

Domestic Waste Management Strategy through Realization of School Waste Banks towards Students Scientific Behavior

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ABSTRACT

The inability to read the opportunities of the dilemma of the distribution of waste in the environment in relation to the needs of the educational transmission period in the post-pandemic era as it is today leads to our limitations in meeting the needs of educational efforts and strategies in various challenges of the times. This study aims to present educational transmission efforts and strategies for handling waste distribution in the post-pandemic era which is an innovative educational approach towards sustainable human and natural resource development based on an economic-socio-cultural basis. The method is descriptive quantitative that was conducted at one of the public schools elementary from August until November of the 2021/2022 academic year. The sample is 150 students from 1, 2, and 3-grade elementary schools. The results found in the field are that through the realization of the school waste bank regarding the regulation of implementing waste sorting from home and then proceeding to deposit waste to the school waste bank this strategy initiates scientific practice towards the scientific behavior of students. The contribution of this research is instilling good behavior from an early age, and it is hoped that good habits will emerge and contribute to environmental sustainability.

Keywords: Domestic waste, School Waste Bank, Students Scientific Behavior



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1. INTRODUCTION

Based on its cycle, garbage stores scientific facts and various interesting phenomena as potential assets for developing student scientific behavior in early childhood to seniors (Debrah et al., 2021; Raghu & Rodrigues, 2020). Starting from the biotic and abiotic diversity, the formation process in it, to the cycle that includes it, is a scientific fact that is very unfortunate if on the one hand its existence is available and very affordable around students, but on the other hand is hampered only because of our lack of a positive perspective on the environment (Boca & Saraçlı, 2019; Ramadhan et al., 2019).

Waste comes from one element, namely Natural Resources (Jyothi et al., 2020), so the involvement of the human hand in handling waste is needed to decompose it (Yao et al., 2021) so that it can return to the environment after we use it. Thus, the consequence of biodegradability is that we must reduce the rate of decline (Haider et al., 2019). The pattern of utilization of natural resources based on the biodegradable cycle will reduce the rate of environmental damage that will have an impact on future generations (Sutisno & Novianawati, 2021).

A communal perspective is needed to address this gap. By paying attention to how the growth of waste continues without waiting for our readiness to handle it (Yukalang et al., 2017), and educational activities continue to go hand in hand with the impulse of human life itself. So, we need an integrated waste management technique with scientific value and in line with national education goals (Zhang et al., 2019; Zorpas, 2020).

By developing a pattern of waste sorting, starting from sorting organic and inorganic waste with the aim of gathering correct information on waste, then proceeding to the next stage, namely observing the environmental biota cycle. This waste sorting activity maximizes the habituation of participants to their own waste originating from within their respective homes is a formula to improve children's thinking skills (Bulut, 2020).

Responding to the current pandemic era, the world of education is faced with the condition that it must be able to adapt to new habits. Circumstances never want to wait for us to be ready. Thus disability or delay in reading opportunities is counterproductive for us to achieve educational goals. The novelty or new strategy proposed by this research is waste sorting activity in an effort to improve children's thinking skills.

At the same time, it is necessary to adapt and transform innovations while still referring to students' needs for scientific values in education. Through revitalizing the handling of domestic waste, educational institutions and families play a strategic role in maximizing the handling of domestic waste. For us, this assumption does not conflict with the encouragement of adaptation and transformation of the needs of students in utilizing waste as a learning resource. Therefore, this research aims to see the effectiveness of handling domestic waste by implementing a school waste bank.

2. METHOD

The method is descriptive quantitative that was conducted at one of the public schools elementary in Cirebon regency, Indonesia, from August until November of the 2021/2022 academic year. The sample is 150 students from 1, 2, and 3-grade elementary schools who participated in this activity. Within 5-10 minutes before teaching and learning activities begin, children are directly involved in recognizing inorganic waste, which will then be given to the school waste bank manager.

3. RESULTS AND DISCUSSION

3.1. Results

In this study, have 3 indicators will be distributed. The reason for choosing this sample size is due to time constraints in data collection and data analysis. In this research one could argue is a sample size of 150 sufficient to draw conclusions from. The data is presented in the following figure 1.

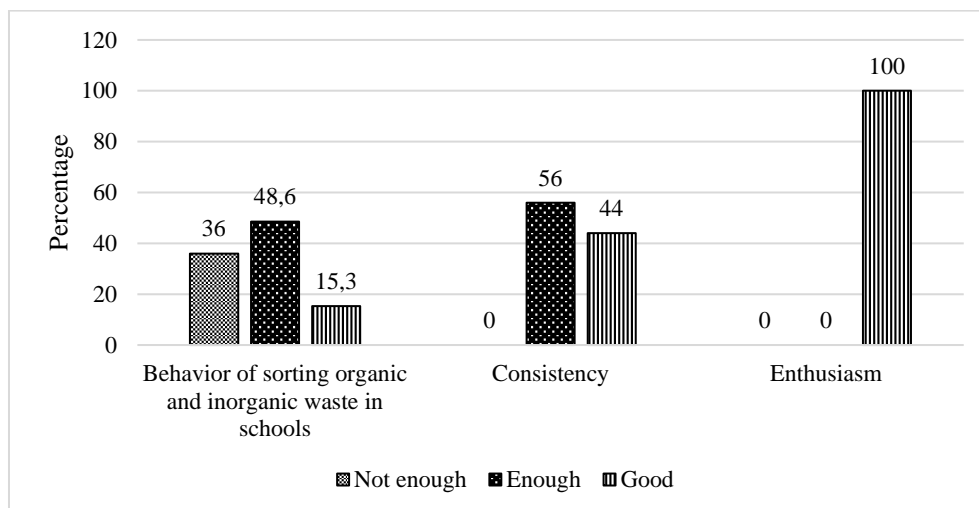


Figure 1. Scientific Behavior of Students in the Waste Sorting Process

Based on figure 1, it can be seen that most students can sort organic and inorganic waste. The results also show that more than half of the participants were consistently in the waste sorting activities, and all students were enthusiastic about the activity.

However, even though the sample size is just 150, the intention is to gain representative data of the population at large. If more time, finance, and resources were available, a larger sample could have been sought to represent that school. All respondents will be randomly selected to gather representative data of the population from which generalizations can be made. Half the indicators will be aimed at random male respondents and the other half at random female respondents so that conclusions can be drawn regarding the habit of disposing of garbage and sorting garbage.

Participatory research based on the Action Research framework (Look, Think, Act) was designed in a pilot area in Cirebon, Indonesia. Data was collected based on a combination of quantitative and qualitative methods since the existence of domestic Waste management strategy through the realization of school waste banks towards students' scientific behavior is complex. Pick analysis (waste composition study) was appropriate for evaluating students' scientific behavior. Similarly, using interviews strengthened the understanding of the need of inhabitants to participate in the source separation system to identify effective

interventions. A waste management strategy through the realization of school waste banks was developed based on the pilot study (Fatmawati et al., 2022). The procedure proved to be an effective tool for improving students' scientific behavior. It was concluded that the factors influencing students' scientific behavior are complex and sensitive to local circumstances and individual perceptions. Therefore, the waste management strategy by realizing school waste banks' procedures helps identify the appropriate interventions based on the local context. Data collected in the pilot area revealed that the convenience factors influencing students' scientific behavior are crucial for improving participation in the waste management strategy scheme and placing waste management strategy containers close to the vicinity of waste generation, which is a convenience factor. Similarly, easy access to relevant information is another intervention that significantly improves the students' scientific behavior in the pilot area. Furthermore, it was concluded that Action Research, as a participatory methodology, is particularly appropriate when seeking the link between social and technical factors in waste management.

3.1. Discussion

Handling domestic waste still needs more (Abdel-Shafy & Mansour, 2018). Although the existence of household waste is so close and very affordable (Yu & Jaenicke, 2020), there are still many parties who still need to realize its potential in it. Viewed from the aspect of the emergence of domestic waste, it reminds us of the basic science concepts of elementary school, related to the first and second laws of thermodynamics related to the conservation of energy (Sutisno & Novianawati, 2021). Viewed from the aspect of elements, household waste is the most representative place for introducing children to various elements of natural resources, ranging from biological and non-biological elements available for free at home (Feronato & Torretta, 2019). Furthermore, from the aspect of waste reuse, domestic waste introduces us to the coffers of an environmentally-based populist economy (Qu et al., 2019).

The school waste bank is one of the environmental literacy instruments for residents around the school (Meilinda et al., 2017). As a place for eco-literacy, the school waste bank focuses on handling household waste in the surrounding environment. The school waste bank is also a means of early education on waste management, including sorting it out (Halek et al., 2021).

Our low behavior towards concern for environmental quality must immediately get serious handling, at least one of the efforts is through integrative activities with elementary school education unit institutions. Ratio analysis of why early childhood students are the standard starting point for behavioral improvement, that early childhood students are in the concrete operational age range where the epistemological stage of children is at its golden age (Kesselring & Müller, 2011; Kholiq, 2020; Yeoh et al., 2018). All exposures in their environment are very informative for their eyes, ears, heart and body (Kelly et al., 2019). Everything will be replayed in the next 30 years (CDC, 2019). This fact then makes the child have a strong urge to what he sees, especially the things that attract his interest and attention (Liando et al., 2022; Papavlasopoulou et al., 2019).

At the same time, education is a principle matter that is the collective responsibility of the strategic role holders which in this case are the government, higher education institutions, schools and families and also include the community in it (Beatriz et al., 2010). Thus, the human need for education in the post-pandemic era as it is today must continue to be fought.

Referring to the 4th revision of the Minister of Health to continue to prioritize the health and safety of all parties who come into contact directly or indirectly in educational practice, it is deemed necessary to put forward the idea of handling domestic waste as an elementary school education instrument. The role of educational institutions in this study can be seen from student responses to the indicators of student consistency and enthusiasm in carrying out waste sorting activities. Schools make policies where students are required to bring sorted waste from their homes to raise awareness of students to deposit garbage. So based on Figure 1, there are no inconsistent students and all students are enthusiastic in carrying out these activities. Thus, it is necessary to have regulations from educational institutions in domestic waste processing activities.

In the post-pandemic era, as an innovation, adaptation, and transformation of students' needs towards educational and scientific values, of course. The scientific approach in learning activities in one of the State Elementary uses waste as a source of learning. School waste bank activities include various scientific activities (Widiyanto & Rahab, 2017). Implementing the revision of the 4 ministerial decrees, students in school waste bank activities are the same as conditioning students to be directly involved with process skills. Garbage sorting activities, inviting students to work, direct practice, sorting, collecting, identifying to the final stage of inferring and communicating the results. The stages of this activity represent the systematization of work, combining thinking skills and children's creativity (Husniawati et al., 2019; Zakianis et al., 2018).

Although the pandemic impact is so wide that it reaches the education aspect (Alghamdi, 2021; Huriyah & Hidayat, 2022), however, the pandemic also has a positive impact that is not small. The pandemic teaches us to perfect our efforts to achieve educational goals, from the encouragement to continue

learning, especially for educators, the willingness to innovate as an adaptation effort to the footprint of learning technology on various choices of information and communication technology media platforms (Hidayat et al., 2022; Rapanta et al., 2021). This fact shows that human efforts in meeting human needs for education are not small. So that the realization of the school waste bank as we have tested is quite recommended, as a real and relatively affordable step for all of us in maximizing the adaptation and transformation of education innovation efforts in the post-pandemic era like today.

Post-pandemic learning is problematic for educators and staff to restore students' interest in learning (Kobylarek, 2021; Singh et al., 2022). Two years after the pandemic, we left the condition of students far from educational achievements, especially those with less productive family and community environments. It takes the ability to read opportunities for those who play a strategic role in this matter, such as the government, education units, higher education, and the community in it, as well as creating innovation opportunities that have the potential to revive the rhythm of education as before or even more than that.

The role of educational institutions is vital and related to regulations or policies that lead to the implementation of domestic waste processing activities (Almasi et al., 2019; Debrah et al., 2021). This role is needed to build good student scientific behavior and can be applied in their lives. Thus, schools can play a role in creating scientific behavior, which one day is expected to change the mindset of humans in viewing waste. Garbage must be properly managed so as not to damage the environment.

Without the essence of education while still referring to the habituation aspect as an indicator of the process of forming student behavior, as well as having the dimensions of existing utilization but still having educational and scientific values, we view the realization of a waste bank equipped with regulations for sorting and depositing waste is effective in encouraging interest to learn and further cultivate the scientific behavior of early students in the childhood age range.

4. CONCLUSION

The reach of educational attainment is directly proportional to the existing efforts. The condition of education in the post-pandemic era, as it is today. It is a condition where innovation is sufficient to determine our adaptability in continuing the nation's mandate for the ideals of education. In this regard, learning innovation is like the dimensions of human life itself, meaning that efforts in existing utilization are the output of the ability to read opportunities during post-pandemic conditions.

Based on the findings of this study, waste sorting activities held during the post-pandemic can foster good scientific behavior in students. They are still enthusiastic about participating in this activity. By inculcating good behavior from an early age, it is hoped that good habits will emerge and contribute to environmental sustainability.

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