

Analysis of coastal tourists' environmental attitudes and potential as education for sustainable development

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ABSTRACT

Indonesia has abundant natural resources, including tropical rainforests, biodiversity, mineral mines, waters, and coastal areas. Utilization of these resources must be carried out wisely and sustainably to ensure the welfare of future generations. This research aims to evaluate people's attitudes and behavior towards the environment, especially in river and coastal areas in Central Java, Indonesia. The research methods used are surveys, observations and interviews. The survey was carried out by distributing a questionnaire consisting of 30 questions. This statement includes awareness of protecting the coastal and river environment and real actions or behaviors that care about the surrounding environment. Data collected from the survey was analyzed using descriptive statistical analysis techniques to identify general patterns of respondents' attitudes and behavior. The research results show that people's attitudes toward environmental care are in the high category for 49% of respondents and very high for 51% of respondents. These results do not reflect some of the real actions taken by the community, especially in coastal areas. Several factors influencing environmental awareness were analyzed, including age, gender and education level. Researchers found that educational factors significantly affect attitudes towards environmental care. The results of this analysis can be used to support Education for Sustainable Development (ESD) in increasing pro-environmental awareness and action and supporting sustainable development goals.

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INTRODUCTION

Indonesia has abundant natural resources, including extensive tropical rainforests, high biodiversity, abundant mineral mines, and waters rich with various types of fish (Arianto, 2020). However, to ensure the welfare of future generations, these natural resources must be used wisely and sustainably. Good management can help encourage economic growth, reduce poverty, and maintain ecosystem balance. Therefore, we must implement responsible environmental management practices and increase public awareness about protecting the environment.

One example of natural wealth that must be managed well is the rich flora and fauna on the Indonesian coast (Henny et al., 2023; Nurhayati & Oktavia, 2022; Soamole, 2020; Yusron & Pusat,

2015). Apart from being a tourist destination, the beach also has a rich marine ecosystem, with coral reefs, mangroves, and various fish species, which are important for environmental balance and the livelihoods of local people. This potential can be developed for sustainable tourism that attracts visitors and protects and preserves existing biodiversity. However, this great potential is also faced with challenges such as coastal erosion, environmental pollution, and excessive exploitation of marine resources (Viv et al., 2023; Mau & Naatonis, 2024). Therefore, collaborative efforts are needed between the government, the community, and the private sector to implement coastal conservation and rehabilitation programs. Education about the importance of protecting the coastal and marine environment must be increased, and environmentally friendly practices must be encouraged so that Indonesia's coastlines can continue to benefit all of us without destroying its natural beauty and wealth (Syamsuri et al., 2023).

The problem that needs to be focused on now is the need for action or behavior from the community to protect the environment. In almost all groups, including students, environmental protection behavior still needs to be improved (Moody-Marshall, 2023; Sugiarto & Gabriella, 2020). This is a big task for teachers as educators. Currently, the idea of education for sustainable development (ESD) has developed along with increasing attention to sustainability. ESD emphasizes three main pillars: economic, social, and environmental. These three pillars are interrelated and important to achieve sustainable development goals. Through ESD, education is expected to equip students with the knowledge, skills, values, and attitudes needed to make responsible decisions and take real action for environmental, social, and economic sustainability (Bui et al., 2023). To contribute to the 2030 Sustainable Development Agenda, people from all walks of life must work together (Bonsu et al., 2020; Russell-Bennett et al., 2024).

To contribute to the 2030 Sustainable Development Agenda, society from various levels must work together. This approach to the 2030 agenda is important because it focuses on new sustainability issues and recognizes the important role of education in implementing the goals and increasing their impact. Therefore, this research is needed to learn more about how ESD interacts with the 2030 Agenda framework in specific situations (Shulla et al., 2020). Research related to community knowledge and behavior towards the coastal environment can provide an overview of the field's challenges, urgency, and facts. Education for sustainable development will also be discussed as material for reconstructing educational patterns implemented in schools, especially in areas close to the coast.

METHOD

The research methods used are surveys, observations and interviews. According to Creswell (2017), survey research is "a procedure in quantitative research where the researcher administers a survey to a sample or to an entire population to describe attitudes, opinions, behavior or special characteristics of the population." This research provides a broad understanding of beach tourists' attitudes toward environmental care. The survey was conducted by distributing questionnaires to respondents who included beach tourists of various ages and beach communities living around the tourist destination area. The sample consisted of 55 beach tourist respondents, especially those in Central Java, conducted randomly.

The survey questionnaire is a statement designed to evaluate respondents' attitudes, behavior, and knowledge of the beach environment. There are five questions related to beach knowledge in the Central Java region (section 1) and 25 statements designed and validated by environmental education experts as instruments to measure people's environmental care attitudes (section 2). The statement includes awareness of protecting the coastal and river environment and real actions or behaviors that care about the surrounding environment. Data collected from the survey was analyzed using descriptive statistical analysis techniques to identify general patterns in respondents' attitudes and behavior. Apart from that, regression analysis using SPSS was also carried out to identify factors influencing environmental care attitudes, such as Age and education. Data analysis was carried out to determine community attitudes and behavior using quantitative descriptive methods, where questionnaire answers were based on a 1-4 Likert scale. Next, the score is obtained using the formula shown in Figure 1.

$$\text{Skor peserta didik} = \frac{\text{Skor yang didapat}}{\text{Skor maksimal}} \times 100\%$$

Figure 1. The formula for obtaining student scores

The scores obtained by students are then grouped according to the criteria based on the value intervals listed in Table 1.

Table 1. Assessment categories are based on the percentage of respondents' answers.

No	Nilai	Information
1	< 60	Low
2	60 - 70	Fairly low
3	>70 - 80	High
4	> 80	Very high

(Mahita, 2018)

In addition, researchers conducted observations and interviews with several respondents to learn more about people's attitudes toward environmental care and waste management in coastal areas. Through a combination of surveys, observations, and interviews, this research is expected to provide holistic insight into the attitudes toward environmental care among beach tourists and their implications for education for sustainable development, especially in beach tourism destination areas.

RESULTS AND DISCUSSION

The survey results in part 1 showed that 91% of respondents had visited a beach in one of the Central Java regions more than twice, 4% had visited it twice, and the remaining 5% had only visited the beach area once. The study results showed that 65% of respondents stated that the beach environment was not clean, 26% stated normal, and only 9% stated that the beach area was clean. The review results are presented in Table 2.

Table 2. The results of the survey in part One

Category	Presentation (%)	Information
Number of Visits	91	Had more than twice
	4	had visited it twice
	5	Had only visited once
Respondent opinions about beach cleanliness	65	Not clean
	26	Normal
	9	Clean

Respondents gave several reasons for the lack of clean beach conditions in their answers to question three. Some of the reasons that are often given are that many tourists throw rubbish carelessly and there is a lack of rubbish bins. These results are actually inversely proportional to the results of filling out the questionnaire in part 2, which stated that people have environmental awareness in the high to very high category. The results of the analysis of environmental care attitudes are presented in Figure 2.

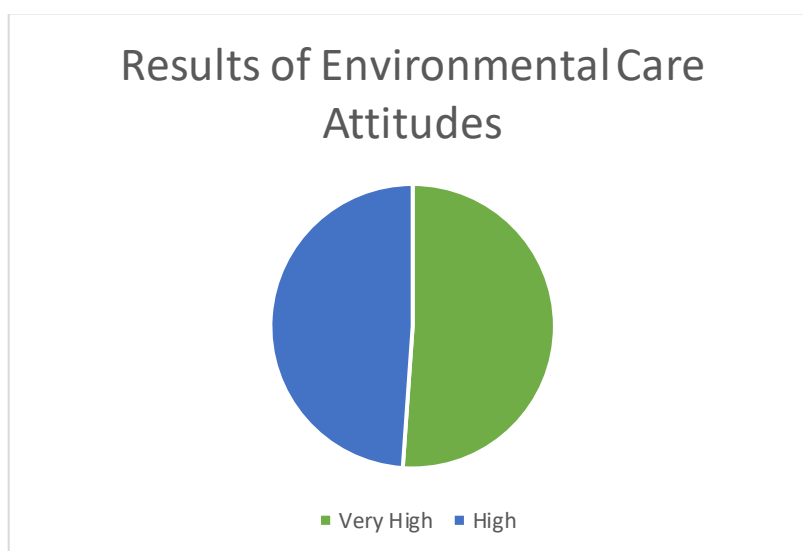


Figure 2. Results of Environmental Care Attitudes

The research results show that people have environmental awareness in the high category, with a score ($> 70 - 80$), as many as 49% of respondents, and in the very high category, with a score (> 80) as many as 51% of respondents. Although this is good news, it should be noted that the results of filling out the questionnaire must still reflect actual conditions in coastal areas. Observation results show that there are still many people who throw rubbish carelessly. Apart from that, waste management needs to be improved considering the large number of holiday visitors. Not all street vendors have rubbish bins to collect buyers' rubbish around the beach. This fact provides guidance that there needs to be strict supervision of the regulations set by the government to protect coastal areas.

An example of regulations that need to be obeyed in coastal tourism areas is law number 18 of 2008 concerning waste management as in article 19, which reads, "Stipulates that everyone is obliged to manage waste in a good and correct way, including providing rubbish bins at the location of their activities" (BPK RI, 2008). Apart from that, regulations are also found in regional regulations, for

example, Jepara district regional regulation no. 2 of 2015 article 10 concerning waste management, which states, "Every person or entity carrying out activities in public places, including street vendors in coastal areas, is required to provide waste management facilities such as rubbish bins." This law requires strict supervision and a responsible management system. Previous research also stated that the supervision of street vendors in coastal areas has yet to be successful in terms of preventive or repressive control (Pertiwi et al., 2014). It is hoped that strict supervision will positively impact the cleanliness of coastal areas.

Several factors could cause the difference in coastal area conditions based on the questionnaire results. One of the strong factors that can cause people to be less accustomed to taking real pro-environmental action is the culture and habits ingrained in society (Chwialkowska et al., 2020). There is a difference between knowing what is right and doing it. Culture and daily habits in society may not always support environmentally friendly behavior. For example, the habit of littering is still common in some places, even though there is awareness that it is wrong. This culture can be minimized by reminding people to protect the environment.

Further analysis showed that respondents consisted of 18% men and 82% women. Although women's average environmental awareness score is higher than men's, this difference is not statistically significant. This is also in accordance with previous research, which states that gender does not significantly affect environmental awareness (Gurbuz et al., 2021). The age factor also shows differences in results, although the difference is insignificant. The 21-30 year age group shows the highest level of environmental awareness, followed by the 30-40 year age group, and the lowest is the age group under 20 years. Based on the educational factors presented in Figure 3, the analysis results are then seen.

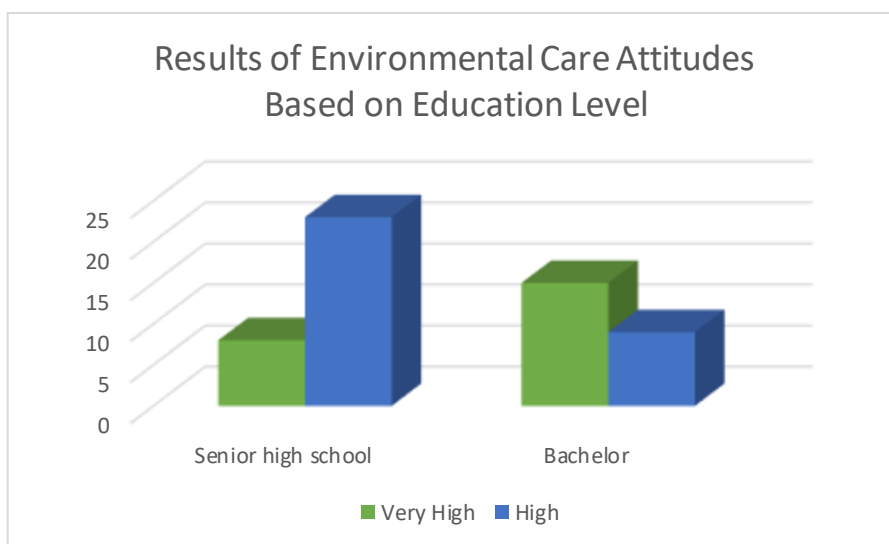


Figure 3. Results of Environmental Care Attitudes Based on Education Level

The analysis of environmental care attitudes based on education level shows that people with a bachelor's level of education have environmental concerns, which is dominated by the very high category. A high level of environmental awareness dominates communities with a high school education level. The regression test results using SPSS show a value of 0.34, indicating that the

overall regression model is significant at a significance level of 5%. This shows that at least one of the independent variables has a significant effect on the dependent variable (Y). Apart from that, the relationship between education level and environmental caring attitude has a significance value of $0.023 > 0.05$, which shows that the results are significant and have a strong positive influence on Y. This is very interesting to discuss because it turns out that a person's education level can influence environmental caring attitudes. This aligns with research by [Liu \(2023\)](#), which explains that environmental knowledge can shape environmental attitudes, behavioral intentions and pro-environmental behavior.

Focus on improvement can be provided through formal and informal education ([Ratinen & Uusiautti, 2020](#)). Students and students can become ambassadors for environmental protection by sharing their knowledge, experience, and participation with their families, local communities, and private and public decision-makers. Combining educational interventions with other forms of community engagement can lead to more sustainable lifestyles and a healthier relationship with the environment; one of the efforts involves concern for the protection of biodiversity and stimulating the search for nature-based solutions to support climate resilience as well as sustainable consumption and management methods ([Ariza et al., 2021](#)).

In Indonesia, people may have a high level of environmental awareness, but there is still a lack of real action to protect the environment. This could be caused by factors related to the learning system and policy implementation. Learning in schools often focuses more on theory than practice ([Debrah et al., 2021](#)). Although many students understand the importance of environmental stewardship in the lessons they receive, opportunities to apply this knowledge in real action may be lacking. For example, a curriculum may emphasize environmental knowledge but not provide enough practical activities such as conservation projects or greening initiatives. Necessity Education for sustainable development is not only limited to the curriculum but needs to be socialized so that it is in accordance with existing social norms and regulations in Indonesia. We must consider ways to influence the fundamental individual and social values inherent in personal and cultural identities ([Mogensen & Schnack, 2010](#)). This includes the personal and social values that shape a philosophy of life as well as the means and procedures to ensure sustainable development, economic prosperity, and social justice, both internationally and intergenerationally.

Environmental knowledge and attitudes are the main predictors of environmental and behavioral intentions, while knowledge and attitudes are partly influenced by environmental education. A study of secondary school students reported that attitude-focused teaching was more effective than knowledge-oriented teaching in forming students' pro-environmental attitudes ([Álvarez et al., 2010](#)). Previous research conducted by [Liao & Li \(2019\)](#) stated that environmental education is very important to ensure that students have knowledge and positive attitudes toward solid waste separation behavior. Knowledge is the best predictor of high school students' behavior. Therefore, education at the school level, especially high school, is very important for sustainable attitudes so that students have pro-environment habits.

An effective educational strategy for practicing environmental education is Education for Sustainable Development (ESD). Knowledge about ESD learning outcomes in Indonesia has begun to be promoted, especially since the emergence of the Independent Curriculum. The Merdeka

Curriculum implemented in Indonesia has learning outcomes that lead to sustainable development goals (SDGs). It's just that policy implementation needs to be accompanied by the government regarding ESD outreach. This needs to be encouraged to catch up in achieving Sustainable Development Goals in Indonesia (Gantini & Hamdu, 2021; Sutanto, 2017).

Teachers in schools can take advantage of great opportunities to encourage sustainable development in Indonesia. Apart from that, the characteristics of ESD emphasize teaching not only academic aspects but also environmental, social, and economic sustainability challenges. Students are asked to appreciate the complexity of problems that arise in local, national, and international contexts (Vioresa et al., 2023). This will provide in-depth knowledge regarding the problems that exist on Earth. Learning can also be carried out using the problem-based learning (PBL) model by raising nearby phenomena, such as plastic waste pollution on beaches, as discussion material. Knowledge about the culture in Indonesia can also be applied to education for sustainable development (Kim, 2022). An example of an ethnopedagogy study that can be raised is the Indigenous People's systemic approach to forest protection and taking lessons from the Ciptagar Indigenous community about how to achieve zero emissions through forest protection (Widianingsih et al., 2023).

CONCLUSION

Indonesia has great potential for natural resources, but we must use them wisely and sustainably. The results found were that environmental awareness of coastal communities in Central Java is considered high, even very high, but concrete action still needs to be improved. This is proven by the large amount of rubbish that is still scattered in coastal areas, especially on one of the beaches in Central Java. The solution we offer to train real action is through Education for Sustainable Development (ESD), which can be a solution to increase awareness and pro-environmental actions. The search results show that it is important to integrate ESD into education, especially through a curriculum that integrates practice and theory. Good implementation of environmental rules and regulations is also necessary to maintain the cleanliness and beauty of beaches. This research suggests improving environmental education and regulatory oversight to achieve better sustainability.

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