

Profile Analysis of Sustainability Awareness of High School Students Related to Food Waste Issues in Magelang, Central Java

Dian Pengestuti^{1*}, Paidi², Agung Wijaya Subiantoro³, Anggi Tias Pratama⁴

Department of Biology Education, Universitas Negeri Yogyakarta, Indonesia

Email: ¹dianpengestuti.2023@student.uny.ac.id,

²paidi@uny.ac.id

³agung_wijaya@uny.ac.id

⁴anggitias@uny.ac.id

*Corresponding Author

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Abstract

Sustainability awareness has become an increasingly important aspect of global education, especially in the face of environmental challenges. This approach to education with sustainable principles is needed to educate the current generation to meet their needs without risking the next generation, including the issue of food waste. The purpose of this study is to describe the profile of sustainability awareness in high school students related to the issue of food waste. This research used a qualitative descriptive method. The instrument used was a questionnaire developed from three aspects of sustainability awareness: behavior and attitude awareness, emotional awareness, and sustainability practice awareness. The results of filling out the questionnaire were analyzed by determining the mean and percentage and then categorizing the level of sustainability awareness. The results showed that 56% of students have awareness related to the issue of food waste at a moderate level. So, it can be concluded that students have an awareness of the value of sustainability at an emotional level without practicing it in everyday life.

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Introduction

Sustainability awareness has become an increasingly important aspect of global education, especially in the face of environmental challenges. One of the most pressing environmental issues is food waste. Food waste is food that is ready to be consumed by humans but is thrown away and eventually accumulates in landfills (Handoyo & Asri, 2023). According to the United Nations Environment Program (UNEP) report in 2024, the total food waste in Indonesia reached 20.93 million tons per year, where the projected value of the waste supply mostly occurs at the distribution or consumption stage. The condition of waste, especially in Magelang City, is currently also challenging because the amount of waste entering Pasuruhan Landfill has reached the maximum limit of 90 tons of waste per day and 80% of the incoming waste comes from households (Department of Environment, 2024). Therefore, handling this problem requires a holistic approach, including through education.

Education plays an important role as a means to change the way individuals and communities think and act with sustainability values (Primasti, 2021). This educational approach with sustainable principles is needed to educate the current generation so that they can meet their needs without causing risks to the next generation, including the issue of food waste. In this context, the Education for Sustainable Development (ESD) approach is very important. ESD provides knowledge, skills, values, attitudes, and behaviors to empower each learner to be responsible and have integrity in preserving the environment, economic sustainability, respect for cultural diversity, and community empowerment in a balanced manner (UNESCO, 2020).

The implementation of ESD relies heavily on the implementation of the curriculum and the strategic role of educators. The independent curriculum provides more significant opportunities to integrate ESD and support the formation of a generation that cares about sustainability (Vioreza, 2023). This is because there is freedom for schools to develop curricula that are appropriate to the local context and needs (Hattarina, 2022). Schools can also adopt and incorporate ESD values in all subjects taught so that students can learn about environmental issues, social justice, and sustainability from various perspectives (Marlina, 2022). With the application of science in everyday life related to environmental issues, it is hoped that the ongoing learning process can be more meaningful and can lead students to think ahead and have an awareness of sustainability values (Clarisa, 2020).

Based on this description, food waste is an urgent environmental issue, and education plays an important role in addressing this problem by increasing sustainability awareness among students. However, the extent to which high school students understand and realize the importance of food waste management still needs to be researched. The question to be answered in this study is: What is the profile of sustainability awareness of high school students in Magelang related to the issue of food waste? The purpose of this study is to describe the sustainability awareness profile of high school students from several schools in Magelang.

Methods

This type of research uses descriptive research with a qualitative approach. This type of research is used to describe students' sustainable living awareness related to food waste issues. The population of this study involved high school students in the Magelang city area who were considered to have a potential understanding of environmental issues. The research sample consisted of 50 students from two high schools in Magelang who were selected using simple random sampling. The instrument used in this study was a questionnaire sheet distributed in gform.

Data collection was obtained from a sustainability awareness questionnaire with three aspects, namely Behavior and attitude awareness, Emotional awareness, and Sustainability practice awareness, modified from Rini and Nuroso (2022), then expert testing, validity testing, and reliability testing, with the final result getting 13 statement items. Data obtained from observations and questionnaires were analyzed using thematic analysis techniques to ensure the validity and reliability of the findings.

Table 1. The Statement of Sustainability Awareness Questionnaire

Aspect	Statement
<i>Behaviour and attitude awareness</i>	I like to read about waste issues, especially related to food waste, on social media to increase my understanding of sustainable living awareness.
	I realize the importance of discussing food waste with friends.
	I don't realize that food waste affects the quality of the environment.
	I prefer to use disposable plastic bags to wrap food because it is practical.
	I don't feel the need to save on buying food because it's part of my self-esteem.
<i>Emotional awareness</i>	I care about the waste problem in my neighborhood.
	I am indifferent to the smoke that comes from burning garbage.
	I rarely provide information to friends and family about the importance of paying attention to expiration dates when buying food products.
<i>Sustainability practice awareness</i>	I feel the need to discuss waste management issues with friends.
	I like to reuse leftover food that is still edible and store or reprocess it in other dishes.
	I like to buy food according to my wants and not my needs.
	I am too lazy to join waste recycling programs in order to reduce food waste.
	I am interested in joining a waste recycling program or activity to support the reduction of food waste in the community.

The data analysis technique uses descriptive statistics by calculating the mean and percentage that refers to the level of sustainability awareness. After getting the percentage of each student, they are classified based on the criteria according to Hassan (2010).

Table 2. Percentage of sustainability awereness

No	Percentage sustainability awereness	Description
1	0,0% -39,9%	Practice that are rarely or disliked to be performed
2	40,0% -69,9%	Practice that are performed with moderate frequency
3	70,0% -100%	Practice that are performed most frequently

Source: Hassan (2010)

Results and Discussion

Based on the results of the analysis of the sustainability awareness questionnaire, the percentage of students who are aware of the issue of food waste is 56% of students who interpret with the interpretation of practice that is already with medium frequency. So, it can be said that students have practiced, but this happens only occasionally and is categorized as “medium.” (Figure 1).

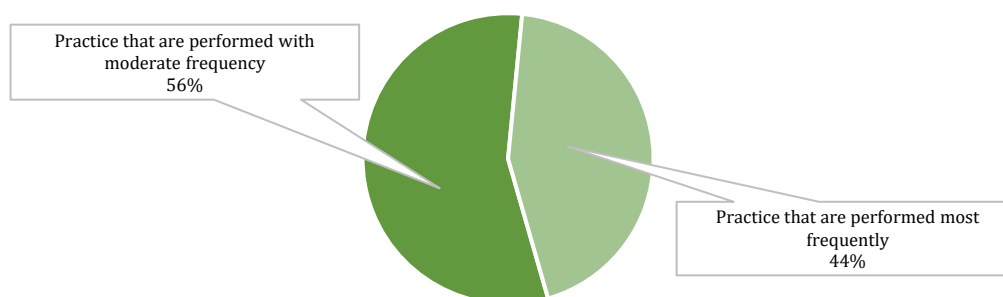


Figure 1. Student Sustainability Awareness Questionnaire Analysis Results

Sustainability Awareness is grouped into three aspects. The results of the analysis of statement items based on the percentage of each aspect of sustainability awareness are shown in Table 3.

Tabel 3. The Aspect of Sustainable Awareness

Sustainability Awareness Aspect	Percentage (%)	Result	Description
Behaviour and attitude awareness	68	Medium	Practice that are performed with moderate frequency
Emotional awareness	75	High	Practice that are performed most frequently
Sustainability practice awareness	65	Medium	Practice that are performed with moderate frequency

In the first aspect, namely behavioral and attitude awareness or behavior and attitude towards the environment, from the total number of students, it can be said that 68% of students engage in this behavior. So, it can be concluded that the behavior and attitude of students caring for the environment are moderate. Students do not carry out behavioral and attitude awareness or behaviors and attitudes towards the environment, such as reading about the issue of food waste, discussing waste problems, not throwing away food, not using disposable plastic bags, and being economical in buying food. These behaviors and attitudes are shown when individuals care about and recognize the importance of the environment.

The second aspect, namely emotional awareness or concern for the environment, includes attitudes or behaviors that all students always carry out. The percentage of the students who behave with Emotional awareness is 75%, and emotional students have a deep concern for their environment. Emotionally caring attitude towards the environment, such as caring about the garbage problem around where I live, caring about the smoke from burning garbage, and often providing information about the importance of expiration dates when buying food products. So, Sustainability awareness or sustainable concern of students based on the best category only cares about the environment emotionally, and still, rarely is their concern shown with an attitude, especially in a sustainable manner.

The third aspect, namely sustainability practice awareness, is that the results obtained show that this behavior is done by most of the students, with a percentage of 65%. With this, it can be concluded that students are used to doing Sustainability practice awareness behavior. Sustainability practices awareness or conscious efforts, such as discussing waste management issues, reusing leftover food that is still edible to be stored or reprocessed into other dishes, and participating in waste recycling programs to reduce food waste. This behavior is a characteristic of the attitude shown if someone already understands the concept of sustainability.

Based on the three aspects of sustainability awareness, students are only aware of the value of sustainability at the emotional level and still need it in everyday life. This is also supported by [Agusti \(2019\)](#), which concluded that the Emotional awareness aspect of students is the highest compared to other aspects, which is 91.13%. Research conducted by [Ridwan et al. \(2021\)](#) also concluded the same thing, namely, the Emotional awareness aspect has the highest percentage, and the Sustainability practice awareness aspect has the lowest percentage in sustainability awareness. This indicates that students are still lacking in social activities, even though in implementing ESD, there are three dimensions that must be considered, namely the social, environmental, and economic dimensions ([Khoirunnisa et al., 2022](#)).

The factors that cause students to be lacking in the behavioral and attitudinal aspects are the lack of information obtained by students regarding the phenomenon of food waste, then bad habits such as taking food not according to portions or throwing away leftovers without thinking, and an indifferent attitude towards environmental and social issues. These things make students less responsible for the waste they produce and less motivated to reduce food waste ([United Nations Sustainable Development, 2024](#)). Achieving habits that support sustainability requires awareness of sustainability today. However, such awareness must be preceded and supported by knowledge about sustainability. This knowledge is crucial as it enables individuals to make wiser decisions in their daily lives. Thus, awareness and knowledge of sustainability are essential aspects of promoting sustainable living ([Pardede, 2023](#)).

While students' environmental behaviors and attitudes may not be fully optimal, their increased awareness and participation in environmental activities indicate a transition towards a more responsible and sustainable attitude. This suggests a promising potential for enhancing students' sustainability awareness, especially through education and practical hands-on programs. By integrating EDS into teaching materials and encouraging students to engage in environmental activities, we can foster a generation that is more conscious of sustainability ([Putri, 2019](#); [Khoiri, 2023](#)).

ESD basically has the potential to enrich the curriculum and have a long-term sustainable impact on social, economic, and environmental development in Indonesia. The implementation of ESD in the Merdeka Curriculum can be done through several strategies that focus on holistic, participatory, and interdisciplinary learning. Several studies have shown that using the concept of sustainability in learning will critically engage those who have sustainability awareness ([Ekamilasari & Pursitasari, 2021](#)). For example, such as integrating material about food waste into science subjects where students can learn about the environmental impact of food waste and how to reduce it through project-based learning (PjBL) by making a product from food waste. [Damayanti's \(2022\)](#) research results stated that applying the problem-based learning (PBL) learning model in the context of ESD can also build students' Sustainability Awareness after learning activities. This contextualized and problem-based learning can enhance learning experiences and encourage students' 21st-century skills. Thus, integrating ESD in the Merdeka Curriculum and other learning models can be a strategic step to produce a generation ready to face sustainability challenges and play an active role in creating a sustainable future ([Vioresa, 2023](#)).

Conclusions

Based on the analysis of three aspects of Sustainability Awareness, namely aspects of Behavior and attitude awareness, aspects of emotional awareness, and aspects of sustainability practice awareness, 56% of students have awareness related to food waste issues at a moderate level. Students are only aware of the value of sustainability in the emotional aspect without practicing it in everyday life. The implication of this finding is that the level of student awareness of food waste issues is not yet optimal, so it can be the basis for ESD development, such as implementing Problem-Based Learning or Project Based Learning that can encourage students to play an active role in reducing food waste problems. In addition, schools can implement waste management programs and invite collaboration between school residents and outside the school to get involved in food waste reduction campaigns so that environmentally conscious behavior is formed.

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