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Improving Environmental Care Attitudes through Education on Proper Waste Disposal in Elementary School Children

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ABSTRACT

Environmental cleanliness remains a major challenge in many elementary school environments. Lack of student awareness of the importance of disposing of waste properly can negatively impact the cleanliness and health of the school environment. This study aims to determine the improvement of environmental awareness through education on how to properly dispose of waste in elementary school children. This study used a pre-experimental one group pretest-posttest design with a sample of 42 students in grades IV–VI selected through total sampling. The instrument was a knowledge and attitude questionnaire, while data analysis used the Wilcoxon Signed Rank Test. The results showed a significant increase after education. Before the intervention, the majority of students had low knowledge and attitudes. After education, 97.6% of students were categorized as having good knowledge and 76.2% had good attitudes. The statistical test yielded $p < 0.05$, indicating the effect of education on improving students' knowledge and attitudes. The conclusion of this study is that education on disposing of waste properly is effective in fostering environmental awareness from an early age, and can be an important strategy in character education in elementary schools.

Keywords: Environmental Education, Environmental Awareness, Elementary School Students Waste

INTRODUCTION

Waste is a major problem faced by urban managers worldwide, including Indonesia (Hendra, 2016). To date, the waste problem remains a crucial issue in Indonesia. According to data from the National Waste Management Information System (SIPSN), daily waste generation in Tulungagung City reached 558.98 tons in 2023, while the total in East Java Province reached 204,028.80 tons (SIPSN).

One way to address the waste problem is through the implementation of Clean and Healthy Living Behaviors (PHBS). PHBS is a strategy to improve health independence, especially for children, through the implementation of healthy habits in the school environment (Carolus, 2016). This program involves students, teachers, and the surrounding community in developing skills and awareness of the importance of maintaining health and creating a clean environment. Clean and Healthy Living Behavior (PHBS) in the school environment consists of eight main indicators: washing hands with soap and running water, consuming healthy food in the canteen, maintaining toilet cleanliness, exercising regularly, eliminating mosquito larvae, not smoking on school grounds, weighing and measuring height every six months, and disposing of waste properly (Profil Kesehatan Indonesia, 2018). One of the main causes of the waste problem in Indonesia is the public's habit of littering. To address this, developing positive habits from an early age is crucial, one way of doing this is through the implementation of the PHBS program in schools (Kemendikbud, 2021).

The implementation of PHBS (Clean and Healthy Living) in schools plays a crucial role in raising awareness among students and the school community about the importance of maintaining cleanliness and adopting a healthy lifestyle. The success of this program depends on the availability of supporting facilities and infrastructure, as well as the continuity of education. With more than 250,000 schools and approximately 73 million students in Indonesia, maintaining student health is a crucial foundation for creating a healthy, intelligent, and competitive generation in the future (Sudarta, 2022).

Lack of awareness of the importance of disposing of waste properly and limited knowledge about waste management are the main causes of environmental pollution. Littering when a trash can is not readily available is not uncommon. Although it may seem simple, the habit of disposing of and sorting waste according to its type can have a significant positive impact if practiced consistently. Therefore, fostering an attitude of environmental awareness needs to begin at an early age by instilling the habit of disposing of and sorting waste properly.

As members of society, students are expected to develop a sense of responsibility for protecting and preserving their environment. Environmental awareness can be fostered through various routine school activities, such as cleaning classrooms, managing waste, and maintaining a clean school environment in accordance with applicable regulations (Handayani et al., 2022). Waste, as a byproduct of human activity, can become a breeding ground for disease-causing germs, bacteria, and viruses. Therefore, teachers, students, and the entire school community need to play an active role in disposing of waste in designated bins. Schools should also provide separate bins for organic, inorganic, and hazardous waste. The habit of disposing of waste properly not only creates a clean and comfortable environment but also prevents the spread of disease and fosters discipline and a love for the environment (Ramdhani et al., 2022).

One of the main obstacles to implementing Clean and Healthy Living (PHBS) in schools is students' low knowledge and awareness of the importance of proper waste disposal. Previous research shows that most students do not understand the difference between organic and inorganic waste and still frequently litter around the school environment (Alfiah et al., 2022). Furthermore, the limited availability of adequate trash bins in schools further exacerbates this situation (Handayani et al., 2022). Based on this, this study was conducted to explore how PHBS education can improve students' knowledge and attitudes regarding proper waste management. Health education in schools plays a crucial role in conveying information and building students' understanding of clean and healthy living behaviors. With this education, students not only understand the importance of maintaining health, but are also motivated to apply it consistently in their daily lives.

METHODS

In this study, the author aimed to examine the increase in environmental awareness through education on proper waste disposal among elementary school children. The independent variables in this study were students' knowledge and attitudes, while the dependent variable was proper waste disposal behavior. Data collection was conducted through pre-tests and post-tests in the experimental group to determine behavioral changes before and after the treatment. The population used in this study was 42 students from grades 4, 5, and 6, all of whom were taken as samples. The questionnaire measured knowledge and attitudes. The knowledge questionnaire consisted of 10 questions related to the definition of waste, types of waste, negative impacts of waste, and waste management methods. The attitude questionnaire consisted of 7 questions regarding respondents' responses in the form of agreement or disagreement with matters related to waste disposal behavior. This questionnaire has undergone validation testing and also complies with ethics requirements under registration

number 0923493/EC/KEPK/I/09/2025. The pre-questionnaire was administered before respondents watched the educational video. The intervention was given in the form of showing an educational video (5–10 minutes) about the types, impacts, and management of waste as well as PHBS (Clean and Healthy Living) of disposing of waste in its place. The intervention was accompanied by a short explanation (lecture ± 10 minutes) and a question and answer session. The educational process consisted of: (1) pre-test, (2) video screening + lecture, (3) post-test, (4). The educational material included the definition of waste, the impact of waste, and the habituation of environmentally conscious behavior in schools. After receiving the intervention in the form of an educational video, respondents were given a post-test. The intervention was in the form of an educational video taken from a YouTube channel.

RESULTS AND DISCUSSION

A. Respondent Characteristics

The respondents in this study were 42 students in grades 4, 5, and 6 at SD X. The distribution of research respondents was based on gender, age, and class.

Table 3.1 Respondent characteristics

Gender	**Frequency (f)**	**Percentage (%)**
Man	24	57.1
Woman	18	42.9
Total	42	100.0
Student age	**Frequency (f)**	**Percentage (%)**
10 years	15	35.7
11 years old	18	42.9
12 years old	9	21.4
Total	42	100.0
Student Class	**Frequency (f)**	**Percentage (%)**
Grade 4	12	28.6
Grade 5	17	40.5
Grade 6	13	31.0
Total	42	100.0

The table above shows that 24 students (57.1%) are male, and 18 students (42.9%) are female. The number of male students in grades 4, 5, and 6 is greater than the number of female students. Based on the table above, the results show that there are 15 students aged 10 years with a percentage of (35.7%), 18 students aged 11 years with a percentage of (42.9%), and 9 students aged 12 years with a percentage of (21.4%). It can be concluded that there are more students aged 11 years than students aged 10 and 12 years. The results show that there are 12 4th grade students with a percentage of (28.6%), 17 5th grade students with a percentage of (40.5%) and 13 6th grade students with a percentage of (31.0%). It can be concluded that there are 17 5th grade students more than 4th and 6th grade students.

B. Characteristics of knowledge variables

Table 3.2 Distribution of frequency of knowledge before providing education using video media.

Level of knowledge	Frequency (F)	Percentage (%)
Good	13	31.0
Bad	29	69.0
Total	42	100.0

Based on the table above, it shows that the level of student knowledge before the education was in the good category was 13 with a percentage (31.0%), and the poor category was 29 with a percentage (69.0%). The majority of the level of knowledge was in the good category before the education was carried out, namely 13 with a percentage (31.0%).

Table 3.3 Distribution of knowledge frequency after providing education using video media

Knowledge after	Frequency (f)	Percentage %
Good	41	97.6
Bad	1	2.4
Total	42	100.0

Based on the table above, it shows that the level of student knowledge after the education was in the good category was 41 with a percentage (97.6%), and the poor category was 1 with a percentage (2.4%). The majority of the knowledge level was in the good category after the education was carried out, namely 41 with a percentage (97.6%).

C. **Characteristics of attitude variables**

Table 3.4 Distribution of frequency of attitudes before providing education using video media

Attitude before	Frequency (f)	Percentage (%)
Good	16	38.1
Bad	26	61.9
Total	42	100.0

Based on the table above, it shows that the level of attitude in students before education was in the good category was 16 with a percentage (38.1%), and the bad category was 26 with a percentage (61.9%). It can be concluded that the majority of the attitude level was in the good category in students before education was carried out, namely with a percentage (38.1%).

Table 3.5 Distribution of frequency of attitudes after providing education using video media

Attitude after	Frequency (f)	Percentage (%)
Good	42	100.0
Bad	0	100.0

Based on the table above, it shows that the level of student attitudes after the intervention was in the good category, namely 42 with a percentage of (100.0%).

D. Cross Tabulation Between Variables

Cross tabulation of knowledge

It is known:

- Before education: Good = 13, Bad = 29
- After education: Good = 41, Bad = 1

Post Test			Amount %	P value
Pre-Test	Good %	Bad %		
Good	13	0	13	0.001
Bad	28	1	29	
Total	41	1	42	

Cross tabulation of attitudes

It is known:

- Before education: Good = 16, Bad = 26
- After education: Good = 42, Bad = 0

Post Test			Amount %	P value
Pre-Test	Good %	Bad %		
Good	16	0	16	0.001
Bad	26	0	26	
Total	42	0	42	

Cross-tabulation results showed a significant increase in students' knowledge and attitudes after educational intervention through video media. A p-value of 0.001 (<0.05) demonstrated a significant effect of education on attitudes and knowledge regarding environmental care.

DISSCUSSION

A. Student Knowledge Level Before and After Education

Based on the research results, before the video education was conducted, most students had a low level of knowledge regarding the importance of disposing of waste properly. The pre-test results showed that only 13 students (30.9%) were in the good knowledge category, while 29 students (69.1%) were still in the poor knowledge category. This indicates that students' awareness and understanding of clean and healthy living behaviors, particularly regarding disposing of waste properly, still needs to be improved.

After the intervention, there was a very significant increase. A total of 41 students (97.6%) were in the good knowledge category, and only 1 student (2.4%) was still in the poor category. The results of the Wilcoxon Signed Rank Test showed a Z value of -5.279 with p = 0.000 (<0.05), which confirmed a significant difference between knowledge before and after education. In other words, educational interventions using video media have proven effective in improving student knowledge.

This improvement can be explained by the multimedia approach applied in educational videos. Video media is able to present information visually and auditorily, making the material presented more engaging and easier for students to remember. Furthermore, this media allows students to gradually understand concepts through real-life illustrations and clear narratives. This finding aligns with previous research that states that the PHBS education method can significantly improve students' knowledge because it is delivered using an interactive and contextual approach (Sofyan, Arief, 2013), (Ananda (2022). Notoatmodjo (2012) emphasized that a person's knowledge will increase if given appropriate, relevant stimuli that align with everyday experiences, so students can understand concepts in real-life contexts.

Furthermore, video media can facilitate independent learning, allowing students to rewatch videos to reinforce their understanding. This is important because repetition and visual processing of information helps strengthen long-term memory. Thus, video media not only improves quantitative knowledge but also improves the quality of students' understanding of clean and healthy living concepts.

B. Changes in Student Attitudes Before and After Education

Before receiving education, students' attitudes toward waste disposal were still considered unfavorable. Data showed that only 16 students (38.1%) displayed a positive attitude, while 26 students (61.9%) still held less supportive attitudes toward PHBS. This indicates that although some students possess basic knowledge, the application or internalization of positive behaviors remains low.

After the intervention in the form of educational media through video, all students

(100%) showed a positive attitude towards the behavior of disposing of waste in the right place. The results of the Wilcoxon Signed Rank Test showed a Z value of -5.585 with p = 0.000 (<0.05), indicating a significant change in attitude after being given education. This change shows that video media is able to influence the affective aspect of students, namely their ability to assess and respond to a behavior positively.

From a social learning theory perspective, a person's attitude can change through observation and imitation of behavioral models. In the context of this research, the video provides concrete examples of proper waste disposal behavior. Students can observe, understand, and imitate these positive behaviors in their daily lives. Furthermore, the audio-visual elements in the video help reinforce the educational message and facilitate students' internalization of PHBS values. Thus, video media not only conveys information but also serves as a motivational tool for fostering consistent behavior (Alfiah, et.al, 2022), (Hakam, et.al, 2022).

C. Analysis of Differences in Students' Knowledge and Attitudes Before and After Education

Overall, the study results showed a significant increase in both variables, namely student knowledge and attitudes, after receiving education. A p-value <0.05 in the Wilcoxon test for both variables indicated that the educational intervention through video media was effective in increasing students' understanding and awareness of the importance of clean and healthy living behaviors.

Video media has the advantage of combining visual, audio, and narrative elements to engage students. This not only facilitates conceptual understanding but also strengthens retention of educational messages. Furthermore, this medium allows students to learn independently by rewatching videos, thus strengthening the internalization of knowledge and attitudes.

These findings align with research by Ratnasari et al. (2019), which showed that the use of video media in environmental education can increase students' knowledge and awareness of environmentally friendly behaviors. Therefore, the use of video-based educational media is recommended for elementary school learning, particularly in fostering positive behaviors related to PHBS.

Practically, the results of this study demonstrate that teachers and educational staff can utilize video as a learning tool to simultaneously enhance students' cognitive and affective competencies. This approach also enables students to learn in a fun, interactive, and contextual environment, making the learning process more effective and having a long-term impact on positive student behavior.

CONCLUSION

The analysis results using the Wilcoxon Signed Ranks Test showed a statistically significant difference between students' knowledge levels before and after receiving education through video media. Of the total 42 students, 36 students experienced an increase in knowledge, with a significance value of 0.000 ($p < 0.05$). This finding indicates that the use of video media is effective in improving students' understanding of the importance of disposing of waste in the proper place. In the attitude variable, 41 of 42 students showed an increase in positive attitudes after being given education. The statistical test results also showed a significance value of 0.000 ($p < 0.05$), which means that educational interventions through video media have a significant influence in shaping students' positive attitudes towards environmental cleanliness. Video media has proven to be an effective educational tool in learning about the environment. Its ability to combine visual and audio elements makes it an

interesting medium, easy to understand, and able to increase student participation during the learning process. In addition, the use of this media can provide an impact on two learning domains at once, namely the cognitive and affective aspects, thus supporting the formation of understanding and positive attitudes simultaneously.

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