

Analysis of students' ecoliteracy at Adiwiyata school in Padang City

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ABSTRACT

The implementation of the Adiwiyata program is expected to enhance students' awareness and understanding of environmental issues, fostering a strong sense of ecoliteracy. However, based on the facts in the field, the existence of the Adiwiyata program has not been able to guarantee an increase in environmental awareness among students. This study aims to analyze the implementation of the Adiwiyata program in fostering and developing student ecoliteracy. This study is a descriptive research employing quantitative methods, aimed at objectively describing and analyzing existing phenomena or conditions related to the implementation of the Adiwiyata program and its impact on student ecoliteracy. In collecting data, researchers used a questionnaire completed directly by junior high school students participating in the Adiwiyata program, involving 101 students from six schools. The data collected from respondents were analyzed using quantitative descriptive analysis techniques. This study shows that students in Adiwiyata schools show a level of ecoliteracy in the sufficient category. This is due to various factors, one of which is that the implementation of the Adiwiyata program in junior high schools in Padang City is still relatively voluntary and independent. Support from all stakeholders, including the education office and local communities, is necessary to ensure that the Adiwiyata program is not only symbolic but also truly creates a sustainable ecoliteracy transformation.

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INTRODUCTION

The Adiwiyata program is an award given by the government and local governments. Provincial and district/city regional governments to schools that successfully implement environmental care and culture initiatives (Rahmawati, 2015; Nada et al., 2021). The purpose of the Adiwiyata program is to cultivate school residents who are responsible for protecting the environment through effective school governance, thereby supporting sustainable development (Sudarwati et al., 2012 ; Cahyanti & Raharja, 2020). In 2023, based on the Decree of the Governor of West Sumatra Number 660-432-2023 dated June 14, 2023 concerning the Determination of the Adiwiyata Schools of West Sumatra Province in 2023, 20 Adiwiyata Schools of West Sumatra Province were determined, from elementary school level, junior high school level, and senior high

school level. The implementation of the Adiwiyata program in Padang city schools focuses on environmental aspects. A person's responsibility and concern for the environment can be formed through education. Adiwiyata schools are not only schools with good environmental governance, but also offer activity programs that foster environmental awareness and responsibility (Arisanty et al., 2018; Nada et al., 2021).

Adiwiyata schools are not just green and shady environments, but schools that offer activity programs that foster environmental awareness and wisdom. Adiwiyata schools have characteristics that include being comfortable and environmentally cultured, with an environmentally based curriculum, reduced use of electricity, water, and office stationery, and effective environmental cleanliness and management (Handayani et al., 2021; Kuswati et al., 2024). The implementation of the Adiwiyata program can be sustainable because It can create a comfortable and conducive school environment for students. The success of this Adiwiyata program is supported by active student involvement. Student involvement in the implementation of the Adiwiyata program by following the rules, such as being free from cigarette smoke, disposing of waste according to its type, organic or inorganic, maintaining the cleanliness of the school environment, carrying out greening, bringing your drinking water bottles and food containers to reduce plastic waste (Adawiah, 2019; Marlina et al., 2023).

The Adiwiyata school program is a crucial initiative aimed at addressing environmental concerns in Indonesia. The Adiwiyata program aims to increase students' understanding and concern for environmental problems (Kuswati et al., 2024). The understanding of environmental problems in question involves understanding and interpreting ecological conditions, often referred to as ecoliteracy. Given that Adiwiyata is one of the programs of the Ministry of Environmental Education, it aims to encourage school residents to raise awareness about environmental preservation efforts. However, based on the facts in the field, the existence of this Adiwiyata program has not been able to fully guarantee an increase in environmental awareness among students. Based on research by Landriany (2014) it is stated that Adiwiyata has not been successfully implemented in Malang City High Schools. This is due to several factors, including that some students still do not understand the concept of environmentally friendly schools, some of them do not care about environmental conditions, a lack of community participation, and a lack of enthusiasm among teachers and school employees for implementing PLH. Similar research results were presented (Sudarwati et al., 2012) stating that the implementation of Adiwiyata in SMA N 11 Semarang did not run smoothly due to a lack of communication between the school and the program manager, insufficient human resources, and inadequate funding sources to implement the Adiwiyata program. In addition, research conducted by (Rahmawati, 2015) showed that Adiwiyata could not be implemented effectively due to the change in students every new school year, the socio-economic conditions of students, and the concerns of educators. This in turn has an impact on the difficulty of forming students' environmental care behavior.

Based on the Decree of the Governor of West Sumatra Number 660-432-2023 dated June 14, 2023 concerning the Determination of Adiwiyata Schools in West Sumatra Province for 2023, several schools have received the National and Independent Adiwiyata awards. Therefore, the researcher considers it necessary to conduct an in-depth analysis of whether the Adiwiyata program

has been able or not to form student ecoliteracy both inside and outside the school. Thus, the Adiwiyata program applied in schools aims to realize schools that care about and have an environmental culture that can be learned.

METHOD

This type of research is descriptive research, a method that functions to describe or provide an overview of the object being studied based on the data obtained (Sugiyono, 2020). Descriptive research employs quantitative methods, which objectively describe and analyze phenomena or conditions. This study aims to determine the implementation of the Adiwiyata program in SMP Kota Padang.

The population of this study consisted of junior high schools in Padang City, totaling 101 schools across 11 sub-districts. The sampling technique used was Purposive Sampling, specifically targeting schools that implement the Adiwiyata program, consisting of six junior high schools in Padang City: Padang Barat District SMP 2 Padang, Lubuk Begalung District SMP 24 Padang, Lubuk Kilangi District SMP 11 Padang, and Padang Utara District SMP Lab. UNP, Koto Tengah District SMP 13 Padang, and Padang Timur District SMP 31 Padang. The respondents in the study were final-year students from each school.

The instrument used in this study is a questionnaire on the implementation of the Adiwiyata school program, which is completed directly by respondents. Respondents only choose one of the four alternative answers provided. After the data is collected, an analysis is conducted to evaluate the implementation of the Adiwiyata school program at SMP Kota Padang.

Data analysis used in this study uses techniques quantitative descriptive analysis. According to Sugiono (2020), descriptive statistics are statistics used to analyze data by describing or depicting the data that has been collected, without intending to draw conclusions that apply to the general population or make generalizations. Categorization of the level of knowledge and understanding of ecoliteracy of students in the Adiwiyata program in schools refers to the formula determined by Sari (2023).

$$P(\%) = \left(\frac{F}{N} \right) \times 100 \quad (1)$$

The following information explains the percentage calculation. P (%) stands for percentage, F represents the total score obtained, and N refers to the total possible score.

RESULTS AND DISCUSSION

Based on the results of a survey conducted in May 2024, information was obtained from the Padang City Education Office regarding the Adiwiyata program in schools according to the circular of the Governor of West Sumatra Decree Number 660-432-2023 dated June 14, 2023 concerning the Determination of Adiwiyata Schools in West Sumatra Province in 2023, 20 Adiwiyata Schools in West Sumatra Province were determined, from elementary school level and equivalent, junior high school level and senior high school level. Based on this data, it can be observed that schools throughout Padang City implementing the Adiwiyata program include SMA 9 Padang, SMP 13 Padang, SMA 11 Padang, SMAS Adabiah 2 Padang, SMA Pembangunan Laboratorium UNP, and

SMA 1 Padang, all at the senior high school level. Meanwhile, six junior high schools in Padang city have implemented the Adiwiyata school program, namely Padang Barat District Junior High School 2, Padang; Lubuk Begalung District Junior High School 24, Padang; Lubuk Kilangi District Junior High School 11, Padang; and Padang Utara District Junior High School Lab. UNP, Koto Tangah District Junior High School 13 Padang, and Padang Timur District Junior High School 31 Padang.

The implementation of the Adiwiyata program by these schools remains voluntary and not yet mandatory, meaning that only a few schools have chosen to implement the Adiwiyata achievement components voluntarily and independently.

The indicators for achieving the Adiwiyata program which are a complete unit in achieving the Adiwiyata school are:

a. Environmentally Conscious Policy

1. The school's vision, mission and goals as stated in the curriculum include environmental protection and management policies.
2. The curriculum structure includes compulsory subjects, local content, self-development related to environmental protection and management policies.
3. Mandatory subjects and/or local content related to PLH are equipped with Minimum Learning Completion
4. The School Activity and Budget Plan (RKAS) contains environmental protection and management efforts, including; Student Affairs, curriculum and learning activities, increasing the capacity of educators and education personnel.
5. Availability of facilities and infrastructure, school culture and environment, community participation and partnerships, quality improvement and development

b. Implementation of Environmentally Based Curriculum

1. Implementing learning approaches, strategies, methods and techniques that actively involve students in learning.
2. Developing local and/or global issues as environmental learning materials according to educational level
3. Developing indicators and assessment instruments for environmental learning
4. Prepare a comprehensive learning plan that encompasses activities in the classroom, laboratory, and outside the classroom.
5. Involving parents of students and the community in environmental learning programs
6. Communicating the results of environmental learning innovations
7. Linking conceptual and procedural knowledge in solving environmental problems, as well as their application in everyday life.
8. Produce real work related to preserving environmental functions, preventing environmental pollution and damage.
9. Applying the acquired environmental knowledge to solve ecological problems in everyday life
10. Communicating environmental learning outcomes in various ways and media

c. Participatory Environmental Activities

1. Maintaining and caring for school buildings and the school environment by school residents
2. Utilizing school land and facilities following environmental protection and management principles (impacts caused by school activities)
3. Developing extracurricular activities under environmental protection and management efforts
4. The existence of creativity and innovation of school residents in efforts to protect and manage the environment
5. Participate in environmental action activities carried out by external parties
6. Utilizing resource persons to enhance environmental learning
7. Get support from groups related to the school (parents, alums, media/press, business world, government, NGOs, universities, other schools) to improve environmental protection and management efforts in schools.
8. Enhancing the role of school committees in building partnerships for environmental learning and environmental protection and management efforts.
9. Becoming a resource person for environmental learning
10. Providing support to improve environmental protection and management efforts

d. Management of Environmentally Friendly Supporting Facilities

1. Providing facilities and infrastructure to address environmental problems in schools
2. Providing infrastructure to support environmental learning at school
3. Maintain environmentally friendly school facilities and infrastructure
4. Improving the management and maintenance of school sanitation facilities
5. Utilizing electricity, water and stationery efficiently
6. Improving the quality of healthy and environmentally friendly canteen services

In accordance with the objectives of the Adiwiyata program, it is expected to produce school citizens who are responsible for environmental protection and management efforts through effective school governance, thereby supporting sustainable development. Based on this information, an analysis of student ecoliteracy was conducted, applying the components of the Adiwiyata program achievements to each Adiwiyata school. This study focuses on junior high schools in Padang City that implement the Adiwiyata program.

Identified 6 junior high schools in Padang city that implement the Adiwiyata school program, namely Padang Barat District SMP 2 Padang, Lubuk Begalung District SMP 24 Padang, Lubuk Kilangi District SMP 11 Padang, Padang Utara District SMP Lab. UNP, Koto Tengah District SMP 13 Padang, and Padang Timur District SMP 31 Padang. Respondents in this study were the vice principal of facilities and infrastructure, vice principal of curriculum, teachers related to Adiwiyata and students. To what extent is student ecoliteracy in implementing the Adiwiyata program in schools, researchers used a questionnaire filled out by students. The questionnaire that was filled out has been tested for validity by experts with the values listed in table 1.

Table 1. Questionnaire validation results from the validator

Validators	Average assessment result (r)	Information
Content Expert	3.60	Very valid
Linguist	3.64	Very valid

The results of the questionnaire validity analysis, conducted by experts, yielded a very high validity with a reliability coefficient (r) of 0.36. This indicates that the questionnaire is suitable for use. Following the distribution of the questionnaire to all respondents, data analysis was conducted based on the assessments provided by the respondents. The analysis of respondents from 6 schools in Padang City Junior High Schools is presented in Table 2.

Table 2. Results of ecoliteracy analysis of junior high school students

SCHOOL	INDICATOR			
	1	2	3	4
Junior High School 13 Padang	65	63	78	66
Junior High School 24 Padang	64	63	90	74
Junior High School 31 Padang	61	62	81	69
Junior High School 11 Padang	59	71	85	71
SMP Lab. Pemb. UNP	76	69	77	72
Junior High School 13 Padang	66	66	89	71
Average	65.6	65.6	83.3	70.5
Criteria	Enough	Enough	Good	Enough

Based on data obtained from six Junior High Schools (SMP) in Padang City, the evaluation of the implementation of the Adiwiyata program showed varying results in four primary indicators: (1) Environmentally Aware Policy, (2) Implementation of Environmentally Based Curriculum, (3) Participatory Environmental Activities, and (4) Management of Environmentally Friendly Supporting Facilities. The results are based on the achievement of four indicators of the Adiwiyata program in six junior high schools in Padang City, yielding varying outcomes. The indicator of participatory-based environmental activities obtained an average of 83.3 with high criteria. This shows success in actively involving students, in line with research conducted by [Ardoin et al. \(2021\)](#) on the effectiveness of practical approaches in environmental education. However, the indicators of environmentally aware policies and the implementation of environmentally based curricula only reached an average of 65.6, indicating challenges in integrating environmental principles into school policies and formal curricula. This is in accordance with the study of [Mogren & Gericke \(2019\)](#) which found that the implementation of sustainable policies is often hampered by a lack of teacher training and structural support.

The comparison between schools shows that SMP 24 Padang excels in participatory activities (score 90), while SMP Lab. Pemb. UNP has the most stable performance across all indicators. These findings reinforce [Wals' \(2022\)](#) argument on the importance of a holistic approach (Whole-school Approach) in sustainable education. The low scores for policy and curriculum also reflect the gap identified by [Pizmony-Levy \(2023\)](#) between participatory practices and policy transformation in schools in developing countries. To address this, policy recommendations include competency-based teacher training, integrated curriculum development, and budget allocation for green infrastructure, as proposed by the [OECD \(2021\)](#).

Based on the research results, the Adiwiyata program in Padang has succeeded in raising environmental awareness through participatory activities, but needs to be strengthened with more structured policies and curricula. This is in line with the [UNESCO framework \(2021\)](#) which emphasizes the systematic integration of environmental education to achieve SDG 4.7. Further research can explore the eco-schools model from developed countries for the Indonesian context, with a focus on increasing teacher capacity and collaboration between stakeholders, as advocated by [Stevenson et al. \(2024\)](#).

The implementation of the Adiwiyata program is expected to increase student ecoliteracy by fostering environmental awareness and responsible behavior. However, this study indicates that student ecoliteracy in schools implementing the Adiwiyata program falls into the sufficient category. This is due to various factors, one of which is that the implementation of the Adiwiyata program in junior high schools in Padang City is still relatively voluntary and independent. The low ecological literacy of students is largely due to their limited environmental awareness. A good attitude does not necessarily reflect good actions or behavior. This was stated by [Arshad et al. \(2020\)](#) and [Handayani et al. \(2021\)](#) that the formation of environmentally friendly behavior is a complex process because it involves internal and external factors that are interrelated. Additionally, some factors prevent someone from changing their behavior. Thus, to achieve environmentally friendly behavior, it is not enough to involve only one aspect of change or certain parties (for example schools only) to make changes, but all factors involved and cooperation between all parties.

The Adiwiyata program serves as a significant manifestation of environmental care behavior by integrating environmental education into the school curriculum and promoting sustainable practices. This initiative encourages students to be actively involved in ecological issues, fostering a culture of sustainability within educational institutions ([Cahyanti & Raharja, 2020](#); [Nnonyelu & Dongjie, 2024](#)). By incorporating environmental topics into the curriculum, the program ensures that students develop a comprehensive understanding of sustainability, which is essential for lifelong learning and environmental stewardship ([Erwin Akib et al., 2020](#); [Ahsan Muzadi, Agus Herman, Rahayu, 2020](#)). In addition, the program emphasizes sustainable school practices, such as waste management and energy conservation, which not only reduce the school's ecological footprint but also provide practical examples for students to emulate in their communities ([Zaliyanti & Azani, 2024](#) ; [Wall & Leckie, 2017](#)). Student-led initiatives are also an essential aspect of the Adiwiyata Program, empowering students to take ownership of environmental projects and strengthening their leadership skills ([Erwin Akib et al., 2020](#)). This holistic approach fosters a sense of responsibility and concern for the environment, making the Adiwiyata Program an essential framework for nurturing environmentally conscious behavior among the younger generation ([Hana Naqiyya Nada et al., 2021](#)). Through this combined effort, the program effectively instills a culture of environmental awareness and action in schools.

Low student awareness of environmental issues is a pressing concern, as evidenced by studies that highlight gaps in knowledge and engagement among young people. [Rajeswari \(2024\)](#) stated that her research on high school students' awareness revealed a significant lack of awareness of environmental issues, which is crucial for fostering responsible behavior. Additionally, ([Navia et](#)

al., 2024), stated that college students in Colombia showed modest levels of environmental awareness across cognitive, emotional, and behavioral dimensions. (Arshad et al., 2020) revealed that while awareness and concern were generally high, attitudes toward environmental issues were very low, especially in non-science areas. These findings suggest that educational institutions should prioritize environmental education to bridge the awareness gap.

In addressing environmental problems, education is the primary guard. In implementing the Adiwiyata program in Indonesia, it can foster environmental awareness and responsibility among students. Through the integration of the Adiwiyata program into the curriculum, it is hoped that it can increase students' environmental awareness, as a form of effort to preserve and promote sustainable practices, and foster a culture of environmental care in the school community. This aligns with the findings of (Erwin Akib et al., 2020 ; Cahyanti & Raharja, 2020), who suggested that the Adiwiyata program integrates environmental education into the curriculum, aiming to encourage students to understand their responsibilities towards the environment. One of the environmental care activities that can be carried out by schools such as recycling and creating green spaces, which helps instill a sense of environmental management in students. In addition, the Adiwiyata program aims to foster a character of discipline, responsibility, and positive environmental practices from an early age, while promoting environmental awareness (Kuswati et al., 2024; Fazira & Ramadan, 2023).

CONCLUSION

This study shows that students in Adiwiyata schools show a level of ecoliteracy in the sufficient category. This is due to various factors, one of which is that the implementation of the Adiwiyata program in junior high schools in Padang City is still relatively voluntary and independent. Through the integration of the Adiwiyata program into the curriculum, it is expected to increase students' environmental awareness, as a form of conservation and promotion of sustainable practices, and foster a culture of environmental care in the school community. The population of the ecoliteracy study on junior high school students in Padang City is still limited. This research is expected to be able to examine in depth the implementation of ecoliteracy for environmentally aware students referring to each indicator of the Adiwiyata program at the junior and senior high school levels.

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