

## Optimizing Student Participation in Waste Management as an Effort to Increase Awareness of a Waste-Free Environment

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### Abstract

Waste management is crucial in maintaining environmental cleanliness and the health of living things around it. At SD Negeri Glagahwero 01, waste problems are a major concern in maintaining the cleanliness of the school environment. This community service aims to educate students about their role in waste management and increase awareness of a waste-free environment. This research method uses Participatory Action Research (PAR) through training with material presentation, active interaction, contextual learning, and discussions involving grade 6 students of SD Negeri Glagahwero 01 and the Kampus Mengajar 7 team. In the socialization, students were invited to recognize the types of waste and how to manage the waste around them. The results of the community service show that this activity has succeeded in attracting and educating students about waste management. They responded positively by answering the speakers' questions and providing examples of waste management that they can do correctly in their daily lives. In addition, students also understand the impact of good and bad waste management. Although the socialization is short, this activity can influence student behavior in the long term so that they are aware of their role in creating a waste-free environment.

### Keywords

Student Participation; Waste-Free Environment; Waste Management.



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## INTRODUCTION

The existence of organic and inorganic waste can cause problems in the community if the management system is to be improved. Improper waste management is a common problem in developing countries, and Indonesia is one of them (Mohamed et al., 2017). This can happen because Indonesian people's waste management awareness is still lacking (Hasanah, 2021). However, if waste is managed properly, it will positively impact humans. This is based on the view that waste is one of the resources that can still be processed and utilized so that it has a selling value or economic

value (Shkolnikov et al., 2019). Therefore, there needs to be public awareness about handlers when arriving at something with a selling value.

As we know, inorganic waste is the waste that has the largest contribution to environmental pollution cases; this is because this type of waste is difficult to decompose (Antico et al., 2017). Human intervention is needed to transform inorganic waste into something that has useful value and can be used so that it becomes a solution to this problem. Students whose existence as development agents have an urgency in controlling the pace of development (Nugraha et al., 2022). Their knowledge and insight can be a bridge that leads the environment in a better direction. Thus, schools are the right forum to build awareness and concern for environmental problems, especially waste-related problems (Hemalatha & Visantini, 2020). Thus, education from an early age through activities related to waste management and the impact caused by waste management at SDN Glagahwero 01 is the main goal of creating a clean and healthy school environment (Abdallah et al., 2020).

The purpose of this service is to educate students about the importance of their participation in waste management as an effort to increase awareness of a waste-free environment. This activity succeeded in increasing the awareness of SDN Glagahwero 01 students' awareness of the importance of waste management through an understanding of the types of waste and how to manage them. The students showed a positive response by being able to provide examples of correct waste management and be aware of the long-term impact of their actions on the environment.

## **METHOD**

This research method uses Participatory Action Research (PAR) through training with material presentation, active interaction, contextual learning, and discussion involving 6th-grade students of SD Negeri Glagahwero 01 and the Teaching Campus team (Brydon-Miller et al., 2020). In this activity, students were invited to recognize the types of waste and how to manage the waste around them. The method of waste management aims to increase awareness of a waste-free environment. The target of this service activity is 6th-grade students of SD Negeri Glagahwero 01. The activity was carried out using media facilities: Laptops, LCD PowerPoint presentations, and brochures. Methods/strategies include: 1) Delivering material and actively interacting with participants. The material includes waste management and the impact of waste management in the school environment. 2) Contextual Learning: An approach that uses real-world contexts to reinforce learning, allowing students to relate abstract concepts to concrete experiences. Thus, it can help students develop a deeper understanding of the subject. 3) Discussion: The interaction process aims to jointly find solutions when

there are obstacles and increase knowledge of poorly understood things. The achievements/targets are that students understand the impact of waste management and increase awareness of the need to implement waste management.

The steps taken in this activity are as follows: 1) Observation: This activity began by conducting a survey related to the condition of the classroom to be used, lesson schedules that do not interfere with other lessons, as well as facilities and infrastructure such as LCDs, laptops, cables, and others to determine the readiness of the implementation of activities. 2) Implementation: Activities related to waste management and the impacts caused.

## **RESULTS AND DISCUSSION**

The results of this study indicate a positive impact on student awareness and engagement in waste management at SDN Glagahwero 01. Through Participatory Action Research (PAR) methods, students in grade six actively participated in training sessions that included presentations, discussions, and contextual learning facilitated by the Kampus Mengajar 7 team. These sessions effectively conveyed the importance of responsible waste management and introduced students to the classification and handling of different waste types.

During the activities, students responded enthusiastically, engaging in discussions and answering questions posed by the facilitators. They demonstrated their understanding by providing practical examples of waste management practices they could implement daily. This newfound awareness reflects a shift in the students' attitudes, as they now recognize their roles in contributing to a cleaner and waste-free school environment. The training also covered the environmental impacts of improper waste management, helping students distinguish between the benefits of proper waste handling and the detrimental effects of neglect (Rizki & Wahdah, 2022).

While the socialization period was brief, the positive responses suggest a foundation for long-term student behavioral change. Their increased awareness has the potential to encourage environmentally responsible habits that could extend beyond the school and influence the broader community (Hikmah Harun & Firdaus Mohamad, 2022). This initiative highlights the importance of early environmental education and the role of students as agents of change in promoting a sustainable and waste-conscious society (Akbar et al., 2022).

The results of this community service initiative demonstrate a successful increase in students' environmental awareness and active involvement in waste management practices. Through structured training and participatory activities, students at SDN

Glagahwero 01 gained a practical understanding of waste classification, including the distinctions between organic and inorganic waste, and learned methods to manage each type effectively (Miliyanti et al., 2022). This knowledge empowered them to recognize waste as a resource that, when properly managed, can have economic and environmental benefits.

The students' enthusiastic participation and their ability to articulate practical examples of waste management indicate that the program effectively influenced their attitudes toward environmental stewardship (Darmawan et al., 2020). Not only were they able to grasp the concept of waste management, but they also expressed a sense of responsibility to apply this knowledge in their daily lives. This proactive response from students suggests that the program succeeded in instilling a sense of agency and accountability, motivating them to contribute to a cleaner school environment (Prabowo et al., 2021).

Furthermore, the community service project has the potential for a broader impact beyond individual behavior. By involving students as key agents in waste management, the initiative supports the development of a school culture that values sustainability and cleanliness (Chauhan et al., 2021). This cultural shift may gradually extend to families and the surrounding community as students share their knowledge and practices with others. The long-term goal of this project is to foster sustainable waste management habits that will contribute to a waste-free environment, reinforcing the school's role as a model of environmental responsibility for the community (Awasthi et al., 2021).

Environmental care character education is one of the coaching efforts aimed at students at every level of education. This coaching aims to achieve one of the eighteen characteristics set by the Curriculum Center of the Ministry of Education and Culture in 2011 (Chowdhury, 2018). By increasing awareness of caring for the environment, students are responsible for the environment around them, both at school and at home. One of these efforts is related to waste management.

The community in schools needs to pay more attention to their environment to meet the requirements of a healthy environment. Optimal waste management can create a healthy environment that can positively influence students so that they can learn as well as possible (Ap. Moreira & Wanda Rutkoskwi, 2021). Waste management can be used as a learning medium on how to type waste according to its type and carry out the 3R and SOBATKU Movements that actively involve students.

This activity was held on March 30, 2024, at SDN Glagahwero 01, Jember Regency. The activity participants were 17 grade 6 students consisting of 6 boys and

11 girls. The involvement of students accompanied by several Teaching Campus 7 students is expected to be able to understand the material provided and apply it in the school environment.

Student representatives conveyed the purpose and objectives of the activity to Mrs. Sutini, S.Pd., as the Principal of SDN Glagahwero 01.



**Picture 1** Activities with the Principal

The method of delivering the material used is the presentation or lecture method. Lectures are one learning method characterized by the transfer of information from the speaker to the students (Faisal & Kisman, 2020). The material was *delivered using PowerPoint* media and posters that were equipped with pictures.

The material presented was various types of waste, how to manage waste with the 3R Movement (*Reduce, Reuse, Recycle*) and SOBATKU (*Donate, Process, Brough, Place, Reduce*), and various impacts of waste management. Waste sorting is divided into four types: plastic, glass, organic, and paper waste (Anh Khoa et al., 2020). Students are invited to get to know and mention the garbage around them, including which of the four types of waste. With the 3R Movement, students know how to dispose of waste after use and can reduce, reuse, and utilize it (Zebua, 2021). In addition, caring for the environment can be done by donating useful items to others in need, reprocessing, bringing your bags, drinking bottles, and cutlery, placing garbage in trash cans according to their type, and reducing the use of plastic.

Good waste management can improve the school's image, create a clean and healthy school environment, and help reduce waste. However, waste management should not be carried out. In that case, it can cause health problems, make teaching and learning activities uncomfortable, disrupt gutters around schools that can cause floods, and worsen the school's image in the surrounding community.





**Picture 2** Material Delivery



**Picture 3** Poster Distribution

This activity aims to determine the level of student understanding related to the material delivered. The presenter gave questions that were answered by students both individually and together.



**Picture 4** Discussion or Q&A

Student participation activities in waste management at SDN Glagahwero 01 as a whole can be considered successful. This can be seen from the enthusiasm of students

to learn and be active during the delivery of the material. Students' understanding of managing waste well and being useful for the school environment has increased. Not only that, students understand the impact of good waste management and what is not. Starting waste management activities can prevent natural damage and create a clean, healthy, waste-free environment.

The findings of this study align with previous research that emphasizes the effectiveness of environmental education programs in fostering responsible waste management behaviors among students. Similar studies have demonstrated that school-based waste management education can significantly increase students' awareness and influence their daily habits (Jamiah et al., 2019). For instance, research by (Sebsibe et al., 2023) showed that hands-on training and active student participation in waste segregation improved their understanding and practice of waste disposal. Likewise, our study confirmed that engaging students in discussions and contextual activities led to heightened awareness and practical applications of waste management techniques.

From a theoretical perspective, the results support Ajzen's Theory of Planned Behavior, which suggests that attitudes, perceived behavioral control, and social norms contribute to behavior change. The students' increased understanding of waste management practices and their positive response to the training sessions indicate a shift in attitude towards environmental responsibility. This is consistent with the theory's assertion that enhancing knowledge and awareness can influence an individual's intention to act. Additionally, fostering a supportive social environment within the school made students more likely to adopt waste management practices that align with environmental sustainability goals (Chaves-Avila & Gallego-Bono, 2020).

This study's use of Participatory Action Research (PAR) aligns with Dewey's educational theory of experiential learning, which advocates for learning through direct experience and active participation. Dewey posits that students are more likely to retain knowledge and develop skills when they are actively engaged in real-world applications. In line with this theory, our study found that students responded positively to hands-on learning experiences, indicating that such an approach is effective in conveying knowledge and developing environmental ethics and behaviors. This research, therefore, corroborates both theoretical frameworks, highlighting the value of participatory education methods in cultivating sustainable waste management practices among young learners.

The findings from this study are consistent with existing research that emphasizes the effectiveness of participatory approaches in environmental education, particularly in fostering long-term behavioral change. Previous studies, such as those conducted by (Ripno et al., 2021), have demonstrated that students are more likely to internalize environmental values and adopt sustainable habits when they are actively involved in waste management practices. In these studies, participatory methods like hands-on sorting exercises and community clean-up projects helped students understand waste management's practical and ethical dimensions, encouraging sustained engagement. Similarly, our study found that involving students through interactive training sessions increased their awareness and promoted a sense of ownership, motivating them to maintain a clean school environment.

The outcomes of this study also align with the Self-Determination Theory (SDT) proposed by Deci and Ryan, which suggests that autonomy, competence, and relatedness are key factors in fostering intrinsic motivation. By giving students the autonomy to make decisions about waste management practices within their school environment, the initiative addressed the need for autonomy and helped students feel competent in their ability to contribute to waste reduction (Ryan & Deci, 2022). The social context of working with peers and receiving positive reinforcement further supported their motivation by fostering a sense of relatedness. According to SDT, this intrinsic motivation is more likely to result in lasting behavioral change, as students feel personally invested in the cause rather than merely complying with external rules.

Furthermore, the results support Bandura's Social Learning Theory, which posits that behavior change is strongly influenced by observational learning, imitation, and modeling. During the community service activities, students had the opportunity to observe waste management practices modeled by their peers, teachers, and the Kampus Mengajar team (Nabilah Mokhtar et al., 2023). This observation provided clear examples of proper waste management techniques and reinforced the idea that sustainable behaviors are valued within their school community. Through guided participation and peer discussions, students were able to learn waste management techniques in a socially supportive environment, making it easier for them to adopt these practices in their daily lives.

Additionally, the relevance of Dewey's experiential learning theory is evident in this study's findings. Dewey argued that learning is most effective when it is active, practical, and rooted in real-world experiences (Matriano, 2020). By involving students directly in waste sorting and environmental awareness activities, the study demonstrated that students could better understand and retain knowledge about



waste management. This aligns with Dewey's assertion that experiential learning builds knowledge and fosters critical thinking and problem-solving skills that are transferable to other areas of life.

This combination of participatory, observational, and experiential approaches in environmental education is particularly effective in encouraging responsible environmental behaviors in young students. Integrating these theories into school-based programs could further enhance their impact, promoting a culture of sustainability that begins with students but has the potential to influence families and communities as well.

## **CONCLUSION**

The service activity in an effort to increase awareness of the waste-free environment at SD Negeri Glagahwero 01 showed good results. Grade 6 students who participated showed enthusiasm and were actively involved in the delivery of the material. Not only can they identify the types of waste, but they are also able to provide examples of good waste management around them. In addition, they also understand the impacts of waste management, whether it is done well or badly. This shows that this activity successfully increases students' understanding and awareness of waste management and the resulting environment

al impact.

It is important to carry out this activity in the long term and periodically so that students' understanding is maintained and it continues to encourage them to keep the surrounding environment clean and healthy. Additionally, simulations or hands-on practice can be applied to guide students to learn hands-on in real life to manage the waste around them. By continuing this activity and other concrete steps, the school will become a strong foundation to improve and involve students to participate directly in creating a waste-free environment in their daily lives.

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