out (Handayani & Widodo, 2024). These observations provide insight into social dynamics and the influence of environmental activities on student behavior outside the formal learning context.

The third technique is document and literature study, which includes analysis of official documents, activity reports, and literature relevant to environmental education and the implementation of the Adiwiyata program. Study of this document is important to provide theoretical context and understand the policy basis underlying the program (Rahman et al., 2023). By combining these three data collection techniques, this research aims to obtain a complete picture of the success of the Adiwiyata program and the challenges faced in increasing environmental awareness among students.

Data Analysis Technique

The data analysis process in this research uses an interactive analysis model developed by Miles and Huberman in 2014. This model provides a systematic way to process and evaluate data collected through various techniques, such as interviews, observations, and document studies. This approach focuses on organizing and processing data in a structured manner to obtain clear and detailed findings. In its application, evaluative descriptive techniques are used to describe in detail the results obtained and evaluate the effectiveness of the implementation of the Adiwiyata program, as well as the foundation's contribution to the development of environmental awareness among students (Ruchliyadi, Nugroho, Maulana, & Ridha, 2023).

The analysis process begins with organizing data, which involves grouping data based on categories or themes that are relevant to the research objectives (Donner, 2023). The next step is data reduction, where redundant or irrelevant information is filtered out to maintain focus on the main findings (Fernandes, Carvalho, Pereira, & Bernardino, 2024). Data presentation is carried out by summarizing the selected results and arranging them in a form that is easy to understand, whether in the form of a narrative or a clear table. Finally,

the researcher drew conclusions based on these findings to describe how foundations play a role in supporting and strengthening environmental awareness in schools (B. Yang, Wu, Tong, & Sun, 2022).

With this analytical approach, research results can be presented comprehensively, providing a transparent and clear picture of the foundation's contribution to environmental education and its impact on students' attitudes and knowledge. This technique allows researchers to compile findings that provide valuable insight into the program implementation process and the factors that influence its success (Li, Yang, & Liu, 2024).

RESULT AND DISCUSSION

The results of the analysis carried out in this research show that the role of foundations is very important in supporting the smooth and successful implementation of the Adiwiyata program at Budi Mulia Middle School, which is located in Tangerang City. Foundations that have the authority to make strategic decisions make significant contributions, especially in providing support in the form of policies that include clear budgets and regulations (Hu & Hilson, 2023). This policy is the main basis for the sustainability and development of the Adiwiyata program in schools. Without supporting policies, the program may be hampered or less than optimal in its implementation.

Apart from that, the foundation also has a big role and contribution in developing and managing the Adiwiyata program as a whole. They ensure that all planned activities can be carried out well and in accordance with the previously set objectives. This includes preparing activity plans, selecting materials, and allocating the resources needed for program success. With the foundation's active participation in management, this program is not only well directed, but also receives sufficient support from an operational and financial perspective.

However, although the foundation's contribution to this program is crucial, they also face various challenges, especially in terms of monitoring program implementation in the field. Effective supervision is very important to ensure that all parties in the school, from teachers, students, to staff, are actively involved and responsible in implementing the Adiwiyata program. Weak supervision can risk reducing program effectiveness and hindering the achievement of desired goals, such as increasing environmental awareness among students (Khuluqo, 2019).

It is important to note that monitoring of program implementation also does not only focus on administrative and technical aspects (Bührmann et al., 2022). Another aspect that is no less important is monitoring the motivation and commitment of all stakeholders involved. In this case, the foundation needs to ensure that every individual involved in the Adiwiyata program has the same understanding of the goals and expectations of the program (Wahyuni & Riyanto, 2022). This will facilitate coordination between various parties and increase the synergy needed to achieve maximum results.

Other challenges faced by foundations include limited resources available to support comprehensive program implementation. Although the foundation has tried to provide the necessary budget and policies, often the existing funds are not sufficient to support all the activities planned in the program. This could include limitations in providing facilities, teaching materials, or training for teachers and students. Therefore, although foundations have an important role in providing policies, challenges in terms of funding

and resources are obstacles that need to be overcome to ensure that the Adiwiyata program can run well.

In addition, the results also show that although the foundation has provided policies and support, awareness and participation from all parties involved is very dependent on how effective the foundation is in communicating the importance of this program. This requires a more proactive approach, such as training and counseling that involves the entire school community. Without a deep understanding of the program's objectives, the success of the Adiwiyata program may be limited to the administrative implementation stage only, and not to achieving the desired behavioral changes in terms of students' environmental awareness and action.

Another challenge faced by the foundation is the need for continuous evaluation of the Adiwiyata program. Regular evaluations will help the foundation to identify successes, problems and areas that still need improvement. This is important because the educational environment and student needs continue to develop, and the Adiwiyata program must be able to adapt to these changes. Evaluation also provides an opportunity for foundations to find out whether the allocated resources have been used effectively and efficiently, and whether the goals to be achieved have been achieved or still require further adjustments.

Overall, although the foundation has made a significant contribution in supporting the Adiwiyata program at Budi Mulia Middle School, challenges in terms of supervision, funding and communication need to be overcome to increase the effectiveness of this program. The Adiwiyata program does not only depend on foundation policies and implementation of activities, but also on the level of awareness and active participation of all elements of the school, including teachers, students and staff (Rushayati, Hermawan, & Ginoga, 2023). Therefore, the foundation needs to further strengthen its monitoring and evaluation role to ensure that this program can continue to develop and have a wider impact in increasing environmental awareness among the younger generation (Iwasaki, 2022).

It is hoped that the results of this research can provide valuable insight for the development of best practices in implementing environmental education programs in other schools, so that the foundation's contribution in supporting the implementation of the Adiwiyata program can continue to be strengthened, as well as becoming a model that can be applied in various schools to achieve its goals. better environmental education in the future.

The results of this research show that there is a vital role for foundations in implementing the Adiwiyata program at Budi Mulia Middle School, as well as its impact on increasing students' environmental awareness (Nursofah, Sari, & Supadi, 2025). These findings confirm that the foundation's contribution is not only limited to providing financial support, but also involves an active role in formulating policies and establishing regulations that directly influence the effectiveness and success of the program (Blokina & Petrova, 2025). In this context, foundations play a broader role as actors who not only support in terms of resources, but also as policy drivers that can encourage the achievement of long-term goals of environmental education programs (Mutia et al., 2025).

Based on these findings, it can be concluded that foundations have a strategic role in determining the direction and implementation of environmental education programs. Not only as a provider of funds, but also as a party who determines a larger framework by designing policies that support Adiwiyata activities (Setiadi, Dwiningrum, & Mustadi, 2023). This support in the form of policies includes appropriate budget allocation, regulatory

arrangements, and ensuring that the resources needed to run the program are available and used efficiently. This is very important to ensure the program's sustainability in the long term, considering that environmental education programs such as Adiwiyata require careful and sustainable planning so that they can run successfully and have a positive impact on students (Yasir et al., 2023).

The important role of foundations in educational programs is in line with findings in the literature which show that educational institutions need to have strong support from external parties, such as foundations, to achieve sustainable educational goals (C. Yang & Xiu, 2023). As an entity that has a role in decision making, the foundation functions as a liaison between the various parties involved, including schools, teachers, students and the community. Synergy between these various components is very necessary to create a supportive learning environment, which in turn will provide greater opportunities for students to realize the importance of protecting the environment (Wibowo et al., 2023).

Furthermore, this study shows that the success of the Adiwiyata program is very dependent on the active involvement of all elements involved in the education process (Komariah, 2022). The Foundation, with all its policies and support, cannot run alone without the participation of teachers, students and other related parties. This illustrates that an educational program that prioritizes environmental issues does not only focus on one element, but involves all parties in the school ecosystem. In this case, foundations not only play a role in providing funds or physical resources, but more than that, foundations must be leaders in forming policies that encourage all parties to collaborate to achieve broader environmental education goals (Megawati et al., 2022).

Curriculum development in institutions by integrating environmental education and training for teachers in annual and semester programs up to daily action plans can be carried out very well if supported by foundations (Bonilla-Jurado et al., 2024). With policy support that integrates environmental education in daily learning, the foundation acts as the main driver in encouraging the creation of a conducive learning environment and strengthening students' understanding and awareness of increasingly pressing environmental issues (Chen, Xiang, & Fan, 2024). This collaboration between foundations, schools and teachers also ensures that environmental education is not just a separate, sporadic activity, but becomes part of integrated and continuous learning (Rahman et al., 2023).

The foundation's involvement in the Adiwiyata program provides wider opportunities for students to directly experience the benefits of environmental education. With good collaboration between the foundation and the school, students are given the opportunity to not only gain knowledge, but also to participate in various activities related to environmental preservation, such as greening activities, recycling, or environmental campaigns (Sanderson et al., 2022). All of these activities give students a deeper understanding of how they can contribute to preserving the environment around them.

Effective supervision includes monitoring various aspects of activities, starting from the extent to which Adiwiyata activities have been integrated into the curriculum, to the extent to which students are actively involved in each existing program. Without careful supervision, Adiwiyata activities can lose their direction and purpose, so that even though policies are in place, the impact of this program may not be optimal. Therefore, monitoring program implementation is an important part that needs to be considered by foundations to ensure the long-term sustainability and success of this program.

Overall, the results of this research support the view that the success of environmental education programs, such as Adiwiyata, relies heavily on close collaboration between foundations, schools, teachers and students. Foundations have a key role in providing appropriate policy and regulatory support, as well as ensuring that these programs can be implemented well. However, to achieve optimal results, active participation from all components involved is required, as well as ongoing monitoring to ensure this program has a positive impact. By involving all parties and ensuring that each element plays a role according to its capacity, the Adiwiyata program can continue to develop and contribute to creating higher environmental awareness among students. Synergy between foundations, schools, teachers and students is the main key to the success of this environmental education program, which not only focuses on knowledge aspects, but also on concrete actions that can be taken by the younger generation to preserve their environment.

Impact on Theory and Practice

In addition to providing a new perspective on inter-institutional collaboration, the findings from this research also have a significant impact on practice in environmental education. In this case, the function of the foundation in the Adiwiyata program emphasizes that the support provided is not only financial, but also includes strategic aspects in the development of sustainable education. With clear policies and regulations from the foundation, schools can implement environmental education programs in a more structured and systematic way. This is in line with theory which emphasizes the importance of the autonomy of educational institutions in integrating environmental values into the curriculum. Additionally, this research highlights that active participation from all stakeholders—including students, teachers, and the community—is key to driving sustainable behavior change. In other words, the results of this research not only strengthen its contribution to the scientific literature, but also offer a practical framework for foundations and schools to increase the effectiveness of environmental education programs, strengthen awareness of sustainability, and foster a sense of environmental responsibility among students. Therefore, this research can be used as a reference for more effective education policies and programs that are more responsive to the environmental challenges faced by society.

Research Limitations

Although this research provides significant insight into the role of foundations in the Adiwiyata program, there are several limitations that need to be considered. First, the focus is only on one location, namely Budi Mulia Middle School in Tangerang City, which can limit the generalizability of the findings to other school contexts in different areas. Differences in school culture, foundation support, and environmental conditions in each location can influence the results and interpretations produced. Second, although various data collection methods have been used, such as interviews, observation, and document analysis, not all points of view from the parties involved can be fully reached. For example, the voices or experiences of students who might provide criticism of the program are not fully represented. Third, this study did not apply a longitudinal approach, which makes it difficult to assess the long-term effects of the foundation's intervention on students' environmental awareness. Therefore, these limitations need to be considered when interpreting research results and developing recommendations. For future research, it is

recommended to explore broader contexts and apply methodologies that allow for more thorough data collection, thereby providing a more complete understanding of the effectiveness of environmental education programs.

Suggestions for Future Research

Based on the limitations found in this research, there are several recommendations for further research. First, it is recommended that more comprehensive research be carried out involving several schools that implement the Adiwiyata program in various locations. This will facilitate more thorough comparisons and allow more accurate generalization of results, considering differences in local context that may influence program implementation. Second, future research should use a longitudinal approach to assess the impact of foundation support on students' environmental awareness and behavior in the long term. In this way, researchers can evaluate how experiences in environmental education influence students' attitudes and behavior toward environmental issues over time. Third, it is important to investigate students' experiences in more depth using participatory methods, which provide opportunities for students to express their views and criticism of the program. This approach will add depth to the data collected and provide a more comprehensive understanding of program effectiveness. By considering these points, future research will not only increase understanding of the role of foundations in environmental education, but also contribute to the development of best practices that can strengthen environmental awareness among the younger generation.

CONCLUSION

The results of this research identify and analyze the role of foundations in implementing the Adiwiyata program at Budi Mulia Middle School, Tangerang City, as well as its influence on students' environmental awareness. The results of the analysis show that foundations have a crucial role in providing strategic support, including setting budgets, formulating policies and regulations that support environmental activities. In addition, active participation from all stakeholders such as students, teachers and communities is very necessary to create a supportive learning ecosystem. This research confirms that collaboration between educational institutions and foundations is a key factor for achieving effective results in environmental education. Although there are several limitations, such as the emphasis on one location and the absence of a longitudinal approach, these findings still provide a strong foundation in understanding the role of foundation support on students' environmental awareness. Based on the findings and limitations discussed, several recommendations can be made for future research and practice. First, future studies are expected to involve a number of schools implementing the Adiwiyata program in various regions to strengthen the generalizability of the findings. Second, the application of longitudinal methods is beneficial in assessing the long-term effects of the program on student behavior and cognition. Third, it is important for future research to include participatory methods, which provide opportunities for students to express opinions and input regarding the program, so that their views can be better accommodated in the planning and implementation stages. By implementing these recommendations, it is hoped that future research can contribute to the development of more efficient and sustainable environmental education practices in Indonesia, as well as forming a younger generation that is more sensitive and concerned about environmental issues.

REFERENCES

- Abd Rahman, N., Zabidi, F. N. M., & Jalil, M. H. (2023). How To Integrate Environmental Education: Analysis of Teachers' Perspectives in Integrated Islamic Science Schools. *International Journal of Education*, 15(2), 1. <https://doi.org/10.5296/ije.v15i2.20611>
- Abu, A. D., Subur, S., & Irra Wahidiyati. (2023). Strengthening character education caring for the environment based on Adiwiyata Mandiri in high school. *Cypriot Journal of Educational Sciences*, 18(1), 327–338. <https://doi.org/10.18844/cjes.v18i1.8497>
- Altassan, A. (2023). Sustainable Integration of Solar Energy, Behavior Change, and Recycling Practices in Educational Institutions: A Holistic Framework for Environmental Conservation and Quality Education. *Sustainability (Switzerland)*, 15(20). <https://doi.org/10.3390/su152015157>
- Aravena, F. (2023). How principals identify low-performing teachers in public schools? Evidence from Chile. *Journal of Pedagogy*, 14(2), 5–26.
- Aslam, P., Mushtaq, Q., Noor, F., Maqbool, S., Khan, N. Y., & Sarfraz, J. (2024). The Literature Review on Curriculum Implementation Problems. *Journal of Health and Rehabilitation Research*, 4(2), 497–501. <https://doi.org/10.61919/jhrr.v4i2.844>
- Baierl, T. M., Johnson, B., & Bogner, F. X. (2022). Informal Earth Education: Significant Shifts for Environmental Attitude and Knowledge. *Frontiers in Psychology*, 13(May), 1–8.
- Blokhina, E., & Petrova, T. (2025). Resource Potential as a Key Element in Effective Management of a Charitable Foundation. *Management Sciences*. <https://doi.org/10.26794/2304-022x-2025-15-1-36-47>
- Bonilla-Jurado, D., Zumba, E., Lucio-Quintana, A., Yerbabuena-Torres, C., Ramírez-Casco, A., & Guevara, C. (2024). Advancing University Education: Exploring the Benefits of Education for Sustainable Development. *Sustainability*, 16(17), 7847.
- Bührmann, L., Driessen, P., Metz, A., Burke, K., Bartley, L., Varsi, C., & Albers, B. (2022). Knowledge and attitudes of Implementation Support Practitioners—Findings from a systematic integrative review. *PLoS ONE*, 17(5 May), 1–25. <https://doi.org/10.1371/journal.pone.0267533>
- Bunjamin, Khoerul Umam, L. (2020). Critical Review of M-Learning in Total Quality Management Classroom Practice in an Indonesian Private University. *International Journal of Interactive Mobile Technologies*, 14(20), 76–90. <https://doi.org/https://doi.org/10.3991/ijim.v14i20.15141>
- Chen, F., Xiang, S., & Fan, M. (2024). Enhancing Environmental Awareness Through Integrated Curriculum in China. *Research and Advances in Education*, 3(2), 16–21. <https://doi.org/10.56397/rae.2024.02.04>
- Creswell, J. W. T. C. G. (2018). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*, 6th Edition. Pearson.
- Denny, E., & Weckesser, A. (2022). How to do qualitative research?: Qualitative research methods. *BJOG: An International Journal of Obstetrics and Gynaecology*, 129(7), 1166–

1167. <https://doi.org/10.1111/1471-0528.17150>

- Donner, E. K. (2023). Research data management systems and the organization of universities and research institutes: A systematic literature review. *Journal of Librarianship and Information Science*, 55(2), 261–281. <https://doi.org/10.1177/09610006211070282>
- Fajria, R., Aziz, Z. A., & Aulia, M. (2024). Questioning in the EFL Classroom : Teachers ' and Students ' Perspectives. *Journal, Al-Ta'lim*, 31(3), 201–214. <https://doi.org/10.15548/jt.v31i3.922>
- Fernandes, V., Carvalho, G., Pereira, V., & Bernardino, J. (2024). Analyzing Data Reduction Techniques: An Experimental Perspective. *Applied Sciences (Switzerland)*, 14(8). <https://doi.org/10.3390/app14083436>
- Gehringer, T. (2024). How Managerial Practices Impact Perceived Organizational Effectiveness: A Study of Corporate Foundations. *Administrative Sciences*, 14(5), 96. <https://doi.org/https://doi.org/10.3390/admsci14050096>
- Handayani, J. A., & Widodo, A. (2024). The Impact of Student Participation in ENvironmental Education Programs on Pro-Environmental Behavior. *Jurnal Cakrawala Pendas*, 10(2), 215–224. <https://doi.org/https://doi.org/10.31949/jcp.v10i2.8475>
- Hu, Y., & Hilson, G. (2023). Philanthropic Foundations and Institutional Change under Rigid Authoritarianism: Exploring the Ford Foundation's Historical Grantmaking in the Chinese Family Planning Field (1991–2005). *Journal of Social Policy*, 54(1), 38–56. <https://doi.org/10.1017/s0047279422001027>
- Ihsana El Khuluqo, Y. (2019). The effect of Leadership of school and school climate Leadership on teacher performance in Madrasah Tsanawiyah in Indonesia. *International Journal of Business, Economics and Law*, 18(6), 109–117.
- Iwasaki, S. (2022). Effects of Environmental Education on Young Children's Water-Saving Behaviors in Japan. *Sustainability (Switzerland)*, 14(6). <https://doi.org/10.3390/su14063382>
- Kariuki, C. (2023). Assessment of leadership actions for Environmental Stewardship Enhancement in public schools. *Present Environment and Sustainable Dvelopment*, 17(1). <https://doi.org/https://doi.org/10.47743/pesd2023171015>
- Komariah, N. (2022). Evaluation of Adiwiyata Programs. *JKP | Jurnal Kepemimpinan Pendidikan*, 5(1), 660–672. <https://doi.org/10.22236/jkpuhamka.v5i1.9234>
- Lepink, J. (2022). Adaptive single case design (ASCD): a model for education, training, and assessment. *Scientia Medica*, 32(1), 1–6. <https://doi.org/10.15448/1980-6108.2022.1.42370>
- Li, Y., Yang, D., & Liu, S. (2024). The impact of environmental education at Chinese Universities on college students' environmental attitudes. *PLoS ONE*, 19(2 February), 1–16. <https://doi.org/10.1371/journal.pone.0299231>

- McCombie, C., Esponda, G. M., Schmidt, U., & Lawrence, V. (2024). Qualitative Diary Methods in Mental Health Research A Scoping Review and Recommendations for Research and Reporting. *European Psychologist*, 29(1), 3–16. <https://doi.org/10.1027/1016-9040/a0000511>
- Megawati, S., Yusriadi, Y., Hussen, N., Syukran, A., & Rahaju, T. (2022). Adiwiyata Program Innovation through Penta Helix Approach. *Hindawi Education Research International*, 2022(4), 7–9. <https://doi.org/10.1155/2022/7223314>
- Mutia, T., Irawan, L. Y., Sumarmi, Meilitasari, R., & Prasad, R. R. (2025). The Relationship Between the Adiwiyata Program Based on Environmental Activities and Students' Environmental Care Attitudes in Supporting Green Schools. *International Journal of Sustainable Development and Planning*. <https://doi.org/10.18280/ijstdp.200103>
- Nancy G. Barron, Sibylle Gruber, G. H. (2022). Student Engagement and Environmental Awareness. *Environmental Humanities*, 14(1). <https://doi.org/10.1215/22011919-9481528>
- Nursofah, N., Sari, E., & Supadi, S. (2025). Environmentally conscious schools through the implementation of Adiwiyata program at junior high schools in Jakarta. *Edelweiss Applied Science and Technology*. <https://doi.org/10.55214/25768484.v9i4.6697>
- Pérez-Martín, J. M., & Esquivel-Martín, T. (2024). New Insights for Teaching the One Health Approach: Transformative Environmental Education for Sustainability. *Sustainability (Switzerland)*, 16(18). <https://doi.org/10.3390/su16187967>
- Rahman, A., Santosa, S., Basir, M. S., Nur, I., & Arifin, Z. (2023). Implementation of the Adiwiyata School in Improving the Quality of Public Elementary School Education. *Al-Ishlah: Jurnal Pendidikan*, 15(4), 5440–5448. <https://doi.org/10.35445/alishlah.v15i4.2299>
- Reymond, N. C., Nahrgang, R. G., Großmann, N., Wilde, M., & Fries, S. (2022). Why students feel competent in the classroom : A qualitative content analysis of students ' views. *Frontiers in Psychology*, 13(October), 1–23. <https://doi.org/10.3389/fpsyg.2022.928801>
- Rista Anggraini, Sugeng Utaya, I. N. R. (2024). Adiwiyata as an Effective Environmental Education Program: How to Create and Maintain It? *Jurnal Komunikasi Pendidikan*, 8(1), 1–10. <https://doi.org/10.32585/jurnalkomdik.v8i2.5440>
- Ruchliyadi, D. A., Nugroho, D. A., Maulana, M. F., & Ridha, M. K. (2023). Implementation of A School Based on A Wetland Environment From An Ecological Citizenship Perspective. *Jurnal Pinus: Jurnal Penelitian Inovasi Pembelajaran*, 9(1), 44–53. <https://doi.org/10.29407/pn.v9i1>
- Rushayati, S. B., Hermawan, R., & Ginoga, L. N. (2023). The role of adiwiyata school in the change of students' knowledge, attitude, and behavior towards the environment. *Jurnal Pengelolaan Sumberdaya Alam Dan Lingkungan*, 13(1), 122–128. <https://doi.org/10.29244/jpsl.13.1.122-128>
- Sanderson, J., Alper, R., Barrack, J., Byrd, C., Glenn, E., Jespersen, K., ... Archibald, J. (2022). Best practices for collaborative conservation philanthropy. *Conservation Science and Practice*, 4(10), 1–10. <https://doi.org/10.1111/csp2.12811>

- Setiadi, H. W., Dwiningrum, S., & Mustadi, A. (2023). Portrait of Ecoliteracy Competence in Elementary School Students: Relationship of Ecoliteracy Competence on Environmental Sustainability in Indonesia. *Environment and Ecology Research*. <https://doi.org/10.13189/eer.2023.110610>
- Su, Y., & Zhao, H. (2023). Infiltration Approach of Green Environmental Protection Education in the View of Sustainable Development. *Sustainability (Switzerland)*, 15(6), 5287. <https://doi.org/10.3390/su15065287>
- Suprpto, Suparno, H. (2023). Evaluation of the Implementation of the Adiwiyata Program in Elementary Schools in Grogol Petamburan District, Jakarta, Indonesia. *Community Medicine & Education Journal*, 4(2), 286–292. <https://doi.org/10.37275/cmej.v4i2.312>
- Ummisyia Shabira, A. F. (2024). Optimalisasi Kreatifitas Siswa berbasis Program Sekolah Adiwiyata di Sekolah Dasar. *Muallimuna: Jurnal Madrasah Ibtidaiyah*, 9(2), 43–54. <https://doi.org/10.31602/muallimuna.v9i2.13762>
- Verma, A., & Verma, V. (2022). Environmental Awareness among Students. *International Journal for Research in Applied Science & Engineering Technology (IJRASET)*, 10(4). <https://doi.org/10.22214/ijraset.2022.41306>
- Wahyuni, L., & Riyanto, S. (2022). Model Sekolah Adiwiyata Melalui Program Asistensi Mengajar Berbasis Pembelajaran Experiential. *Jurnal Paedagogy*, 9(4), 616. \
- Waldt, G. van der. (2024). Constructing theoretical frameworks in social science research. *The Journal for Transdisciplinary Research in Southern Africa*, 20(1), 1–12.
- Wibowo, N. A., Sumarmi, S., Utaya, S., Bachri, S., & Kodama, Y. (2023). Students' Environmental Care Attitude: A Study at Adiwiyata Public High School Based on the New Ecological Paradigm (NEP). *Sustainability (Switzerland)*, 15(11). \
- Yang, B., Wu, N., Tong, Z., & Sun, Y. (2022). Narrative-Based Environmental Education Improves Environmental Awareness and Environmental Attitudes in Children Aged 6–8. *International Journal of Environmental Research and Public Health*, 19(11). \
- Yang, C., & Xiu, Q. (2023). A Bibliometric Review of Education for Sustainable Development, 1992–2022. *Sustainability (Switzerland)*, 15(14). <https://doi.org/10.3390/su151410823>
- Yasir, N., Babar, M., Mehmood, H. S., Xie, R., & Guo, G. (2023). The Environmental Values Play a Role in the Development of Green Entrepreneurship to Achieve Sustainable Entrepreneurial Intention. *Sustainability*, 15. <https://doi.org/10.3390/su15086451>
- Yi Zhang, Xiaoxia Wu, cheng Zu, J. Z. (2023). Classroom Quantitative Evaluation: A Method of Both Formative and Summative Evaluation. *Sustainability (Switzerland)*, 15(3), 1783.
- Zaliyanti, A. M., & Azani, M. Z. (2024). Implementation of The Adiwiyata Program by The Principal to Foster Students' Morals towards The Environment. *JIE (Journal of Islamic Education)*, 9(1), 359–383. <https://doi.org/10.52615/jie.v9i1.391>