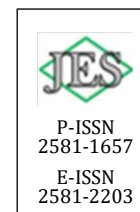




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Environmental Literacy Analysis of Junior High School Students in Pekanbaru

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ABSTRACT

This study aims to determine the environmental literacy profile of junior high school students in Pekanbaru, Indonesia. This study used a survey method with sampling technique by cluster random sampling. The survey was conducted by performing a Test Question and a Middle School Environment Literacy Survey (MSELS) to 372 students. The parameters of this study consisted of ecological knowledge, cognitive skills, attitudes and behavior. The data analysis technique was in the form of descriptive analysis using the average score of achievement of each parameter. The results of this study indicate that the environmental literacy of junior high school students in the Pekanbaru obtained an average value of 61 (with range of 100). The achievement of environmental literacy parameters for ecological knowledge, cognitive skills, attitudes and behaviors amounted to 48, 29, 73 and 71, respectively. Environmental literacy of junior high school students in Pekanbaru is included in the medium category where knowledge and attitudes contribute to environmental literacy.

1. Introduction

One of the global issues which is the main focus at this time is about environmental issues, especially the issue of climate change (Citra, 2017). An understanding of the importance of environmental management needs to be instilled to maintain environmental sustainability in a sustainable manner through changes in the way of viewing and human behavior towards nature. The Central Statistics Agency (BPS, 2018) conducted a survey on the Environmental Indifference Behavior Index (IPKLH) in Indonesia which was seen through 4 dimensions namely water saving, Energy Management, Personal Transportation

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and Waste Management where each dimension received a number of 0.44, 0, 16, 0.71 and 0.72. From these data energy management obtained the smallest IPKLH index which shows that energy management in Indonesia is classified as good. whereas waste management has the largest IPKLH index which shows that the level of indifference to waste management in Indonesia is relatively high. Riau Province has the highest IPKLH in the dimensions of personal transportation and waste management respectively of 0.81 and 0.72, this shows the behavior of environmental indifference in Riau is dominated by these 2 dimensions.

The Government of Indonesia has made various efforts in raising environmental awareness, one of which is through handling environmental issues such as issues regarding waste, forest and land fires, pollution and climate change through several ways, one of them through the world of education, namely forming adiwiyata schools, because schools take part in shaping values - life values, including values for caring and cultured environment with the aim of realizing school members have insight and responsible attitudes in efforts to protect and manage the environment (PPLH) to support sustainable development through good school governance (Puspita, 2015). Today the government is promoting the movement to strengthen character education which is integrated through the 2013 revised 2017 curriculum which contains 18 character values that will be developed, among these values there are environmental care character values. So that each level of the education unit has the responsibility to grow these characters to students which is realized through environmental learning that is integrated in every subject carried out by adiwiyata and non-adiwiyata schools so that the environmental literacy of students in Indonesia is increased.

Nowadays the environmental literacy of students is still in the stage of growing awareness and care while responsibility has not become a real behavior / participation and has not been based on strong knowledge. Environmental literacy is the level of one's awareness of the environment which includes 7 components. But for the junior high school level the right component in assessing students' environmental literacy is 4 components namely ecological knowledge, cognitive skills, attitudes and behavior. From the results of the study obtained the mastery of knowledge and attitudes respectively by 35% and 54% which means the mastery of knowledge is still low while the attitude of the medium category (Susilastri et al., 2014).

Based on the fact explained above, it is necessary to make efforts as early as possible in realizing the value of the character of caring for the environment so that environmental problems experienced by Indonesia and especially the city of Pekanbaru can be overcome. This can be started from the world of education through learning environmental education with the aim of making students literate / aware of the environment from an early age. Nowadays environmental education is implemented integrated into every subject, one of which is the study of Natural Sciences (IPA). Science learning must be contextual that must involve students directly to observe around and train students to think through the results of their observations, because 21st century skills that students must have are analyzing and practicing it in life in a concrete manner (Zulirfan, et al., 2018; Abdullah, et

al., 2019). To see the effectiveness of learning related to the environment it is necessary to measure the level of student literacy so that it becomes an evaluation material in improving learning. This environmental literacy assessment can also be used as preliminary data to develop a model for strengthening the value of environmental care characters. The purpose of this study was to determine the environmental literacy profile of junior high school students in Pekanbaru City.

2. Methodology

This study used a survey method for junior high school students in the city of Pekanbaru, Riau Province. The sampling technique was cluster random sampling with a sample of 372 students. The parameters in this study were ecological knowledge, attitudes, cognitive skills and behavior.

The research instrument used MSELs test questions and questionnaires that have been adapted from Hollweg, et.al (2011), amounting to 60 questions consisting of ecological knowledge, attitudes, cognitive skills and behaviors that have been validated using Anates and SPSS. The research data were then analyzed descriptively by using the average score of achievement of each parameter to illustrate how the environmental literacy profile of SMP students in Pekanbaru City. Guidelines for scoring environmental literacy parameters are presented in Table 1.

Table 1. Guidelines for scoring environmental literacy

Environmental Literacy Parameters	Competence	Question Number	Number of items	Range of scores	Multiplier Factor
Knowledge	Ecological Knowledge	1-20	20	0-60	3
	Sensitivity	21-32	12	37-185	5
Attitude	Verbal commitment	33-44	12		
	Feeling	45-57	13		
Cognitive skills	Analysis and identification of issues	58-59	2	0-60	30
Behavior	Action plan	60	2 (8)	12-60	6

Criteria for the range of environmental literacy and their respective components can be seen in Table 2.

Table 2. Conversion Criteria for Environmental Literacy Range

Criteria	Knowledge (0-100)	Attitude (0-100)	Cognitive skills (0-100)	Behavior (0-100)	Environmental Literacy (0-100)
Low	0-33	0-33	0-33	0-33	0-33
Mid	34-67	34-67	34-67	34-67	34-67
High	68-100	68-100	68-100	68-100	68-100

3. Results and Discussion

The results of the analysis of the environmental literacy of junior high school students in pekanbaru city were obtained from the msels test and questionnaire questions presented in Figure 1.

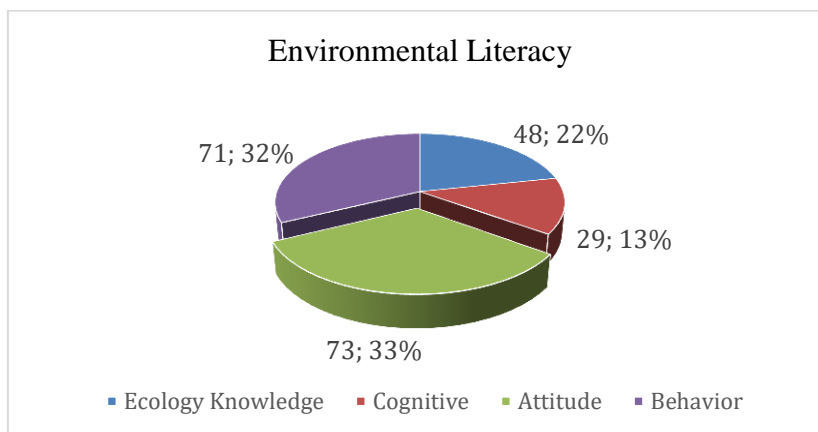


Figure 1. Environmental Literacy and Description of Each Component

Based on figure 1 above the environmental literacy of junior high school students in pekanbaru city includes moderate criteria with a value of 61. The results of the analysis for each component are knowledge, cognitive skills, attitudes and behavior respectively 48, 29, 73 and 71.

Cognitive Knowledge and Skills

The knowledge of junior high school students in the city of pekanbaru related to the environment is in the medium category with a value of 48. For the knowledge, there are 20 questions that are tested with the results of the achievement for each item in the knowledge parameters can be seen in Figure 2.

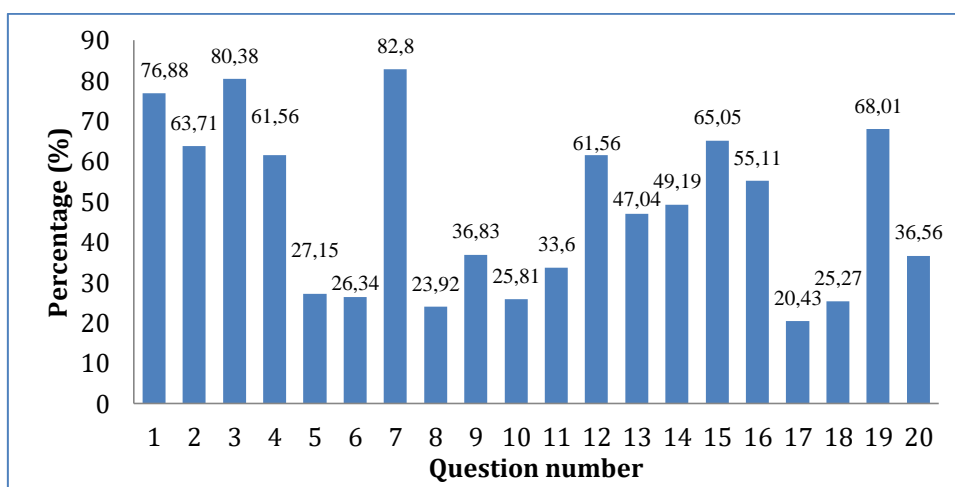


Figure 2 Percentage of Correct Answers for Each Item

Knowledge answer distribution of the 20 questions is grouped into 3 indicators, namely the concept of ecology, production and energy transfer and the relationship of environmental and social problems with a percentage that can be seen in Figure 3

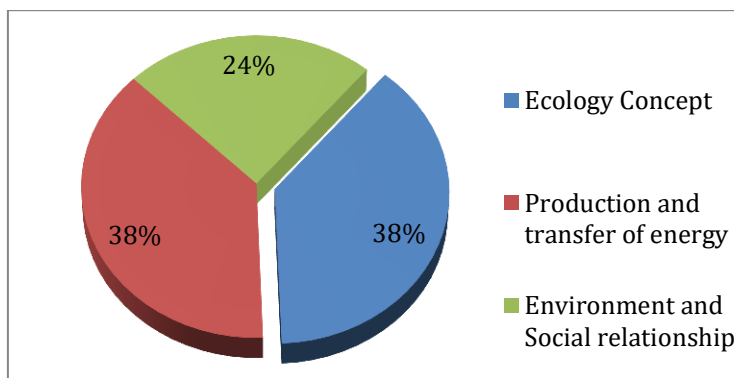


Figure 3. Percentage of Each Indicator of Knowledge

Based on the picture above, this means that 38% of students understand the concept of ecology, 38% of students understand the production and transfer of energy and 24% of students understand the relationship of environmental and social problems. Based on the percentage above the relationship indicator of environmental and social problems has a low result compared to the other 2 indicators which is 24% which means students are still lacking in terms of linking concepts with facts related to daily life. This relates to the cognitive skills of students who are in the low category that is equal to 29, following the results of the percentage of students' cognitive skills in Figure 4.

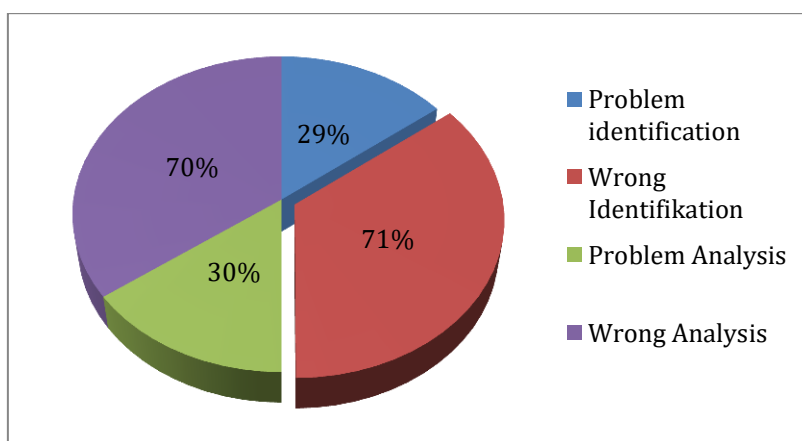


Figure 4. Percentage Distribution of Answers of Students Cognitive Skills

Cognitive skills are related to students ability to identify environmental issues and analyze environmental issues based on the picture above. Students who are able to correctly identify issues are only 107 people or around 29%, while in terms of analyzing 111 people or 30%. Cognitive skills are closely related to knowledge where cognitive skills are related to students' skills in analyzing, synthesizing and evaluating information about issues using primary and secondary sources and personal values. While behavior includes a complex perception related to values

and commitments made both verbally and actual (Erdoğan et al., 2009). Environmental knowledge is a set of ecological knowledge possessed by individuals about the environment. Environmental knowledge is very important to understand the concepts, principles and theories related to ecology about how a system works and how it interacts with the social environment (Febriasari et al., 2017). Lee (2011) revealed that environmental knowledge is a person's basic knowledge about something that can be done to protect the environment.

Good environmental knowledge will also affect the attitude of good human behavior. Environmental knowledge deals with general knowledge about facts, concepts and relationships about the natural environment and the surrounding ecosystem. This condition involves what people know about the environment, including products produced, environmental impacts, and collective responsibility for sustainable development and better environmental literacy. However, today the environmental literacy of students is still in the stage of growing awareness and concern while responsibility has not been a real behavior / participation and has not been based on strong knowledge because students are limited to knowledge but are still low in terms of synthesizing issues (Susilastri et al., 2014).

Attitudes and Behavior

The environmental literacy of junior high school students in Pekanbaru related to attitudes and behavior is in the high category respectively with grades 73 and 71. Attitudes towards the environment are divided into 5 indicators outlined in Figure 5.

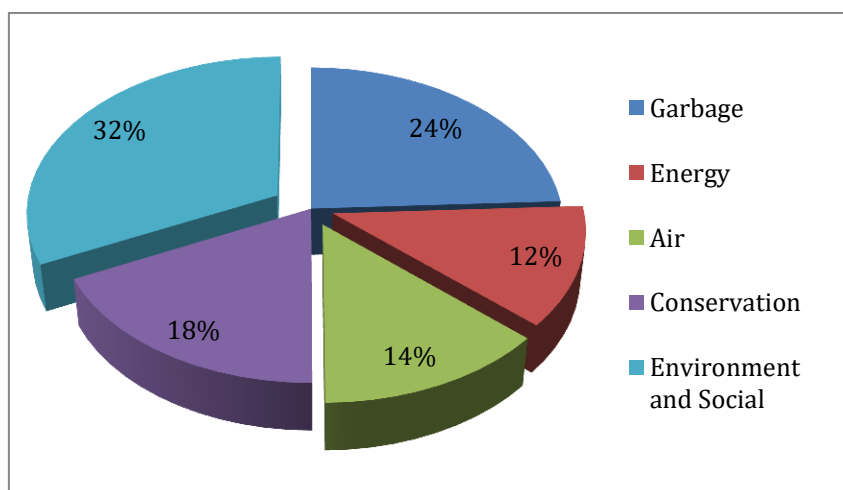


Figure 5. Percentage of Attitudes Based on Each Component

From the diagram above it can be seen that the highest attitude is related to environmental and social issues and the lowest attitude is related to energy issues. In the school environment, environmental issues related to waste have been widely socialized through the installation of posters, the existence of trash bins in each class, and conducting waste recycling programs. However, the energy issue is still lacking where there are still many students who don't turn off the fan after they finish studying, leaving the laptop / cellphone charger plugged in even

though it's not in use and at school there are still less posters / banners that call for energy savings.

The attitude of caring for the environment possessed by these students also grows with habituation. This relates to Yayat (2009) that attitude involves knowledge of something. This implies that knowledge about something is the beginning that influences attitudes that may lead to an act that is repeated.

The development of environmental literacy can support a more comprehensive understanding and a more balanced and sustainable approach to dealing with complex issues that apply broadly such as linking social problems (unemployment, poverty) with environmental problems (access to water, food or energy sources) (Hollweg et al., 2011). This also relates to the way teachers teach Hernandez et al. (2017) that teachers still find it difficult to teach environmental education in the classroom. Therefore, teachers are required to develop appropriate models or strategies to improve students' environmental literacy such as research conducted by Istikomayanti et al. (2016) suggesting that the GI experimental learning tools developed can improve students' environmental literacy abilities which include aspects of knowledge, attitudes and habituation on environmentally friendly agricultural sub material Environmental Education (PLH).

4. Conclusion

Based on the research that has been done, it can be concluded that the Environmental Literacy of Junior High School students in Pekanbaru City is in the medium category. Based on the four parameters of environmental literacy achievement for the parameters of knowledge, attitudes and behaviors are in the medium category while cognitive skills are in the low category. Of the four environmental literacy parameters, the parameters of knowledge and attitude have a contribution to environmental literacy.

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