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Adiwiyata schools: obstacles and expectations of environmental culture implementation at state junior high schools in Palembang

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ABSTRACT

Adiwiyata School is an award from the Ministry of Education and Ministry of Environment and Forestry for schools that cultivate pro-environmental behaviour. The cultivation of such behaviour requires the support of related facilities and infrastructures. This study aimed at determining the obstacles and expectations of Adiwiyata Schools in cultivating pro-environmental culture. It is a descriptive qualitative study the research subjects of which were six people from three Adiwiyata Schools in Palembang. Their positions at their respective schools included Principal, Vice-Principal and Adiwiyata Implementation representatives. The data were collected through interviews, observations and documentations and were analyzed using data reduction, data verification, and conclusions. The results showed that the obstacles included unavailable funds for the provision and maintenance of infrastructure and facilities, inadequate integration of environmental care toward schools' subjects, diverse students' perception toward Adiwiyata schools, and insufficient training in implementing the 3 R's (reduce, reuse, recycle). Furthermore, the expectations included better funding for the provision and maintenance, and more comprehensive technical skills guidance of the 3 Rs from the Adiwiyata school evaluator team.



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Introduction

Indonesia is the largest archipelagic country with a diverse society and vast development potential. Indonesia is one of the countries with beautiful and completely natural resources. One of the efforts as an Indonesian citizen must be made to maintain these gifts and gifts is to care for the environment by keeping the environment clean. According to (Darmawan & Fadjarajani, 2016), environmental cleanliness is the cleanliness of residence, place of work, and various public facilities. Caring for the environment is an attitude and action to prevent damage to the surrounding natural environment and strive to repair existing damage (Aryanti, 2020). To cultivate pro-environmental culture, the government held the Adiwiyata School award to support schools with environmental care culture. The environmental care includes attitudes and actions of school students and all human elements in the school environment to behave environmentally consciously oriented (Mónus, 2022). The behaviours are the implementations of energy and water saving, school hygiene, waste separation, composting, 3 Rs, energy saving space, green environment, clean and healthy canteen, good drainage and waste system.

Furthermore, (Husin, 2019) explain that schools retain some components for environmental education, such as curriculum, vision and mission, facilities, values, regulations, open ground, time, extracurricular, etc. Moreover, (Husin et al., 2020) concluded that teachers command positive perception of environmental education in schools and environmental care behaviour. The vestment of the award is based on the achievement of some criteria set by the ministry of Environment and Forestry. The criteria are related to environmental care programs planned, being implemented and for future execution by schools. To maintain the award, well managed infrastructures and facilities and the optimization of the program implementation are required. Otherwise, the schools might lost the award. Basically, the Adiwiyata School is not for the award per se, but is an effort to cultivate the culture of environmental care.

For this reason, Adiwiyata schools must try to maintain everything they have and try to keep developing and cultivating the culture. Along the way, the school must experience obstacles in realizing the environmentally cultured school. Based on the previous discussion, the purpose of this research is to find out what are the obstacles and expectations of Adiwiyata School in implementing the Adiwiyata school attributes. The Adiwiyata program from the Ministry of Environment and Forestry tries to encourage the creation of knowledge and awareness of school residents to preserve the environment. With this program, it is hoped that every school member will be involved in creating healthy environment and pollution-free schools. Additionally, it is awarded to schools considered successful in shaping the character of environmental care (Nada et al., 2021).

The culture needs to be encouraged in Adiwiyata schools so that people participate in environmental care. The Ministry of Environment and Forestry in their regulation number 53 in the year 2019 held a movement called the Movement for Environmental Care and Culture in Schools. It is a conscious, voluntary, networked, and sustainable collective action carried out by schools in implementing environmentally-friendly behavior (Ministry of Environment and Forestry Regulation, 2019). This movement includes the application of environmentally friendly behavior, such as energy and water conservation, school subjects and extracurricular activities integration, good hygiene, sanitation and drainage system, tree planting and care; and also, other innovative actions. The Adiwiyata School Program is an important step in empowering environmentally oriented knowledge and behavior (Nurwidodo et al., 2020). Furthermore, (Al Mawangir & Puspita, 2020) suggested a pattern of integrating environmental values and adiwiyata programs; school policies, environment-based curriculum, management of environmentally friendly facilities and infrastructure, and participatory-based activities.

Moreover, it is important to understand how to measure pro-environmental attitudes and behaviour in schools because they are related to sustainability in a more pro-environmental direction (Mónus, 2022). Pro-environmental schools should apply the Adiwiyata school indicators: environmentally insight policies, environmentally-based curriculum implementation and development, participatory based environmental activities, management of environmentally friendly supporting facilities. According to (Irawan et al., 2020) States that several Adiwiyata schools do not yet have the supporting factors for adequate school facilities and infrastructure to support activities and it is related to inadequate funds to support them. So based on the description above, the researcher wants to conduct research with the aim of knowing the obstacles and expectations of the Adiwiyata School in cultivating a pro-environmental culture.

Method

This study uses a qualitative research approach (Sugiyono, 2016). The data obtained were processed using descriptive techniques. This research was conducted in three Adiwiyata schools, namely SMPN 53, SMPN 32, and SMPN 19 in Palembang. The data were collected through in-depth interviews, observation of the schools' developed environmental culture, and documentation data from school and environmental agencies in South Sumatra. The subjects of this study were 6 people who were principals, vice principals, and adiwiyata school implementation personnel. They were selected based on their authority and knowledge of the adiwiyata program at their respective schools. The three schools out of nine schools were chosen based on their years of appointment (2018-2020) of the Adiwiyata Awards. The interviews were regarding the obstacles and expectations in running the Adiwiyata program. Interviews in qualitative research are conversations that have a purpose and are preceded by several informal questions.

Research interviews are more than just conversations and range from informal to formal. Although all conversations have specific rules of passage or control by one or the participant, the rules in research interviews are more stringent. Unlike ordinary conversations, research interviews are intended to obtain information from one side only; therefore, an asymmetrical relationship must appear. Researchers tend to direct interviews to discover the feelings, perceptions, and thoughts of the participants. The observations

were used to examine the condition of the school and the availability of school environment facilities. The documentation was sourced from the three schools and from the environmental agency. The data were analyzed through the stages of data reduction, data display, verification, and drawing conclusions.

Results and Discussions

Table1. Number of Students, Academic Year 2021/2022

Grade	SMPN 53	Number of Students SMPN 32	SMPN 19
VII	281		208
VIII	332		201
IX	254		195
Total	867		604

Of the three schools, SMPN 19 has the highest number of students, while SMPN 13 has the lowest. Facilities provided by the school must be able to cover all students in the school.

Table2. Facilities Availability Academic Year 2021/2022

Facility	SMPN 53	SMPN 32	SMPN 19
Classroom	27	16	33
Students Restroom	15	11	11
Teacher Restroom	5	4	2
Principal Restroom	1	1	1
Rubbish Bin	32	21	45
Canteen	3	1	1
School Park	2	2	6
Water Reservoir	2	-	-
Hand washing facilities	32	21	40

SMPN 19 provides 19 class and with only 11 toilets for students. This is not the right number for the toilet respective to their number of students. As a comparison, SMPN 53 and SMPN 32 have provided proper numbers of toilet respective their lower number of students. The number of rubbish bins in the three schools is reasonable as compared to their student's population. However, the availability of canteen needs more consideration, especially in SMPN 19. It is necessary for the school to build another canteen to accommodate the maintenance of students' health. Basically, schools must provide canteen within the school to keep hygiene standards of the food students consumed and to maintain lower price level.

Interestingly, SMPN 53 has the most of canteen and it is the one and only school with water reservoir. SMP 19 has six parks as compared to two in the other schools. It has more parks since it has larger size of school land. For hand washing, all school has provided the facilities that can cover all their students. To cultivate a culture of environmental care awareness, the school's vision and mission is essential since it serves as the basis for policies and orientation of school activities and programs(Siswanto et al., 2019). The schools' environmental missions are shown in Table 3.

Table 3. Environmental Mission of Adiwiyata Junior High School

SMPN 19	SMPN 32	SMPN 53
Carry out intra-curricular and extra-curricular learning oriented to environmental management.	Develop school cultural characteristics of clean, conducive, safe, neat, compact, and orderly.	Develop a comfortable and fun school environment
Internalize clean and healthy school culture to create a clean, tidy, and pleasant school environment.	Develop a green and pleasant environment	Strengthen and develop school relationships with the surrounding community
Strive to realize students' pledge to prioritize their body and garment hygiene and the environmental hygiene		
Do continuous efforts to preserve a clean environment		

In general, the three schools' missions of environmental care culture are conducting extracurricular learning oriented to environmental management, developing school cultural characters of clean, healthy and beautiful, creating school with green environment and involving students in all activities. Only in its implementation there are obstacles experienced. The obstacles are described in Table 4.

Table 4. Obstacles Faced in Implementing the Adiwiyata School Program

No.	SMPN 53	SMPN 32	SMPN 19
1	There is no funding for the procurement of environmental hygiene infrastructure.	There is no funding for the procurement and maintenance of environmental management infrastructure.	Insufficient of funding for the procurement and maintenance of environmental management infrastructure, even with the availability of special budget.
2	Uneven distribution of knowledge and understanding on the importance of the Clean and Cultured Environment Movement in Schools.	Variation in students' knowledge and lifestyles	Variation in knowledge and understanding of students.
3	No integrated environmental education materials with all school subjects yet	The emergence of understanding that after winning the Adiwiyata Award, there is no need to implement the Clean and Cultured Environmental Movement.	Changes in the school's organizational structure led to changes in personnel in charge of Adiwiyata implementation
4.	Implementation of 3R	Implementation of 3R	Implementation of 3R

Based on Table 5, the first and main obstacle faced by the schools is of funding for the provision and continuity of infrastructure and facilities management. The second problem is the lack of knowledge and understanding of students about the Clean and Cultured Environmental Movement, as well as the misunderstanding about the sustainability of environmental culture. In addition, changes in the school's organizational structure might also affects the continuity of the Adiwiyata program implementation. It is clear here that the main problems are funding for the provision and maintenance; and the diversity of students' views, knowledge and attitudes towards the Adiwiyata program. Additionally, the curriculum and 3Rs implementation have also significantly contributed to the obstacles. Along with the obstacles, the schools also express their expectation as described in Table 5.

Tabel 5. Adiwiyata School Expectations

SMPN 19	SMPN 32	SMPN 53
Budget provision to help procure supporting infrastructure.	Assistance for the procurement of environmental hygiene infrastructure.	Special budget provision for the procurement of environmental hygiene infrastructure.
Integration of environmentally friendly curriculum in the teaching and learning process by every teacher	Integration of environmentally friendly curriculum in every school course	Integration of environmentally friendly curriculum in every school course
Socialization activity from the Environment Agency on Adiwiyata Program, Comfortable and pleasant school strong school relationships with the surrounding community.	Availability of training assistance for 3Rs on a regular basis	Socialization activity from the Environment Agency, especially on the 3Rs program

The schools expect first and foremost for the funds to provide and maintain the facilities and infrastructures for the Adiwiyata program implementation. It is expected that the Ministry of Education and the Ministry of Environment and Forestry can provide solution to this matter. Furthermore, teachers need training on how to integrate the value of environmental education in the school subjects. In certain subjects, such as mathematics and chemistry, the teachers find it difficult to include environmental education values. With the correct integration strategy, the internalization process of environmental care values can take place and can contribute to the students' positive view toward the environmental movement. Furthermore, the schools also need training on 3Rs covering its descriptions and implementations.

The first obstacle for the Adiwiyata School is the availability of infrastructure required for the implementation of Adiwiyata program. Funding is needed for their procurement and maintenance if the schools expect to keep the award in the future. Some research results have indicated that funding is important for the schools to continue the program implementation and to maintain the award in their school (Pelita & Widodo, 2020), (Amrullah & Susilo, 2019), (Irawan et al., 2020), (Wardani, 2020). The schools are experiencing difficulty in expanding and maintaining existing facilities and infrastructures including clean water, waste disposal system, separate trash cans, green open spaces, fish ponds, reservoir ponds, paving blocks, noise and vibration reducing system, canteen facilities and other standardized hygiene and health infrastructure. Furthermore, for most activities the schools need to provide tools for cleaning and planting. Additionally, they are required to have drainage and composting system. Besides, they also need to arrange training in utilizing waste in the 3Rs concept.

The second obstacle is the inadequate integration of environmental education in each subject as shown table 5. Several research results have denoted that it is necessary to integrate subjects with environmental culture education (Siswanto et al., 2019), (Hastuti et al., 2021). It is in line with the expectations of Adiwiyata schools of better integration of environmental education in the school subjects as noted in Table 6. The integration of environmental care values can be carried out in various ways. One study suggests to integrate environmental values with aspects of participatory-based activities carried out by using ablution water waste for fish ponds and aquaponic plants and by making environmental related slogans (Al Mawangir & Puspita, 2020). In another study, it is suggested that the internalization of environmental care value in the students can be carried out through its integration in Fiqh and other subjects. In addition, teachers can involve students through participation and habituation (Mukani & Sumarsono, 2017).

The third obstacle is that the knowledge, understanding, and lifestyle of students are not in line with the pro-environment attitude. In table 5, it is shown that they do not understand the importance of the Adiwiyata program and the importance of clean environment. Additionally, they also vary in their views of the Adiwiyata program. To help their understanding and insight, teacher can provide environmental literacy education for them as one of the Adiwiyata school programs. One study result concluded that the implementation of the Adiwiyata program can have positive impact on students' environmental literacy levels (Nurwidodo et al., 2020). To cultivate environmental care culture, several schools have carried out the integration of environmental education materials with school subjects and field practice. This method has a positive impact on caring character (Wardani, 2020).

The next obstacle is the application of 3Rs (Reduce, Reuse, and Recycle). One research results suggested that schools organize 3Rs for teachers (Hastuti et al., 2021). It was suggested that school can administer 3Rs through school regulations. In another study, it was implied that schools can reduce plastic waste in their premises by recycling them and by participating in Kuramaki movement in which students were required to bring their own drinking bottles (Mu'asyaroh, 2020). Other study concluded that community participation through waste banks can facilitate solid waste management and can even generate income (Rachman et al., 2021). The three Adiwiyata Schools is required to carry out the planned program. The implementations are described in Table 6.

Table 6. Adiwiyata Programs Implemented at the Schools

No.	SMPN 53	SMPN 32	SMPN 19
1	Garbage sorting	Garbage sorting	Garbage sorting
2	Class picket	Garbage composting	Class picket
3	Clean Friday	Class picket	Clean Friday
4	School Park	Clean Friday	Integration of environmentally friendly curriculum into multiple lessons
5	Biopore Hole	School Park	School Park
6	Retention pool	Biopore Hole	Fish pond
7	Energy saving	Drainage channel	Biopore Hole
8	3Rs		Energy saving
9			3Rs

The three schools have almost identical programs. The routine activities are class pickets and clean Fridays. The leading programs are waste sorting, composting, school parks, retention pool, biopore hole, 3Rs, and energy saving. In Table 4, it is shown that all Adiwiyata the schools have carried out pro-environmental activities. In doing so, schools must conserve electricity and water. Based on the results of a research on water-saving behaviour (Hashim et al., 2021) it shows that students have a high level of knowledge and attitudes in saving water, but the practice of saving water is still at a moderate level. The results of other study (Al Bahij et

al., 2020) show that there is an influence between energy awareness and energy-saving behaviour, there is an influence between energy-saving attitudes and energy-saving behaviour, and there is an influence of energy knowledge and energy-saving attitudes on students' energy-saving behaviour, so that students' understanding of climate change. Furthermore, in other study on climate change (Duke & Holt, 2022), it is concluded that it is important to develop a climate change curriculum through students' personal experiences connected with nature on a smaller scale.

A study on the benefits of environmental education on student character formation (Nada et al., 2021) shows that through habituation and modelling of environmental education, various activities and existing rules affect student character such as self-confidence, honesty, responsibility, discipline, and caring. Furthermore, (Yusuf, 2022) suggests that giving students practical assignments on environmental issues can improve students' critical thinking. In one research results (Nada et al., 2021), it is shown that environmental education has influenced the formation of students' character through habituation and modelling strategies.

There are differences in environmental literacy skills in adiwiyata and non-adiwiyata schools. Adiwiyata schools that strengthen environmental literacy can strengthen students' environmental care character (Astuti & Aminatun, 2020). On the role of Adiwiyata and non-Adiwiyata schools in environmental literacy, one study results (Nurwaqidah et al., 2020) show that the higher the Adiwiyata level in a secondary school, the higher the environmental literacy of the students. The low level of environmental literacy is due to a lack of knowledge of environmental concepts. Furthermore, in another study (Putra et al., 2021), it is concluded that a school community with good environmental literacy will have a good influence on students' environmental literacy and knowledge. Additionally, Environmental education in early childhood can develop environmental literacy in cognitive and affective development more effectively using a pedagogical approach through games that combine motion and social interaction (Ardoin & Heimlich, 2021). Moreover, reducing littering can be done through story telling such as wayang stories (Musthofa & Koentjoro, 2019), and the benefits of environmental education for early childhood through twelfth grade are used as an opportunity to design environmental education (Ardoin et al., 2018).

The involvement of children and young people in environment care shows that children have important role, very strong commitment, and pure participation (Hart, 2013). Younger people participation in waste problems through the waste bank program shows their participation in creating a clean and healthy environment (Sasmita et al., 2022). The strategy to develop the character of caring for the environment can be obtained from religious values about cleanliness which is a part of the faith (La Fua et al., 2018). It is also suggested that the strategy of fostering character care for the environment is carried out through the teaching and learning process, school culture, extracurricular activities, and strengthening of parents and environmental care behaviour (Mukminin, 2014).

In research on the contribution of environmental education to conservation and environmental quality outcomes (Ardoin & Heimlich, 2021), it shows that environmental education programs have a direct impact with a focus on local issues or the relevant local dimensions of broader issues; collaboration with scientists, resource managers, or community organizations. To instil environmental care, teachers can take various ways, one of which is by linking them with school subjects. In the results of a study (Sari et al., 2021), it is shown that biology teachers had not linked the cultivation of environmental care. There are also teachers who do not care of linking their subjects with environmental education materials. Some teachers do not really understand how to relate them, and some others do not remember to do that.

Linking environmental education materials and values to subjects basically depends on the teachers' ability, concern and commitment. To integrate it with the subjects they teach, teachers need to train themselves and be creative in interpreting material and environmental values in everyday life with the material they are currently teaching. Furthermore, efforts to make students aware of the environment are: integrating it into learning, imitating, getting used to, and inserting environmental care messages at every opportunity (Adawiah, 2019). In the development of the Android based Supplementary Book of Green Consumerism (SBGC) for environmental studies (Ichsan et al., 2019), it was concluded that SBGC is suitable for environmental learning in schools. The effect of environmental education on variations in environmental literacy such as about energy, brings the results of higher environmental awareness. Additionally, there was no difference in the level of perception of students, volunteers, and participants about the importance of environmental education in environmental protection activities (Boca & Saraçlı, 2019). Furthermore, the level of environmental literacy of students in Colombia as a whole is influenced by socioeconomic status, stronger students' scientific abilities, characteristics of parents, and several school-level characteristics (Eds and Broich, 2020).

In a study, it was found out that the environmentally friendly school projects taking a didactic approach to environmental education was effective, there was environmental education policies, and the use of green elements (Boeve-de Pauw & Van Petegem, 2018). Furthermore, it was also found out that the effectiveness of environmental care education to instill a caring attitude towards the environment is not determined by the size of the school and the level of the Adiwiyata program. Environmental education outside the classroom needs attention, such as in the outdoor wetlands (Sholahuddin et al., 2021). It is in line the results of similar study that suggest introducing activities outside the classroom such as introducing wetlands is also environmental education (Husin, 2019). The environmental learning concept of lifelong activities were examined by looking at sociocultural and intellectual learning scopes in which people learn and practice environment-related as a holistic concept (Ardoin & Heimlich, 2021).

Instilling environmental care culture is not only in schools, but also in institutions, companies and organizations. Government regulations regarding attitudes, behaviour and environmental sanctions in schools and industries are relevant to the implementation in schools and industry for the preservation and sustainability of environmental protection (Raudah et al., 2021). Results of one study provide empirical evidence that green innovation acts as a mediator variable on the relationship between green culture and environmental performance (García-Machado & Martínez-Ávila, 2019). It is also suggested that there is no difference in green consumerism in terms of pro-environmental behaviour between men and women (Ichsan et al., 2019). Furthermore, it was also revealed that environmental performance and green innovation are closely related to green organizational culture and organizational performance (Imran et al., 2021), and that environmentally oriented company are more likely to achieve superior operational and marketing performance from environmental practices (Fraj et al., 2011).

The recommendations suggested by the researchers are that there is a need to increase awareness of the environment by increasing knowledge so that it can create awareness to care for and maintain environmental cleanliness. Knowledge of the environment is essential for humans to produce citizens who have responsible behaviour towards their environment and foster a sense of environmental awareness. There needs to be an increase in attitude in caring for the environment, namely by starting from the experience of interacting with the environment or the results of socialization, which allows us to experience a change in attitude, so that it can increase motivation to keep the environment clean. Because a clean environment makes life healthier, the air feels cool, learning to be comfortable, and the classroom to be clean and disease-free.

Conclusions

Based on the results and discussion, it can be concluded that the obstacles experienced by Adiwiyata schools in Palembang are funding limitations, maintenance of Adiwiyata infrastructure facilities, inadequate integration of environmental education in school subjects, and varying student understanding of the Adiwiyata program, and insufficient implementation of the 3Rs. The Adiwiyata schools expect that for the allocation of special funds to maximize the Adiwiyata program, training for the integration of education in subjects, and implementation of socialization of the 3Rs program by the relevant agencies

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