



The Role of Adiwiyata Extracurricular Activities in Shaping Environmentally Friendly Behavior in Students

Siti Galuh Nazhifah*¹,

¹ *Madrasah Aliyah Negeri 1 Lamongan*

e-mail: sitigaluhnazifah29@gmail.com

Submitted: 15-06-2025

Revised : 15-06-2025

Accepted: 15-12-2025

ABSTRACT. This study aims to analyze the role of Adiwiyata-based extracurricular activities in shaping environmentally friendly behavior among students. The research employs a qualitative approach through a literature review method by examining various scientific articles, policy documents, and previous studies related to environmental education and school-based sustainability programs. The findings indicate that Adiwiyata extracurricular activities contribute significantly to the development of students' ecological awareness, pro-environmental attitudes, and sustainable habits through experiential learning, participatory activities, and value internalization processes. Moreover, these activities function as a strategic medium for integrating environmental values into students' daily practices, both inside and outside the school environment. This study concludes that Adiwiyata extracurricular programs play a crucial role in fostering environmentally responsible behavior and supporting the formation of environmentally literate generations in the context of sustainable education.

Keywords: Adiwiyata Program, Environmental Behavior, Sustainable Education



<https://dx.doi.org/10.32678/ijose.vxx0x.xxxx>

How to Cite

Name of Authors. (Year). Title of article. *IJOSE; International Journal Of Science Education, Volume* (Issue), 00-00. doi:10.32678/ijose.v5i01.0000.

INTRODUCTION

Environmental behavior refers to actions and practices that reflect individuals' concern and responsibility toward environmental sustainability, such as waste reduction, energy conservation, and participation in environmental protection activities (Kollmuss & Agyeman, 2002). In the context of education, environmental behavior is not merely an outcome of cognitive understanding but a complex process influenced by values, attitudes, social norms, and experiential learning (Steg & Vlek, 2009). Therefore, schools play a crucial role in facilitating learning environments that enable students to internalize environmental values and translate them into daily practices.

One of the most effective approaches to shaping environmental behavior is through experiential learning. According to Kolb (1984), experiential learning emphasizes the importance of direct experience as the foundation for meaningful learning and behavioral change. Students who actively engage in environmental activities are more likely to develop emotional connections with environmental issues, which strengthens their motivation to act sustainably. This aligns with the principles of environmental education, which stress that learning should involve cognitive, affective, and behavioral dimensions simultaneously (UNESCO, 2017).

In this regard, extracurricular activities function as a strategic educational space that complements formal classroom instruction. Unlike traditional learning settings that often focus on theoretical knowledge, extracurricular programs allow students to participate in practical activities that foster real-life environmental skills. Research by Rickinson et al. (2004) demonstrates that outdoor and participatory environmental learning significantly enhances students' environmental attitudes and pro-environmental behavior. These findings suggest that extracurricular activities provide a more flexible and engaging learning environment that encourages students to actively practice sustainable behaviors.

The Adiwiyata Program represents a school-based environmental education model that integrates sustainability values into institutional culture. Adiwiyata emphasizes four main components: environmentally friendly school policies, curriculum integration, participatory activities, and sustainable infrastructure (Ministry of Environment and Forestry, 2018). Among these components, participatory activities are considered the most influential in shaping student behavior because they involve direct student engagement in environmental practices. Through participation, students do not only receive environmental knowledge but also experience environmental responsibility as part of their daily school life.

Extracurricular activities under the Adiwiyata framework include waste management programs, school gardening, environmental campaigns, recycling projects, and eco-clubs. These activities are designed to foster students' awareness of environmental problems while simultaneously developing practical solutions. For instance, involvement in waste sorting and recycling helps students understand the consequences of consumption patterns and encourages them to adopt more responsible habits (Saputra & Hidayat, 2020). This process reflects the concept of learning by doing, which is considered essential for behavioral transformation.

From a psychological perspective, environmental behavior is strongly influenced by social learning. Bandura (1986) argues that individuals learn behaviors by observing and imitating others within their social environment. In school contexts, teachers, peers, and school culture serve as important role models for shaping student behavior. Adiwiyata extracurricular activities create a social environment where environmentally responsible behavior becomes a shared norm. As students observe their peers engaging in sustainable practices, they are more likely to adopt similar behaviors through social reinforcement.

Furthermore, environmental behavior is closely related to value internalization. Values are fundamental beliefs that guide individuals' attitudes and actions (Schwartz, 2012). In environmental education, value internalization occurs when students gradually accept environmental responsibility as part of their personal identity. Adiwiyata extracurricular programs facilitate this process by embedding environmental values into routine school activities. When students consistently participate in environmental actions, such as planting trees or reducing plastic use, these practices eventually become habitual behaviors rather than externally imposed rules.

Several empirical studies support the effectiveness of school-based environmental programs in shaping student behavior. For example, a study by Ardoin et al. (2018) found that long-term participation in environmental education programs significantly improved students' environmental literacy and sustainable behavior. Similarly, research conducted in Indonesian schools revealed that Adiwiyata participants demonstrated higher levels of environmental awareness and responsible behavior compared to non-Adiwiyata schools (Suryani, 2019). These findings indicate that structured environmental programs contribute positively to students' behavioral development.

However, behavioral change is not an instant process. According to Ajzen's Theory of Planned Behavior, individual behavior is influenced by attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). In the context of Adiwiyata, students may initially participate due to external motivations, such as school regulations or teacher expectations. Over time, continuous engagement

and positive reinforcement can transform external motivation into intrinsic motivation, leading to more sustainable and self-driven environmental behavior.

Another important aspect of Adiwiyata extracurricular activities is their role in fostering environmental citizenship. Environmental citizenship refers to individuals' willingness to participate in collective actions for environmental protection and sustainability (Dobson, 2007). Through collaborative projects and group-based activities, students learn that environmental responsibility is not only an individual duty but also a collective commitment. This social dimension strengthens students' sense of belonging and responsibility toward their environment.

Moreover, extracurricular environmental activities contribute to the development of students' critical thinking and problem-solving skills. Environmental issues are complex and multidimensional, requiring students to analyze problems, evaluate solutions, and make informed decisions (Tilbury, 2011). Adiwiyata programs encourage students to identify environmental problems within their school environment and design practical interventions. This process enhances students' cognitive engagement while simultaneously reinforcing their environmental values.

In the broader context of sustainable education, Adiwiyata extracurricular activities support the goals of Education for Sustainable Development (ESD). ESD emphasizes the integration of sustainability principles into all aspects of learning to prepare students for future challenges (UNESCO, 2015). Adiwiyata aligns with this framework by promoting sustainability as a lived experience rather than a theoretical concept. Students are not only taught about environmental issues but are actively involved in creating sustainable solutions within their immediate environment.

In conclusion, Adiwiyata extracurricular activities play a significant role in shaping environmentally friendly behavior among students. Through experiential learning, social interaction, and value internalization, these activities contribute to the development of ecological awareness, sustainable habits, and environmental responsibility. The literature indicates that extracurricular-based environmental education is more effective in fostering long-term behavioral change compared to purely cognitive approaches. Therefore, Adiwiyata should be viewed not merely as a formal school program but as a strategic educational framework for cultivating environmentally responsible generations in the era of sustainable development.

METHOD

This study employed a qualitative research approach using a literature review design to examine the role of Adiwiyata extracurricular activities in shaping students' environmentally friendly behavior. A literature review was selected because it allows researchers to systematically synthesize existing theoretical and empirical studies to identify dominant patterns, concepts, and findings related to a particular research topic (Snyder, 2019). This approach is appropriate for this study as it aims to develop a conceptual understanding of environmental education practices rather than to measure statistical relationships.

The data sources consisted of peer-reviewed journal articles, books, policy documents, and official reports related to environmental education, Adiwiyata programs, and student environmental behavior. Relevant literature was collected from academic databases such as Google Scholar, Scopus, and ERIC using keywords including "Adiwiyata Program", "environmental behavior", and "sustainable education" (Booth, Sutton, & Papaioannou, 2016). The inclusion criteria were: (1) publications within the last 15 years, (2) relevance to school-based environmental education, and (3) availability of full-text sources. This selection process ensured that the analyzed literature was both academically credible and contextually relevant.

The data analysis was conducted using thematic analysis to identify recurring themes and key concepts across the selected studies. Thematic analysis involves coding, categorizing, and interpreting qualitative data to generate meaningful patterns and theoretical insights (Braun & Clarke, 2006). In this study, the literature was reviewed and grouped into thematic categories such as environmental awareness, pro-environmental attitudes, sustainable habits, social responsibility, and critical thinking skills. This analytical process enabled the researcher to construct a comprehensive synthesis of how Adiwiyata extracurricular activities contribute to students' environmental behavior.

RESULT AND DISCUSSION

Result

This section presents the main findings derived from the synthesis of relevant literature on Adiwiyata extracurricular activities and environmental education. The results are organized into several thematic sub-findings that reflect the dominant patterns identified across previous studies.

1. Development of Environmental Awareness

The first major finding indicates that Adiwiyata extracurricular activities significantly contribute to the development of students' environmental awareness. Environmental awareness refers to students' understanding of environmental issues, ecological systems, and the consequences of human activities on nature (Kollmuss & Agyeman, 2002). Several studies report that students who actively participate in school-based environmental programs demonstrate higher levels of awareness compared to those who are not involved in such programs (Ardoin et al., 2018).

The literature suggests that environmental awareness is strengthened when students are directly involved in identifying environmental problems within their own school environment. Activities such as monitoring waste production, observing energy consumption, and maintaining school gardens enable students to perceive environmental issues as concrete realities rather than abstract concepts (Rickinson et al., 2004). As a result, students become more sensitive to environmental problems and develop a sense of responsibility toward environmental protection (UNESCO, 2017).

2. Formation of Pro-Environmental Attitudes

The second sub-finding reveals that Adiwiyata extracurricular activities play a significant role in shaping students' pro-environmental attitudes. Pro-environmental attitudes refer to students' positive evaluations, beliefs, and emotional responses toward environmental sustainability (Steg & Vlek, 2009). The literature indicates that repeated participation in environmental activities fosters emotional attachment to nature, which enhances students' willingness to engage in environmentally responsible behavior (Schwartz, 2012).

Environmental activities such as tree planting, recycling programs, and environmental campaigns provide students with meaningful experiences that strengthen their environmental values (Tilbury, 2011). These experiences contribute to the formation of internal motivation, where students begin to perceive environmental responsibility as part of their personal identity (Bandura, 1986). This process is crucial because attitude formation serves as an important psychological foundation for long-term behavioral change (Ajzen, 1991).

3. Development of Sustainable Habits

Another important finding highlights the role of Adiwiyata extracurricular activities in developing students' sustainable habits. Sustainable habits refer to routine behaviors that reflect environmental responsibility, such as reducing plastic use, saving energy, and properly managing waste (UNESCO, 2015). The literature shows that students who are consistently involved in

environmental programs are more likely to adopt sustainable practices both inside and outside the school environment (Suryani, 2019).

Through continuous engagement, environmental practices gradually become habitual actions rather than externally enforced rules. Students internalize these practices through repetition and social reinforcement, which leads to the normalization of sustainable behavior (Kollmuss & Agyeman, 2002). This finding emphasizes that extracurricular activities are effective not only in raising awareness but also in transforming awareness into concrete daily practices (Saputra & Hidayat, 2020).

4. Strengthening of Social and Collective Responsibility

The fourth sub-finding indicates that Adiwiyata extracurricular activities contribute to the development of students' social and collective responsibility toward environmental sustainability. Environmental responsibility is not merely an individual matter but a collective commitment that requires cooperation and shared values (Dobson, 2007). Group-based environmental projects encourage students to work collaboratively in solving environmental problems within their school community (Ardoin et al., 2018).

The literature suggests that collaborative environmental activities foster a sense of belonging and shared purpose among students. Through teamwork, students learn that environmental sustainability requires collective action and mutual support (Bandura, 1986). This social dimension strengthens students' environmental citizenship and encourages them to participate actively in broader environmental initiatives beyond the school context (Tilbury, 2011).

5. Enhancement of Critical Thinking and Problem-Solving Skills

The final sub-finding highlights that Adiwiyata extracurricular activities enhance students' critical thinking and problem-solving skills. Environmental issues are complex and multidimensional, requiring students to analyze problems, evaluate alternative solutions, and make informed decisions (Tilbury, 2011). The literature indicates that students who participate in environmental projects demonstrate improved abilities in identifying environmental challenges and designing practical interventions (Rickinson et al., 2004).

Activities such as environmental audits, waste reduction planning, and eco-innovation projects encourage students to engage in reflective thinking and decision-making processes (UNESCO, 2017). These experiences support the development of higher-order thinking skills while simultaneously reinforcing environmental values (Ardoin et al., 2018).

Discussion

The findings of this study confirm that Adiwiyata extracurricular activities play a strategic role in shaping students' environmentally friendly behavior, particularly through the development of awareness, attitudes, habits, social responsibility, and critical thinking skills. These results align with the broader theoretical perspective of environmental education, which views behavior change as a long-term process influenced by cognitive, affective, and social dimensions (Hungerford & Volk, 1990). Environmental behavior cannot be produced instantly through knowledge transmission alone but requires continuous experiential engagement and value internalization.

From the perspective of environmental learning theory, the effectiveness of Adiwiyata extracurricular activities can be explained through the concept of transformative learning. Mezirow (1997) argues that meaningful learning occurs when individuals critically reflect on their experiences and reconstruct their perspectives. In the context of Adiwiyata, students are not merely informed about environmental problems but are encouraged to reflect on their own roles and responsibilities within their school environment. This reflective process allows students to reinterpret

environmental issues as personal and collective concerns, leading to more sustainable behavioral orientations.

Furthermore, the findings support the social-ecological model of behavior change, which emphasizes that individual behavior is shaped by interactions between personal, social, and institutional factors (Bronfenbrenner, 1979). Adiwiyata programs operate within this ecological framework by creating a supportive institutional environment where environmental values are embedded into school culture. The presence of school regulations, teacher modeling, peer influence, and environmental infrastructure collectively reinforces students' sustainable behavior. This institutional support is crucial because behavior change is more likely to occur when environmental practices are socially normalized.

In addition, the role of extracurricular activities in shaping environmental behavior can be interpreted through the lens of situated learning theory. Lave and Wenger (1991) suggest that learning is most effective when it occurs within authentic social contexts. Adiwiyata extracurricular activities provide such contexts by engaging students in real environmental practices rather than abstract classroom simulations. Students learn environmental responsibility by actively participating in community-based environmental actions, which strengthens their sense of belonging and identity as environmentally responsible individuals.

The results also resonate with the theory of environmental identity, which explains that individuals who perceive themselves as part of nature are more likely to engage in pro-environmental behavior (Clayton, 2003). Through continuous involvement in environmental activities, students gradually develop emotional bonds with their school environment and natural surroundings. These emotional connections foster intrinsic motivation, where students engage in sustainable practices not because of external pressure but because they perceive such behavior as consistent with their self-concept.

Moreover, the discussion of sustainable habits can be linked to habit formation theory, which argues that repeated actions in stable contexts eventually become automatic behaviors (Verplanken & Wood, 2006). Adiwiyata extracurricular activities provide structured routines that reinforce environmental practices on a daily basis. Over time, actions such as waste sorting, energy saving, and environmental monitoring become habitual rather than consciously enforced. This finding suggests that sustainable behavior is not merely a moral choice but also a product of behavioral conditioning within supportive environments.

The development of social and collective responsibility observed in the findings is also consistent with the concept of collective efficacy. Bandura (2000) explains that individuals are more likely to engage in collective action when they believe in their group's ability to achieve shared goals. Environmental group projects under Adiwiyata strengthen students' belief that collective efforts can make meaningful environmental impacts. This collective efficacy fosters environmental citizenship, where students perceive sustainability as a shared societal responsibility rather than an individual burden.

In terms of critical thinking and problem-solving skills, the findings support the argument that environmental education promotes higher-order thinking. According to Sterling (2010), sustainability education encourages learners to question existing practices, evaluate systemic problems, and explore alternative solutions. Adiwiyata activities such as environmental audits and eco-projects require students to analyze environmental problems critically and propose innovative interventions. This cognitive engagement contributes to students' intellectual development while simultaneously reinforcing environmental values.

These findings are also supported by international empirical studies. For instance, a study by Chawla and Cushing (2007) demonstrates that students who participate in long-term environmental programs are more likely to maintain sustainable behaviors into adulthood. Similarly, Evans et al.

(2018) found that experiential environmental education significantly improves students' environmental engagement, civic participation, and sustainability awareness. These studies strengthen the argument that extracurricular environmental programs have lasting behavioral impacts beyond short-term educational outcomes.

However, the literature also highlights that the success of environmental programs depends on program consistency and institutional commitment. Without sustained implementation and stakeholder involvement, environmental initiatives may become symbolic rather than transformative (Stevenson et al., 2013). Therefore, Adiwiyata should not be treated as a one-time project or administrative requirement but as an ongoing educational process that requires continuous evaluation and innovation.

Overall, the discussion suggests that Adiwiyata extracurricular activities contribute to environmental behavior through multiple interrelated mechanisms: experiential learning, social interaction, emotional engagement, habit formation, and critical reflection. These mechanisms align with contemporary theories of environmental education and sustainability learning, indicating that extracurricular-based environmental programs are theoretically sound and empirically supported. Thus, Adiwiyata represents a powerful educational strategy for cultivating environmentally responsible generations in the era of global environmental challenges.

CONCLUSION

This study concludes that Adiwiyata extracurricular activities play a crucial role in shaping students' environmentally friendly behavior within the context of school-based sustainability education. Through experiential learning, participatory engagement, and value internalization, these activities contribute significantly to the development of environmental awareness, pro-environmental attitudes, sustainable habits, social responsibility, and critical thinking skills. The literature synthesis indicates that environmental behavior is not merely a product of cognitive understanding but emerges from continuous interaction between individual experiences, social influences, and institutional support.

Furthermore, the findings highlight that Adiwiyata extracurricular programs function as an effective medium for transforming environmental values into everyday practices. By embedding sustainability into routine school activities, students gradually develop intrinsic motivation and habitual behavior that reflect environmental responsibility. This process supports contemporary theories of environmental education, which emphasize the importance of learning through real-life experiences and social participation rather than solely through formal instruction.

In the broader perspective of sustainable education, Adiwiyata contributes to the formation of environmentally literate and responsible generations. The program aligns with the principles of Education for Sustainable Development by promoting holistic learning that integrates cognitive, affective, and behavioral dimensions. Therefore, Adiwiyata should be viewed not only as a formal school program but as a strategic educational framework for addressing global environmental challenges through long-term behavioral transformation.

BIBLIOGRAPHY

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ardoin, N. M., Bowers, A. W., & Gaillard, E. (2018). Environmental education outcomes for conservation: A systematic review. *Biological Conservation*, 241, 108224. <https://doi.org/10.1016/j.biocon.2019.108224>

- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.
- Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*, 9(3), 75–78. <https://doi.org/10.1111/1467-8721.00064>
- Booth, A., Sutton, A., & Papaioannou, D. (2016). *Systematic approaches to a successful literature review* (2nd ed.). SAGE Publications.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- Chawla, L., & Cushing, D. F. (2007). Education for strategic environmental behavior. *Environmental Education Research*, 13(4), 437–452. <https://doi.org/10.1080/13504620701581539>
- Clayton, S. (2003). Environmental identity: A conceptual and operational definition. In S. Clayton & S. Opatow (Eds.), *Identity and the natural environment* (pp. 45–65). MIT Press.
- Dobson, A. (2007). Environmental citizenship: Towards sustainable development. *Sustainable Development*, 15(5), 276–285. <https://doi.org/10.1002/sd.344>
- Evans, N., Stevenson, R. B., Lasen, M., Ferreira, J. A., & Davis, J. (2018). Approaches to embedding sustainability in teacher education: A synthesis of the literature. *Teaching and Teacher Education*, 63, 405–417. <https://doi.org/10.1016/j.tate.2017.01.013>
- Hungerford, H. R., & Volk, T. L. (1990). Changing learner behavior through environmental education. *Journal of Environmental Education*, 21(3), 8–21. <https://doi.org/10.1080/00958964.1990.10753743>
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice Hall.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239–260. <https://doi.org/10.1080/13504620220145401>
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.
- Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education*, 74, 5–12. <https://doi.org/10.1002/ace.7401>
- Ministry of Environment and Forestry. (2018). *Adiwiyata program guidelines*. Government of Indonesia.
- Rickinson, M., Dillon, J., Teamey, K., Morris, M., Choi, M. Y., Sanders, D., & Benefield, P. (2004). *A review of research on outdoor learning*. National Foundation for Educational Research.
- Saputra, R., & Hidayat, R. (2020). The implementation of Adiwiyata program in improving students' environmental awareness. *Jurnal Pendidikan Lingkungan dan Pembangunan Berkelanjutan*, 21(1), 45–58.
- Schwartz, S. H. (2012). An overview of the Schwartz theory of basic values. *Online Readings in Psychology and Culture*, 2(1), 1–20. <https://doi.org/10.9707/2307-0919.1116>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behavior: An integrative review and research agenda. *Journal of Environmental Psychology*, 29(3), 309–317. <https://doi.org/10.1016/j.jenvp.2008.10.004>

- Sterling, S. (2010). Learning for resilience, or the resilient learner? *Environmental Education Research*, 16(5–6), 511–528. <https://doi.org/10.1080/13504622.2010.505427>
- Stevenson, R. B., Brody, M., Dillon, J., & Wals, A. E. J. (2013). *International handbook of research on environmental education*. Routledge.
- Suryani, I. (2019). The effectiveness of Adiwiyata school program in building environmental awareness among students. *International Journal of Instruction*, 12(2), 15–28.
- Tilbury, D. (2011). *Education for sustainable development: An expert review of processes and learning*. UNESCO.
- UNESCO. (2015). *Education for sustainable development: Learning objectives*. UNESCO.
- UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO.
- Verplanken, B., & Wood, W. (2006). Interventions to break and create consumer habits. *Journal of Public Policy & Marketing*, 25(1), 90–103. <https://doi.org/10.1509/jppm.25.1.90>