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LEARNING BASED OCEANOGRAPHY LITERACY TO SEE THE RELATIONSHIP BETWEEN KNOWLEDGE COMPETENCIES AND ATTITUDES TO CARE FOR THE MARINE ENVIRONMENT

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Abstract

Nowadays, marine environmental problems are already very worrying. Human activity is the main cause of lack of an attitude towards the environment. The research that has been carried out aims to describe the relationship between knowledge and attitudes towards caring for the marine environment that students have, after oceanographic literacy-based learning. The subjects in this study were 30 students in class VII in the area near Paciran beach. Data collection for students' knowledge uses the assignment assessment of poster making and uses questionnaire sheets for student attitudes. Based on the results of the study, 9 data students got poster scores in the very good knowledge category with a very strong attitude category, 13 students in the good knowledge category with 12 students had a very strong attitude category, and one person categorized as a strong attitude, 6 students in the category enough knowledge with very strong attitude categories, the remaining 2 students with less knowledge categories get very strong attitude categories and one of them is strong. Based on calculation using SPSS with a score of 0.695 is known a positive correlation the ability of knowledge and attitudes to care for the environment which is included in the strong category.

Keywords: Attitude, Environmental knowledge, Oceanographic literacy

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INTRODUCTION

The earth is a very complex ecosystem, where all organisms can live and interact with each other in their environment to create a balance in life (Alisa et al., 2019). Sea is one of the features on Earth that is very important for humans. The sea regulates the weather and climate, supplies almost all of the Earth's oxygen, supports a large diversity of life and provides a lot of food sources for the human population (Schoedinger, Cava, & Jewell, 2006). The sea is one example of a complete ecosystem, where there is an interaction between living beings in it and its link. The role of the sea in human life is so great that the balance of marine ecosystems should be watchful.

In the last decade, the marine environment is very concerned as a result of pollution, habitat degradation, excessive fishing, as well as climate (National Oceanic and Atmospheric Administration (NOAA), 2013). The environmental problem is largely due. One problem that is directly related to humans is to dispose of garbage indiscriminately (Bickman, 1972). It takes individual awareness to be able to save the marine environment. This realization is achieved through a first understanding of the importance of preserving the ocean environment. A better public understanding of the marine environment is an important part of solving this problem, but in reality, people generally have a limited understanding of the sea (National Oceanic and Atmospheric Administration (NOAA), 2013).

Environmental issues have become one of the main problems that are now faced by humans, especially in the marine environment. Environmental education in general as well as those devoted to the marine environment is increasingly important concerning the continuation of a habitable environment (Digby, 2013). Environmental education in particular refers to marine education and has provided an understanding of knowledge to foster environmental attitudes (Alisa et al., 2019). The understanding in question is to provide an awareness of the importance of maintaining the environment to develop students with knowledge, skills, and attitudes as well as duties and responsibilities and socially to contribute to the resolution of current environmental problems. Knowledge gained through education can help raise students ' awareness and concern about environmental issues and thereby produce more environmentally conscious generations (Lee et al., 2010).

The most important factor affecting individual behavior is attitude (Sadik & Sadik, 2014). Attitudes can be interpreted as "a tendency to be learned in a consistent form of behavior to either positive or negative" or on the other hand, is also said to be a combination of thought, feeling, and attitude. According to Cruz and Manata (2020), the attitude toward environmental care does not fundamentally differ from other types of attitudes, and thus can be defined and organized as a general attitude, but which distinguishes only on specific environmental topics(Cruz & Manata, 2020). Thought can be said to be knowledge possessed by an individual, therefore the factors that are quite important in shaping attitudes. The North American Association for Environmental Education as cited by Erhabor and Don (2016), explains that environmental education is centered on learners; By allowing students to build their understanding by hand, an inquiry involving learners in direct experience and challenges to use high-level thinking skills and support the development of an active learning community where learners share ideas and expertise (Erhabor & Don, 2016). The understanding of a lot of science must be strengthened by experience, especially about the environment, especially marine. Very few students have experience in marine matters even though they have a lot of knowledge (Kelly, Chen, & Prothero, 2000). Environmentally literate individuals have social awareness about their actions ((Stoller-Patterson, 2012)2012), although environmental literacy is not enough, they need awareness and responsibility and are optimistic about the environment (Kaya & Elster, 2018). Education contributes to the protection and marine affairs (Koulouri et al., 2022), so student attitudes must be built for this.

To save the marine environment, the environmental care attitude that the individual has becomes a key to addressing the problem. In general, the most significant factor affecting nature is not an official environmental policy but willingness of a community to safeguard the environment and bear cost-minimizing adverse impacts their activities. This community will have to be grown through knowledge. Before one intends to do an action then surely that person has a concern that encourages individuals to act. This concern is gained through the knowledge that the individual possesses, so indirectly the knowledge has a relationship to form an individual's attitude with the ultimate goal of acting to do something. It is in line with the human behavior system field (Hines, Hungerford, & Tomera, 2010). The increase in knowledge of marine ecosystems and the effort to maintain balance should be done as early as possible. Learning in design is an effort to increase this knowledge. Improved thinking in this knowledge of marine literacy is expected to increase the awareness of marine ecosystems. Here are the system models of their behavior changes:

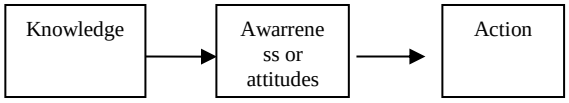

Figure 1. Behavior Change System Diagram

In this study, we will be able to see the relationship between knowledge gained through education in a school by making a campaign poster caring for the marine environment with the environmental care that the students have. Learning about the interaction of living things is done by using the marine ecosystem as an example. The lessons are carried out for students at SMPN 1 Paciran which is close to the sea and the parents' livelihoods are fishermen. Learning with a material scientific approach is given using indicators on predetermined oceanographic literacy.

METHOD

Method This research is a quantitative descriptive (Creswell, 2014), a study that aims to investigate the relationship between marine environment knowledge and the caring attitude toward the marine environment that students have.

The object of the study was 30 students from the VII-A class of SMPN 1 Paciran. Interaction material between living things is provided using marine ecosystems as an example. To determine three indicators of oceanographic literacy in learning, namely: understanding the importance of the sea, communicating the role of the ocean for life, and conserving the marine environment. These three indicators are to increase students' knowledge regarding marine ecosystems and their roles in life.

Data collection instruments using poll sheets for student attitudes as for students ' knowledge of the marine environment (literacy oceanography) using a test sheet in the form of poster making (Sadik & Sadik, 2014).

In this research, the results of polls and posters were analyzed using percentages to measure the results of the poster value and the value of student attitudes.

The formula:

Percentage (%): $\frac{\textit{Score obtained by student}}{\textit{Maximum score}}$ x 100%

Then the result of the percentage values is interpreted as follows:

Table 1. Interpretation criteria poster value

Percentage (%)	Criteria
0-20	Very Less
21-40	Less
41-60	Enough
61-80	Good
81-100	Very Good

Table 2. Interpretation Criteria of attitude value

Percentage (%)	Criteria
0-20	Very Less
21-40	Less
41-60	Enough
61-80	Strong
81-100	Very Strong

The poster assessment becomes the assessment of knowledge (oceanographic literacy) by using four indicators, namely content, design, picture, and purpose. Content is the main indicator of knowledge competence, which includes the suitability of the content with the topic, conceptual and theoretical truth. Based on the criteria the results of the student poster value and attitude are said to be good (strong/good) if it has a percentage ≥ 61%.

The value Data is carried out as a correlation test by using SPSS to explain the relationship between the knowledge that students have with the students environmental attitude based on the category (Riduwan, 2016).

RESULTS AND DISCUSSION

Knowledge (literacy oceanography) owned by the student is based on the results of the poster making, the value of attitude in the results of the outcome of the result of the student's marine environment care attitude. Here are the results of the student poster value and the student ocean environment care attitude.

Table 3. Value percentage of poster and attitude

No Student Absences	Percentage value Poster (%)	Knowledge Ability Category	Attitude Percentage value (%)	Attitude Level Category
4	87	Very good	87	Verry strong
6	87	Very good	92	Verry strong
8	87	Very good	97	Verry strong
11	87	Very good	91	Verry strong
13	87	Very good	90	Verry strong
17	87	Very good	90	Verry strong
25	87	Very good	92	Verry strong
30	81	Very good	85	Verry strong
1	75	Good	88	Verry strong
5	68	Good	88	Verry strong
7	62	Good	86	Verry strong
10	62	Good	89	Verry strong
12	75	Good	86	Verry strong
15	75	Good	88	Verry strong
16	69	Good	81	Verry strong
19	62	Good	92	Verry strong
20	75	Good	84	Verry strong
21	75	Good	91	Verry strong
23	69	Good	93	Verry strong
26	75	Good	76	Strong
29	75	Good	92	Verry strong
3	57	Enough	87	Verry strong
9	50	Enough	89	Verry strong
14	44	Enough	97	Verry strong
18	50	Enough	90	Verry strong
24	56	Enough	94	Verry strong
27	50	Enough	85	Verry strong
22	37	Less	88	Verry strong
28	37	Less	76	Strong

According to table 3, it is known that the results of percentage of poster value of students from 30 students gained 9 students entered in a very good category, 13 students with good category, 6 students with enough category and 2 students with less category. The percentage of student attitudes value category is very strong attitude and from 30 in 28 students and 2 strong students.

Table 4. Recapitulation of the value of knowledge and attitude

Knowledge category	Number of students	Category Level of attitude	Total student
Very Good	9	Very strong	28
Good	13	Strong	2
Quite	6	quite	0
Less	2	weak	0
Verry Less	0	Very weak	0

Data from the value of knowledge competency (literacy oceanography) gained from the poster assessment and also the value of the attitude the marine environment that can be students in the analysis by using SPSS to see the correlate.

Pearson's correlation test by using SPSS was to get +0.695 for 30 students who were used as samples of research. This data shows that there is a

positive correlation between student knowledge and the marine environment. The 0.695 score has a strong category, meaning that there is a strong correlation between the competency of the students knowledge (oceanographic literacy) with the caring attitude of the marine environment that is owned by the students.

Table 5. Correlation of knowledge and attitude

		Knowledge Score (poster)	**Attitude score**
Knowledge Score (poster)	Pearson Correlation	1	.075
	Sig.(2-tailed)		.695
	N	30	30
Attitude score	Pearson Correlation	.075	1
	Sig.(2-tailed)	.695	
	N	30	30

The conclusion that can be given by researchers based on the research that has been done is that electronic format digital books on the theme of climate. Good knowledge will affect before a person intends to take action to resolve a problem in this matter of the rescue of the marine environment, the individual should be aware of the problem of what is being faced so that the action knows what to do(Hines et al., 2010). This corresponds to the model of the behavioral change system expressed by Hines et al (2010). Knowledge of the issue eventually becomes a pre-requisites to act and individuals should also have knowledge of it and that will be done most effectively.

Knowledge becomes the initial capital of the students in shaping the attitude toward the marine environment later used as the final goal is the rescue action of the marine environment. Attitude is an evaluation and a favorable or unfavorable reaction the object, person, situation of the world, "allowing us predict and change people's behavior. Attitudes belonging individuals are influenced by several factors including the knowledge that the individual belongs Tofield (Oweini & Houri, 2006). This is in line with the research of Yilmaz, Boone, & Anderson (2007) that the attitude that a person has is influenced by life experience and education. We know that in the education of a person students will learn the knowledge taught by the teacher or from their learning outcomes. This strengthens that there is a relationship or correlation between the knowledge that students have with the student's attitude (Oweini & Houri, 2006).

Hungerford and Volk (2013), the students' environmental attitude was built through a strong relationship between knowledge of environmental problems and the behavior of individuals responsible for the environment. It shows that knowledge and attitudes influence each other. Yilmaz (2004) also formal education positively develops students ' conception of environmental issues. A student must have the knowledge to form responsible and caring attitudes, especially in the marine (Yilmaz, Boone, & Andersen, 2004).

Based on the knowledge (literacy oceanography) data of students there are still less but have a very strong attitude toward the marine environment, there is also a strong. This can be influenced by the poster valuation factor because the poster scoring aspect consists of design, image, content, and purpose. Students are possible to score low in the image and design aspects, so even though a low poster value is not immediately inferred that knowledge of the environment is low. Another thing that can influence is the socio-demographic factor. Arcury's study (1990) explained that there is indeed a link between knowledge with attitude but this relationship will look weak if the control factor of demographic is inserted, such as age and gender fields(Arcury, 1990). It is also stated by Tikka (2010), that the level of student knowledge depends on gender, male students answer properly to more knowledge questions than female students, but female students have more attention to environmental issues than male students are. Gender has a greater impact on the knowledge of educational institutions or subjects that are being (Tikka, Kuitunen, & Tynys, 2000).

When knowledge can be proven to influence attitudes, low levels of students ' knowledge or even society about the marine environment can harm the environment and also have disruptive implications for environmental policy. So although the knowledge affects the attitude individual personal factors should also be considered because it relates to the level of environmental knowledge of the student itself. So, although the results of the study proved that the level of knowledge is influential on the attitude towards the environment, researchers still acknowledge that many factors, which cannot be controlled, certainly have a further effect on the variables in this study. However, in

general, the student's level of knowledge influences the establishment of the student's attitude

Thus, it can be said that knowledge and attitudes are interconnected. These results are very important because they demonstrate that increasing knowledge can help improve the attitude environment. However, indeed outside influences such as life experiences, socioeconomic status, and culture may affect individual (Bradley, Waliczek, & Zajicek, 2010). However, it encourages educators to learn that attitudes can be influenced, at least partly, by what is taught in class.

CONCLUSIN DAN SUGGESTION

Conclusion

This knowledge of oceanographic literacy and a caring attitude the marine environment are strong correlation. Pearson's correlation test by using SPSS at + 0, 695 which means there is a positive correlation between the students ' oceanographic literacy and the marine environment, scoring 0.695 in a strong category. But keep in mind that there are still outside factors that affect age, gender, life experience, socio-economic status, and culture.

Suggestion

The writer would like to suggest other researchers to conduct further studies on this topic. Future research may investigate the same topic, but with different data and include some factors such as gender, age, geographic position of their hometown, and many more, for example: future researcher might investigate the undergraduate Science Department students based on gender, so that the result will be more valid.

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