

## **Implementation of reduce, reuse, recycle (3R) movement to improve the students' environmental literacy**

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### **Abstract**

Using strategy in protecting environment is very important, since it can encourage a caring attitude towards the surrounding environment. This research aims to find out the efforts of SD Muhammadiyah Karangkajen, a private elementary school in Yogyakarta, Indonesia, in implementing the policy of reuse, reduce, and recycle (3R) to improve environmental literacy for students. It is a qualitative research which collected the data through observation, documentation, and interviews. The results suggest that the efforts made to foster environmental literacy in students at SD Muhammadiyah Karangkajen through the 3R movement were carried out with supporting things such as refraction through culture, rules, the introduction of Adiwiyata program, and classroom learning based on the living environment.

**Keywords:** environmentally friendly, environmental literacy, reduce reuse recycle

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### **INTRODUCTION**

The environment is a place for humans to live and adapt. According to Chan et al. (2019), the environment is a place to live, and all the conditions that exist in it in a way no direct influence level his life. Mundiatur and Daryanto (in Rokhmani, 2016) argue that the environment can be said to be healthy if there is a balance between human ecology and the environment. The lack of public knowledge regarding environmental management makes the community have flavor less concerned about the environment. It is important to implement environmental care movements to foster a sense of environmental care, especially in elementary school environments. Development of character education environmental care in schools has not been implemented properly. Several efforts must be made to develop students' awareness of their environment.

Environmental literacy is an effort that can be made to promote knowledge, attitudes, and behavior required to face the environmental challenge. It is a shared responsibility for students from both the family and school environment. The importance of environmental literacy for students can be seen now in happen phenomenon crisis environment. The city of Yogyakarta is currently experiencing a waste emergency, in 2023 the waste disposal center or Piyungan TPA was closed for 2-3 days, which caused piles of rubbish to be found

everywhere. According to Azima and Yumna (2021), the importance of environmental education can be the first step to improving awareness of caring for the environment. The introduction of environmental education should be carried out from an early age because it can be the main key to forming the character of the younger generation so that they understand and have a caring attitude towards the environment (environmental literacy). Environmental literacy must be instilled from an early age because environmental literacy takes a long time for it to become a habit (Susanti et al., 2022). The schools play an important role in forming a culture of literacy, especially in this case related to environmental literacy (Furi & Riyanto, 2019; Dewi & Budiansyah, 2019).

Based on the results of interviews with the Principal of SD Muhammadiyah Karangkajen, information was obtained about a program that seeks to overcome environmental problems, namely the Adiwiyata School program. The Adiwiyata program is also an implementation of environmental education at schools (Haryadi, 2021). The success of the Adiwiyata program also comes from the active involvement of students at school. SD Muhammadiyah Karangkajen as a school with an adiwiyata program in its implementation has the 3R movement. Students play an important role in implementing the 3R movement (*Reduce, Reuse, Recycle*). *Reduce* is a reduction in the amount of waste or rubbish that students have from eating and drinking. *Reuse* is the reuse of waste in different processes, for example, using used mineral water bottles which can be used as plant pots. *Recycling* is the reuse of waste for the same process (Irwati et al., 2023). This research aims to determine efforts to increase the environmental literacy of SD Muhammadiyah Karangkajen students by implementing the 3R movement.

## RESEARCH METHOD

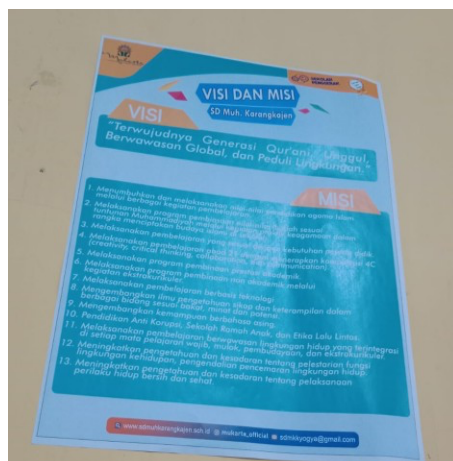
This research is a type of qualitative research with approach studies case. The data collection method is exploratory in the form of observation, documentation, and interviews with school principals conducted in September 2023 as well as understanding and studying theories from various literature related to research to support the author's opinion. The special stages of qualitative research presented by Creswel (2008), namely problems which will be researched on. This article is about the implementation of the 3R (Reduce, Reuse, Recycle) Program to increase students' Environmental Literacy in elementary school Muhammadiyah Karangkajen 1 Yogyakarta. In this article, of course, there will be many sources or material reading to support the author's opinion. The aim of writing this research is to improve the environmental literacy of self-readers. With the data collected writer as well as explanation and supported by several quotations from several journals and articles.

## RESULTS AND DISCUSSION

### Reuse, Reduce, Recycle

The research carried out was related to efforts to increase environmental literacy at SD Muhammadiyah Karangkajen, namely with the Adiwiyata program. SD Muhammadiyah Karangkajen implements 3R as an effort to encourage changes in students' attitudes, behavior, or mindset creating an environmentally friendly environment (See Figure 1). This was conveyed in an interview with the school principal regarding the question, has SD Muhammadiyah Karangkajen implemented the 3R program? The answers that the school principal put forward regarding this matter were conveyed directly to the researcher.

"As we know, the Yogya region is currently experiencing a waste emergency, so schools, especially SD Muhammadiyah Karangkajen, namely by re-encouraging the 3R program which has been implemented in schools for a long time but has only been increased in this new school year," said the school principal.



**Figure 1.** Vision and mission of SD Muhammadiyah Karangkajen

Based on the results of the interview, the 3R program has been implemented at SD Muhammadiyah Karangkajen. This is also shown by documentation data obtained in connection with research which shows that waste management is starting to be well coordinated through the provision of facilities and infrastructure such as waste bins according to categories (See Figure 2).



**Figure 2.** Organizing waste according to categories

### Increasing environmental literacy

Efforts to implement the program require real implementation. In the results of the interview with the school principal regarding the implementation carried out by SD Muhammadiyah Karangkajen, the question was what implementation efforts did SD Muhammadiyah Karangkajen make in implementing the 3R program? Answers are presented by showing the conditions around the school.

"If the first principle is the reduced principle, it is reducing plastic waste. For example, in elementary schools, students are encouraged to take home waste except bottles and paper. So, they inevitably have a mindset to

minimize the use of single-use items because the waste they have is taken home. Plastic bottles are not taken home because SD Muhammadiyah Karangkajen provides charity boxes in the form of plastic bottles which can be used for other things.”



**Figure 3.** Bottle donation box

The reuse of Muhammadiyah Karangkajen 1 Yogyakarta uses catered lunches using lunch containers that can be washed again. Students who are not catered can bring their lunch or buy food in the canteen. Food in the canteen uses plates Can use Again. So, drinks, sellers provide glasses, plates, spoons, and other cutlery that can be washed again, thereby reducing the use of single-use items. Regarding recycling, waste is not immediately thrown away but is reused into something useful. At SD Muhammadiyah Karangkajen, SD Muhammadiyah Karangkajen uses used waste such as bottles or gallons of mineral water to make plant pots. You can see it in the greenhouse or front of the class.



**Figure 4.** Utilization of gallon waste

Then there was something else that was done to process leaf waste to become fertilizer organic, will but activity processing rubbish leaves as fertilizer is no longer implemented at this time. Apart from that, there is something else

we do, namely the use of cardboard or paper waste. We collect it in sacks that have been provided in each class to be used as handicraft materials or class decorations so that the paper waste has benefits. has benefits for decoration and does not become waste. "These activities are familiarized through the culture and rules implemented by the school, and the embodiment of the vision and mission created by our school.



**Figure 5.** Waste is processed into a medium for channeling creativity

The results of the interviews and documentation carried out obtained information that the actual implementation carried out at SD Muhammadiyah Karangkajen focused on efforts to appeal, regulations, and utilization of existing related matters with the 3Rs in school.

### **School policy regarding the 3R movement**

With the implementation of the 3R program, policies are needed that regulate the implementation. The research was conducted through interviews with school principals regarding the policies taken, namely, is there a policy related to the 3R program, and how is it managed, sir? The answer given by the principal provided a direct explanation.

"Yes, for preparation and supervision and supervision related to policies, schools carry out studies related to environmental conditions. The school also formed a Cleanliness Enforcement Task Force (SPK), then for organizing it involved members of the students, then above that there was someone who supervised and managed, namely there was a Cleanliness Enforcement Team (PK) which was held by the teachers. then for the implementation that has been carried out later, there will usually be a report made which starts from the classroom environment and then reported to the coordinating teacher which is used as material for routine evaluation from 3R program in this elementary school"

The results of the interviews conducted showed that SD Muhammadiyah Karangkajen made several policies that were implemented to manage and implement the 3R movement in schools.

### **Application of learning contains environmental literacy**

Efforts made to increase environmental literacy are not only implemented through habitual actions or culture school. In the interview, we asked if SD Muhammad Karangkajen implement a special curriculum. The principal's responses are as follows.

SD Muhammadiyah Karangkajen, if this is related, does not have a special curriculum that regulates the application of knowledge related to the environment, but its application in learning is integrated through in the curriculum that applies in schools, namely there are 2 thematic and independent curricula. The implementation at SD Muhammadiyah Karangkajen is by integrating it into subjects that contain discussions related to environmental insight. Examples of actual implementation go through several stages starting from selecting the strategy, model, the technique, then the media is also adjusted if possible to make children interested and happy with learning that smells of love for the environment.

From the results of these interviews, it was found that implementation in improving environmental literacy in SD Muhammadiyah Karangkajen was not only by using cultural efforts or implementation outside the classroom but also through learning in the classroom.

### **Implementation barriers**

Implementation of a program requires a process, in this process, it is not necessarily possible to directly achieve overall success. From the results of the interview, are there any obstacles experienced by SD Muhammadiyah Karangkajen in efforts to increase environmental literacy? The answer that the principal explained was related to its implementation.

"The obstacles that occur are, for example, in organic waste recycling activities, we are constrained by processing time and place, we already have the equipment but we can't do it again. Another obstacle is the habit of reducing plastic, there are still students who continue to use plastic packaging when buying food in the canteen and throw away waste that does not match the description given to the category name. "Then in terms of learning in class, there is limited time, especially in practical learning activities based on environmental insight."

It can be concluded that efforts to implement the 3R program at Muhammadiyah Elementary School have existed and have increased in growing students' environmental literacy seen from changes from the previous year. However, there are still several obstacles in its implementation.

### **Discussion**

Implementation of efforts to raise awareness for literate or care environment is carried out at SD Muhammadiyah Karangkajen, one of which is through the Adiwiyata program through 3R. Implementing the Adiwiyata program is related to waste handling and management. SD Muhammadiyah Karangkajen is one of the Adiwiyata schools that has implemented developments related to environmental-based insight. This is demonstrated by the vision and mission of SD Muhammadiyah Karangkajen which includes management related to the environment. The vision and mission were created to become a source of internalization of understanding and guidance for the 3R movement program for school residents, especially students.

The 3R program is the principle of reduce, reuse, and recycle (Arisona, 2018). The principle of an activity that can reduce the use of goods that can cause waste to accumulate and prevent the generation of waste (Sukamdani, 2022). The second principle of reuse is activity use returning rubbish Which worthy of use for the same or other functions (Prayoga, 2021). The third

principle, namely reduction, is an activity or effort to recycle waste into something more useful or useful. The implementation of 3R as an embodiment of the vision and mission is wrong. One important thing is related to the regulation of a system or program (Susanti et al., 2022).

Implementation of the 3R movement program At SD Muhammadiyah Karangakjen Yogyakarta there is a real implementation of the 3R movement and its impact on environmental awareness and the many variations of activities carried out. namely related to waste management, waste reduction with a culture of carrying drinking bottles and catering/provisions, utilizing gallon waste, and recycling cardboard waste into crafts. From previous research, namely research (Susanti et al., 2022) about the environment and the implementation of environmental culture carried out by schools, there are similarities and are stated in the goals, vision, and mission which are combined with the embodiment of ideas and thoughts in the form of real activities. Culture carried out in elementary school Country 182 Pekanbaru Which become differentiator namely the morning line activity and then the activity of picking up rubbish after the line breaks up.

The school, especially SD Muhammadiyah Karangakjen, makes policies applied to grow awareness of personal participant education, as follows, (1) Assessment of environmental conditions in the school area, (2) Establishment of a Cleanliness Enforcement Task Force (SPK) which involves membership from students, then above that there is a Cleanliness Enforcement Task Force held by the relevant teachers, (3) SPK and PK are tasked with supervising and managing the activities of the 3R movement at SD Muhammadiyah Karangakjen, (4) The implementation is reported from the classroom environment to the coordinating teacher and then used as material for routine evaluation of the 3R program at SD Muhammadiyah Karangakjen.

According to Dwi Irawati, the process of implementing this policy et al (2023) must This is done by beginning with the growth of individual awareness which should be done from an early age. Cultivating awareness can be a guide in acting and behaving by paying attention to environmental conditions and problems occurring in the surrounding area. According to (Susanti, Zarkasih, & Amini, 2022) existing policy make management related to the implementation that can be carried out optimally and regularly.

Implementation of efforts to increase environmental literacy in elementary schools Muhammadiyah It is also carried out in integration in classroom learning adapted to subjects related to the environment. This effort includes activities in learning aligned with the study according to Scholz and Binder (2011) that said that trans-disciplinary in environmental literacy also requires systemic integration in the application of knowledge to assess the relevance. Implementation of learning in the classroom requires a curriculum that regulates it. The curriculum is very important in learning activities (Nurhasanah et al. 2021). Learning in the classroom plays an important role in the cognitive domain in increasing environmental literacy (Nurwidodo, et al., 2020). Efforts to increase environmental literacy in learning is carried out so that the cultivation of knowledge related to environmental literacy is more easily absorbed and accepted students understand it well and optimally (Susanti et al., 2022).

In implementing 3R at SD Muhammadiyah Karangakjen there are various activities. However, in several aspects, there are still many obstacles that occur in actual implementation efforts. Obstacles that occur include processing waste into fertilizer which requires a certain place broad, efforts to apply learning in

the classroom, as well as full awareness of reducing plastic waste. This has similarities with research at Adiwiyata schools in Banda Aceh according to Kamil, et al (2019), namely related to participatory obstacles and also an implementation that requires large areas of land.

## CONCLUSION

The need related to environmental literacy is one of the main factors in today's environment. Providing knowledge related to environmental insight is a major effort in overcoming environmental problems. Efforts that can be made are by implementing growth awareness which started early. It is hoped that self-awareness can make individuals, especially students, sensitive to the surrounding environment and have a sense of responsibility that must be carried out in protecting and utilizing nature and its environment.

The discussion in this research has a main topic which is an effort to answer problems surrounding efforts to increase environmental literacy among students at SD Muhammadiyah Karangakajen. The results of the research show that Muhammadiyah Elementary School has implemented the instillation of environmentally sound values with the 3R movement (Reuse, Reduce, Recycle) with the implementation of habits, school rules, and policies, as well as introduction through environmental-based learning in the classroom.

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