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Environmental Literacy Level Students of the Faculty of Teaching and Educational Sciences Riau University

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ABSTRACT

Environmental problems are the responsibility of all of us. It is appropriate for a prospective teacher to have a high level of environmental literacy, especially if he has taken the mandatory courses in Environmental Science and Disaster Mitigation. Apart from that, students from the Faculty of Teacher Training and Education are expected to be able to increase their students' environmental literacy. This research aims to describe the level of environmental literacy of FKIP Riau University students. The population in this study was FKIP UNRI students, totaling 5,013 people, while the population was 20 people from 16 undergraduate study programs with a total of 320 people. The data collection techniques used were interviews, questionnaires, observation and documentation. Data were analyzed using frequency distribution techniques. The research results show that the level of environmental literacy seen from 4 indicators (knowledge, cognitive skills, attitudes and behavior) is in the "Medium" category. With the following details, the category of level of knowledge towards the environment is in the "medium" category with an average score of 78.5, cognitive skills in the "medium" category with an average score of 72.6, student attitudes towards the environment are 65% with the medium and behavioral categories. Responsible for the environment is 65% in the medium category.

Keywords*: *environmental literacy

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INTRODUCTION

All countries in the world are paying serious attention to environmental conditions, because the world is being hit by extreme weather due to global warming. Environmental problems range from air pollution, depletion of the ozone layer, deforestation, global warming, to extreme climate change. (Nunez & Clores, 2017). Humans are the determining factor in protecting the environment. (Karim, 2018). For this reason, it is very necessary to increase environmental literacy for all humans on this earth.

Environmental damage that triggers global warming which results in extreme weather changes that threaten human survival is not only the responsibility of individuals but is the responsibility of all mankind. All parties are obliged to protect and preserve the environment in order to create a balance between humans and the environment. It is very necessary to instill an understanding and attitude of caring for the environment in the younger generation as the successors to the next responsibility. One effort that can be made to instill environmental awareness in the nation's next generation is through education by teaching environmental education. So all humanity needs to have environmental literacy.

Environmental literacy is the knowledge, understanding and conscious attitude that a person must have in order to maintain environmental balance. Environmental literacy is also expected to provide solutions to various environmental problems that occur today (McBeth, 2010). Environmental literacy needs to be instilled from an early age and continuously at every level and type of formal education.

Riau University is one of the formal educational institutions that has provided environmental education for every student, including FKIP students, which is one of the faculties that produces future

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teachers who will later teach students, so it is necessary to prepare good environmental literacy skills to be able to to instill environmental awareness in the students who will later be trained. Apart from being a teacher, it is hoped that the environmental literacy possessed by Riau University FKIP students will also be able to foster environmental awareness in protecting and preserving the environment. In fact, even though environmental education courses have been taught, many students still have low attitudes and concern for protecting and preserving the environment. This can be observed from the attitude of students who still throw a lot of rubbish carelessly and leave lights and room fans on even when not in use. Again.

Based on the background above, researchers are very interested in conducting a more in-depth study to find out, develop and improve the environmental literacy of Riau University FKIP students as teacher candidates with research entitled "Environmental Literacy Levels of Riau University Faculty of Teacher Training and Education Students". This research aims to describe the level of environmental literacy of FKIP students at Riau University. The benefits of the research are expected to be able to instill environmental literacy in themselves and also be able to teach it well to students after becoming a teacher at school. Then policy makers can take better policies in improving environmental literacy.

LITERATURE REVIEW

Understanding Environmental Literacy

According to Kusumaningrum (2018), environmental literacy is a conscious attitude to pay attention to and maintain the environment so that it is always maintained and sustainable. What is meant by awareness is being sensitive to the environment and knowing the problems that occur. Someone who has knowledge about the environment, not only limited to theory, but is also responsive and agile in overcoming various problems that occur in the surrounding environment.

Furthermore, O'Brien said that environmental literacy is an individual's ability to make decisions in daily life regarding a broad understanding of how individuals and communities utilize existing natural resources and do so in a sustainable manner. This requires sufficient awareness, knowledge, skills and attitudes to incorporate appropriate environmental considerations in making decisions for consumption, lifestyle, career and citizenship for both individuals and groups. Orr stated that "Environmental literacy is the „knowledge necessary to comprehend relatedness, and an attitude of care or stewardship". Environmental literacy is knowledge that is very important for understanding relationships and caring attitudes. Loubser further said "Environmental literacy is essentially the capacity to perceive and interpret the relative health of the environmental systems and to take appropriate action to maintain, restore or improve the health of those systems". Therefore, environmental literacy involves the development of an ecological "conscience", attitudes, ethics and values, commitment to a sense of responsibility, as well as skills and knowledge that are useful for sustaining the ecosystem and solving environmental problems.

According to Hollweg et al (in Symma 2019), environmental literacy is defined as knowledge about the environment and a person's attitudes that are used to make effective decisions in various environmental contexts. A person is said to have environmental literacy skills if that person is able to act on environmental issues. Based on the literature review, it is known that environmental literacy has three components based on environmental insight. These three components are environmental competence, environmental knowledge, and attitudes towards the environment (OECD, 2007; NAAEE, 2000). These three aspects are closely related to each other. Measurement of these three aspects can describe a person's environmental literacy abilities as a whole. So this will illustrate in more detail the environmental insight of a prospective teacher and his ability to use his knowledge and attitudes towards environmental problems.

Meanwhile, according to McBeth (2010), a person's environmental literacy ability can be measured through four components, namely: (1). Environmental knowledge which includes environmental basics; (2). Attitudes towards the environment which include views about the environment, sensitivity to environmental conditions, and feelings towards the environment; (3) cognitive skills which include identifying environmental problems, environmental analysis and planning implementation; and (4) behavior that includes real actions

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towards the environment. These components are a reference used to assess the extent of a person's environmental literacy abilities. In implementing environmental literacy in schools these components should be described in the form of criteria listed in the assessment rubric.

Meanwhile, prospective teachers as part of society who are prepared as the next generation of education and agents of change in society need to be equipped with environmental literacy skills. The measurement of environmental literacy abilities consists of four components, namely environmental knowledge, attitudes towards the environment, cognitive skills and behavior towards the environment (McBeth, 2010).

The indicators above are used as a basis for assessing a person's environmental literacy abilities. In its implementation in the campus environment, these indicators are included in the assessment rubric criteria which are in accordance with the latest learning curriculum as a teacher candidate based on character and competition. Character education contains aspects of a person's attitudes and attitudes, especially regarding concern for the surrounding environment and being able to solve environmental problems. Furthermore, competency is defined as the knowledge, skills and abilities that a person has so that they can behave cognitively, affectively and psychomotorically effectively.

METHOD

This research was carried out at the Faculty of Teacher Training and Education, Jalan Raya Bangkinang Km 12.5 Pekanbaru. Meanwhile, the research period is five months (June 2022 to November 2022). The population in the study were undergraduate students at the FKIP University of Riau spread across 16 study programs totaling 5,013 (Central Statistics Agency of Riau). Sampling used a random sampling technique, 20 students were taken from each study program who had taken Environmental Education and Disaster Mitigation courses, so the total sample was 320 people. Data was collected through questionnaires, interviews, documentation, observation. This research is descriptive quantitative with the formula (Arikunto, 2019): $P = \frac{F}{N} \times 100\%$

Each respondent was asked a question with 3 alternative answers. For environmental literacy levels, indicators of knowledge and cognitive skills, with benchmarks: (a) If the respondent answered correctly, 66.67%-99.99% = high; (b) If the respondent answered correctly, 33.34%-66.66% = medium; and (c) If the respondent answered correctly 0.00-33.33% = low. Indicators of Attitudes and Behavior towards the Environment) with alternative answers as follows: (a) Agree; (b) Disagree and (c) Disagree. The benchmarks used are: (a) If the respondent answers Agree 66.67%-99.99% = high; (b) If respondents answered Agree, 33.34%-66.66% = moderate; and (c) If the respondent answers Agree 0.00-33.33% = low. (Processed from Sugiyono's opinion, 2019).

RESULTS AND DISCUSSION

Environmental Literacy Level of FKIP Students at Riau University.

Based on the results of a questionnaire distributed to 320 respondents spread across 16 study programs, and seen from 4 literacy indicators with 40 sub-indicators. Respondents were asked questions with 3 alternative answers. Environmental literacy indicators consist of 4 indicators, namely:

(First) Environmental Knowledge. Environmental knowledge is the knowledge a person has about the environment and its problems (Chen, 2013). Environmental knowledge is basic knowledge about something that can be done to help, protect and preserve the environment (Lee, 2010). Rapid population growth has an impact on increasing needs for clothing, food and shelter. Utilization of natural resources must be accompanied by conservation and awareness of the importance of environmental sustainability. So that residents must be given environmental education, so that they know, understand, are able to analyze, act and behave in an environmentally friendly manner, so that they are able to improve and preserve the environment. The first indicator, namely environmental knowledge, is presented in table 1 below.

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Table 1. Environmetal Knowledge

Environmental Literacy			
Indicator Environmental Literacy	Sub-Indicator Environmental Literacy	Percentage of correct and incorrect answers (%)	
		True	True
Environmetal Knowledge	The definition of the environment according to UU No. 32 Tahun 2009	85%	15%
	Source of disaster	71%	29%
	How to use natural resources sustainably	74%	26%
	Types of natural resources	89%	11%
	Causes of climate change	85%	15%
	Impact of cimate change	81%	19%
	Understanding disaster mitigation	70%	30%
	The cause of the reduction in forest area in Riau Province	79%	21%
	Global environment issues	81%	19%
	Local wisdom	70%	30%
Average		78,5	11,5
Category	**Medium**		

Source of Processed Data in 2022

Based on Table 1, it can be seen that the low indicators are disaster mitigation, local wisdom and disaster sources, disaster mitigation received a score of 70% correct, even though mitigation issues really need to be known in order to reduce loss of life and material. Apart from that, it is also to find out what efforts can be taken if a disaster occurs. So that the number of victims does not increase. Likewise, the level of students' knowledge of disaster sources is still in the medium category (71%). However, if it is known, it can be avoided and a solution can be found. The next thing that is still in the medium category is local wisdom. Students as the younger generation can be pioneers of sustainable local wisdom in protecting the environment. So this really needs to be known and preserved.

Of the ten indicators, students' knowledge of the environment has the highest level of understanding regarding the types of Natural Resources (SDA). There are only 2 types of natural resources, renewable and non-renewable. This has been studied since elementary school. The use of non-renewable natural resources should be kept to a minimum, so that their existence lasts a long time. Natural resources must be used intelligently, because not everything can be renewed. Moreover, as students, "agents of change" and also as prospective teachers, they must be able to use natural resources intelligently, so they can convey, teach and become role models for their students.

(Second) Attitude towards the Environment. If environmentally caring attitudes and behavior based on environmental insight have been instilled, awareness will arise in a person to preserve the environment (Mullenbach & Green, 2018; Simarmata, Daulae & Raihana, 2019). Education has an important role in preserving the environment and natural resources. A caring attitude towards the environment is the responsibility of each individual, which is generally influenced by the level of knowledge (Kemendikbud, 2012). If we have high environmental knowledge, it is believed that we will have good environmental attitudes and behavior. For this reason, lifelong environmental education is needed, which starts from an early age. Indicators of attitudes towards the environment are presented in table 2 the following.

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Table 2. Attitude Toward the Environment

Environment Literacy				
Indicator Enviroment Literacy	Sub-Indicator Attitude toward the environment	Percentage of statement on the questionnaire Attitude toward the environment		
		Agree	Disagree	Don't agree
Attitude toward the environment	The government gives Adiwidyata to school that protect the environment	60%	35%	5%
	The government gives Adipura to regions that protect their environment	62%	33%	5%
	The government gives Kalpataru to people/groups who preserve the environment	56%	37%	7%
	It's nice to see people throwing rubbish in the right place	100%	0%	0%
	Realize the importance of protecting the environment	82%	18%	0%
	Environmental chage can cause disasters	83%	17%	0%
	Feel happy if the environment is clean	91%	9%	0%
	Have the determination to protect the environment	61%	37%	2%
	Pay attention to environmental hazard warnings (landslides, floods, tsunami, etc)	55%	44%	1%
Average		65%	33%	2%
Categori	**Medium**			

Source of Processed Data in 2022

Based on table 2, it can be seen that the highest level of attitude towards the environment is that they feel happy seeing friends or other people throwing away rubbish in their place, where all respondents agree that their attitude is feeling happy seeing friends or other people throwing rubbish in their place. After that, the second highest attitude towards the environment is the attitude of feeling happy if the environment is clean from rubbish, with the percentage of respondents who answered agree reaching 91%, while the third and fourth highest attitudes towards the environment are the attitude of being aware that environmental damage can cause disasters and realizing the importance of protecting it. environmental cleanliness with respective percentages of 83% and 82% of respondents agreeing.

Meanwhile, the fifth, sixth and seventh positions for attitudes towards the environment, respectively, are the awarding of Adipura awards by the government to regions that protect the environment, having the determination to protect the environment and the awarding of Adiwiyata awards by the government to schools that protect the environment, with a respective percentage of 62 %, 61% and 60% who answered agreed.

Furthermore, the eighth and ninth places in respondents' answers to their attitudes about the environment are that environmental sustainability needs to be maintained for the sake of human survival and the government gives kalpataru awards to individuals or groups for their services in preserving the environment, with the percentage of respondents' answers being only 57% and 56% respectively. who answered in the affirmative.

Meanwhile, the lowest attitude towards the environment is paying attention to warnings about environmental dangers such as landslides, floods, tsunamis, etc., with the percentage of respondents agreeing at only 55%, which means that there are still many respondents who do not want to pay attention to warnings about environmental dangers. Meanwhile, this really needs to be done to anticipate the impact of the dangers that arise. (Third) are cognitive skills by asking respondents questions with 3 alternative answers, and are presented in table 3 below.

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Table 3. Cognitive Skills

Environmental Literacy			
Indicator Environmental l Literacy	Sub-Indicator Environmental Literacy	Percentage of correct and incorrect answers (%)	
		True	False
Environmental literacy cognitive skills	Air and soil pollution can disrupt the lives of living creatures	82%	18%
	Increasing in air temperature due to global warning	84%	16%
	Forest removal has an impact on increasing air temperature	70%	30%
	Air pollution couses ozone depletion	70%	30%
	Throwing rubbish into ditches can cause flooding	85%	25%
	Throwing waste into rivers can cause pollution	71%	29%
	Burning forest can cause air pollution	90%	10%
	Planting trees can prevent abration	80%	20%
	Using public transportation can reduce air pollution	73%	27%
	Providing water absorption land can prevent flooding	65%	35%
Average		**72,6%**	**27%**
Category	**Medium**		

Source of Processed Data in 2022

Based on table 3, it can be concluded that the lowest cognitive level is in the indicator that providing land can prevent flooding. Students do not understand about water absorption areas. For this reason, more detailed education is needed about the benefits of providing absorption land. Meanwhile, the highest cognitive level is about water and land pollution which can disrupt the lives of living creatures.

The highest cognitive skill is the impact of forest fires on air pollution. The people of Riau have repeatedly experienced forest and land fires which resulted in smoke and dust. So that almost all Riau people know the impact of forest and land fires. Apart from that, the spread of smoke and other gas emissions into the air causes global warming and climate change. Apart from that, it also causes the loss of several habitats for living creatures. The fourth environmental literacy indicator is Responsible Behavior towards the Environment, by asking respondents questions with 3 alternative answers, as presented in table 4 below.

Table 4. Environmentally Responsible Behavior

Environmental Literacy				
Indicator Environmental Literacy	Sub-Indicator Attitude towards the Environment	Percentage of Statements on Environmental Behavior Questionnaires		
		Agree	Disagree	Don't Agree
Environmentally responsible behavior	Maintain the vehicle so that it does not pollute	43%	36%	21%
	Use public transportation to reduce air polution	34%	6%	60%
	Bring your own bag for shopping	21%	7%	72%
	Use a stailess stell staw when drinking	19%	50%	31%
	Don't buy food or drink that use stryfoam or plastic	17%	56%	27%
	Planting and maintaining plants around the house	50%	31%	19%
	Do not kill protected animals	92%	5%	3%
	Use a handkerchief after washing your hands	16%	27%	57%
	Use natural resources as necessary	55%	30%	15%

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	Pay attention to environmental hazard warnings (landslides, floods, tsunami, etc)	35%	46%	19%
Average		62	29	9
Category	**Medium**			

Source of Processed Data in 2022

Based on table 4 above, it can be concluded that the highest environmentally responsible behavior is not killing protected animals at 92%. Students know that killing protected animals can be criminalized. Meanwhile, the second and third highest are using natural resources as necessary and planting and maintaining plants around the house, with the respective percentages of respondents who agree being 55% and 50%.

Furthermore, the fourth highest environmentally responsible behavior is maintaining vehicles so that they do not cause smoke pollution, with 43% of respondents answering in the affirmative. Students' awareness of maintaining vehicles is still low, they think that it only has an individual impact. However, poorly maintained vehicles can cause air pollution. Meanwhile, the fifth and sixth highest levels of responsible behavior towards the environment of Riau University FKIP students are paying attention to warnings about environmental hazards, such as: landslides, floods, tsunamis, etc. and using public transportation to reduce air pollution, with each The percentage of respondents who agreed was 35% and 34%. We still pay little attention to warnings about environmental dangers. So if a disaster occurs, they are less responsive in dealing with it.

Meanwhile, the seventh and eighth places for environmentally responsible behavior are bringing your own bag for shopping and using a stainless straw when drinking. Carrying your own bag is still rarely done by Indonesian people, including students. This is thought to be because people are not used to it and have not felt the direct impact of plastic waste. This behavior is considered quite low or rarely carried out by students, because only 21% and 19% of respondents answered in the affirmative, respectively.

Meanwhile, the last two or lowest rankings, namely ninth and tenth, responsible behavior towards the environment are not buying food/drinks that use styrofoam or plastic packaging and using a handkerchief after eating, with the percentage of respondents agreeing only 17% and 16% respectively. % just. Indonesian people are accustomed to using plastic for food packaging, because not many people know the negative impact of plastic and Styrofoam packaging when exposed to hot food or drinks. It is necessary to explain to the public the negative impacts or dangers of plastic and styrofoam.

Discussion

It can be concluded that the category of level of environmental knowledge is in the "Medium" category with an average score of 78.5. Obtaining a high level of knowledge is influenced by the cognitive level and knowledge provided. (Haske and Wulan, 2015). So the material presented must be studied Again, is it consistent with the needs of current developments and environmental science that can improve disaster mitigation.

The average percentage of attitudes of FKIP University of Riau students towards the environment is 65% in the medium category. One effort to improve our attitude towards the environment is that a campus climate that cares about the environment must be developed and improved. This is in line with the opinion of Eagles & Demare, 1999, that a person's attitude is formed from his interactions with the environment, culture and other people. Next are cognitive skills with an average score of 72.6 in the medium category. Meanwhile, the average percentage of responsible behavior of Riau University FKIP students towards the environment is 65% in the medium category. A person's experiences learned directly from the environment can improve environmental behavior. (Ardianti, et al 2017).

This condition shows that Riau University FKIP students still need to implement behavior-based environmental education learning so that their knowledge and cognitive skills about the environment can be realized in the form of behavioral actions in everyday life. Environmental Education and Disaster Mitigation is one of the efforts to provide environmental knowledge to students. If environmental knowledge increases,

then human behavior in caring for the environment will also increase and reduce environmental damage (Nuzulia, 2020)

CONCLUSIONS AND RECOMMENDATION

Based on the research results, it can be concluded that the level of environmental literacy seen from 4 indicators (knowledge, cognitive skills, attitudes and behavior) is in the "Medium" category. The category of level of environmental knowledge is in the "Medium" category with an average score of 78.5. Furthermore, cognitive skills are with an average score of 72.6 in the medium category. The average percentage of attitude towards the environment is 65% with the medium category. Meanwhile, the average percentage of environmentally responsible behavior is 65% in the medium category. Environmental education must continue to be taught at the tertiary level, not only sharpening cognitive skills but also paying attention to attitudes and behavior.

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