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Environmental Literacy InvestigationBiology Education Students at Islamic Colleges Based on Gender and Parents' Occupation in Jambi Province

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ABSTRACT

Eivironmental literacy is an important aspect of individual abilities in maintaining environmental conditions. This study aimed to determine the understanding of environmental literacy of Biology Tadris students with Islamic religious college backgrounds based on Gender and Parents' Occupation. This study uses a descriptive quantitative approach. The research population is Biology Education students from Islamic

Religious College in Jambi Province. The research sample was determined by purposive sampling, which consisted of 118 people. The study results are; students' environmental literacy in general is quite good which female students are in good criteria with slightly better than boys. Then in terms of the work of parents, the criteria of good enough which the highest average score was obtained by farmers. Environmental knowledge and student cognitive skills obtained from learning and information obtained from the environment. The ability of environmental literacy based on gender has become a must to be observed as a form of consistency and seriousness in understanding the differences and the need to increase the understanding of environmental literacy that students own.

Keywords: Environmental Literacy, Gender, Islamic Religious College.

A. Introduction

Environmental literacy is an individual's ability to understand and interpret ecological conditions around him from his understanding and interpretation. He can decide on appropriate actions to maintain, restore, and improve environmental conditions. The purpose of environmental literacy is to form a person's conscious attitude to protect his environment and to love his background. Awareness is defined as ecological literacy (Karatekin, 2012; Srbinovski et al., 2010), knowing the environment and having a responsive attitude and providing solutions to environmental problems. Environmental awareness can be developed through environmental education; as stated by (Craig & Allen, 2015; Widianingsih et al., 2017), ecological literacy education is needed to indirectly solve real ecological problems. Several studies have shown that many students in Indonesia do not care about the environment because they do not know the impact of ecological behaviour. Many environmentally literate students in Indonesia are not good enough because they are less responsive to developments and environmental problems around them.

Many environmentally literate students in Indonesia are not good enough because they are less responsive to developments and environmental problems around them (Fisher et al., 2010; Haber, 2012). Disturbances due to natural events are unavoidable. However, disruptions caused by human activities may still be controlled. Therefore everyone has a good insight into the environment, what's more for prospective teachers who will provide these insights to their students. Thus, it is essential to know the description of the environmental understanding of the prospective teacher students. This description can be used as input in the development of lecture design.Based on the learning curriculum, the environmental learning process must prioritize environmental aspects so that it can equip students with attitudes (Altun-Yalçn et al., 2011; Kusumaningrum, 2018; Roshayanti et al., 2020) able to act to maintain environmental balance and have critical thinking skills to solve environmental problems in everyday life. Based on the literature review, it is known that environmental literacy has three components based on environmental

insight. The purpose of learning environmental education is to manage resources wisely and foster a sense of responsibility for the benefit of future generations. Knowledge in the future will prioritize technology as a medium or measuring tool (Rozal et al., 2021; Sulman et al., 2020; Sulman, Sutopo, et al., 2021), attitudes (Sulman, 2019; Sulman, Tanti, et al., 2021; Zb, Setiawan, et al., 2021), and the skills or behaviors needed to make resources sustainable or used sustainably in the future. A typical college curriculum can have an impact on the development of an environmental perspective. Every human being has a point of view on his environment (Jerković, 2012; Sueb, 2015) which can be obtained in courses and training on environmental sustainability, enabling universities to produce future leaders and environmentally conscious managers (Clair, 2003; Price, 2014). In Islamic tertiary institutions, the biology education study

program is equated with education biology, which has a learning curriculum that is different from public universities and with very varied backgrounds from various regions. This condition is a potential that students can utilize to capture students' literacy skills from the different areas in the form of literacy instruments.

Environmental literacy education for biology students from differences in gender or parents' occupations; male students are rational, assertive, calculating, aggressive, and objective in learning or seeing things (Friesem, 2016; Punter et al., 2017). Meanwhile, women will be more emotionally dominant, cooperative, and passive than men in the process of learning or seeing things. This allows the transfer of certain attitudes or views in viewing the problem. Such conditions are interesting to study further, how these characteristics differ in attitudes and behaviour in the learning process to decision making. In addition to gender factors, some experts state that the knowledge, attitudes, and behaviour of male and female students are also influenced by various external factors such as family (Baroody & Diamond, 2012; Friesem, 2016), including parents and family economy (Abiolu & Okere, 2012; Mascarenhas et al., 2017). Researchers believe that parents' habits at work affect their behaviour and attitudes in educating their children. That is why parental income affects children's literacy habits, Differences in Environmental Literacy can be started by being analyzed in general and then followed by a more in-depth analysis that is starting by looking at the environmental literacy between male and female students and then continuing with a deeper analysis that is looking at the differences in environmental literacy based on the work of parents.

The ability of environmental literacy based on gender has become a must to be observed as a form of consistency and seriousness in understanding the differences and the need to increase the understanding of environmental literacy that students own. Gender differences should not influence the

ability of students to have different environmental literacy skills; in other words, both male and female students must have the same literacy skills. Regarding the differences in abilities possessed by students, several studies show that the differences in the results that can be achieved from achievements in general education programs are also seen from their initial achievements or abilities (Lahav et al., 2019; Reis & Park, 2001). The results of many studies reveal that there are actually facts that state that gender has an undeniable role in changing student learning outcomes. Factors that influence differences in abilities should be able to be a reference in improving all understanding of learning materials, one of which is environmental literacy, so that gender differences should not be a difference in the difference in knowledge produced but become an ability to optimize student understanding. The gender differences that occur should be a reference for educators to see the level and limits that are owned by students in understanding and learning knowledge so that the ability of both male and female students can be maximized together, which in the end is to form an understanding of the concept of student environmental literacy Optimal. Gender differences should only be a difference in terms of identity, not a difference in terms of understanding or ability to understand knowledge.

The gender differences possessed by students are a gift given by God, thus making each individual the best and quality individual according to their respective versions. All individuals are believed to have the same ability if optimized properly and correctly. In optimizing the ability to understand the literal concept of the student's environment so that it is optimal, several important components must be carried out, for example, giving or increasing student confidence in their abilities so that students' feelings and motivations are created in understanding the concept of literacy more deeply so that the talents or skills that exist in can develop optimally. The skills and talents

possessed by students greatly affect their understanding of the concepts they have (Rudasill et al., 2016)students who already have good initial skills will certainly be able to easily understand and improve analytical skills and knowledge of environmental literacy easily and quickly and so do on the contrary. The ability of environmental literacy is still a very important discussion to be discussed and managed; for example, students, in order to increase their literacy skills, are given the freedom to formulate some knowledge about the environment that they have from their point of view, or students are invited to have a sense of responsibility towards learning and mastery of the concept of literacy that is being studied (Hutson et al., 2017), so that it is following the meaning that is also often associated with environmental literacy, namely the ability to obtain information from the environment that is being observed (Timur et al., 2017)by each individual related with the environment not only literate to the environment but able to understand the concept of the environment more comprehensively both women and men. Literacy skills based on gender based on the explanation above make a very interesting component to be analyzed and used as the focus of research today; this is due to the lack of understanding of students, which is believed to be due to their ignorance of environmental impacts and conditions both for the present and the future.

The research method used in this study is a quantitative descriptive research method(Creswell, 2012). In this study, we will discuss in depth how the differences in student literacy in terms of gender and the work of their parents, so that clear data and information are obtained that can be used as references and input in forming a better and quality understanding. The population in this study is prospective biology education teacher students who are currently studying at Islamic Higher Education in Jambi Province. The research sample was taken using a non-probability sampling technique with a purposive

sampling method, totalling 118 students. The instrument used in this testing activity was adapted from the Middle Schools Environment Survey/Instrument (MSELS/I) test by NELA in 2008 (McBeth & Volk, 2009), which has been adapted an which has been adapted and has been tested on the same population with different samples to measure validity and reliability. The raw score transformation for the environmental literacy survey can be seen in Table 1.

Table 1. Environmental Literacy Scoring Grid

Environmental Literacy Indicator	Sub Indicator	Test Form	Number of Questions	Multip-lier	Score	Total score
Environmental Knowledge	Types of environmental pollution	Questionnaire	12	3,57	42,86	100
	Environmental impact analysis	Questionnaire	7	3,57	25	
	Environmental Change Analysis	Questionnaire	5	3,57	17,86	
	Causes of Environmental Pollution	Questionnaire	4	3,57	14,28	
Attitude	Interest in environmental issues	Questionnaire	7	3,57	25	100
	Concern for the environment	Questionnaire	6	3,57	21,43	
	Internal Locus of Control	Questionnaire	5	3,57	17,86	
	Responsibility to protect the environment	Questionnaire	4	3,57	14,28	

	Intention to take action to solve environmental problems	Questionnaire	6	3,57	21,43	
Cognitive Skills	Identification of Issues	Test	4	8,333	33,333	100
	Issue Analysis	Test	4	8,333	33,333	
	Issue Investigation Plan	Test	4	8,333	33,333	
Behavior/ Action	Responsible for the Environment	Questionnaire	16	6,25	100	100

The research data in the form of students' environmental literacy scores were obtained using a survey method. The survey was conducted as data that can describe the literacy skills of students in Jambi Province. The process of observing students' environmental literacy skills uses several considerations as for studying or analyzing how the literacy criteria of students from Islamic Higher Education in Jambi Province are by determining the score criteria for each indicator that has been set by using modified and validated measures(Aini et al., 2020) whose categories can be seen in table 2.

Table. 2 Environmental Literacy Criteria

No.	Percentage	Criteria
1.	90-100	A (Very Good)
2.	80-89	B (Good)
3.	70-79	C (Pretty Good)
4.	0-69	D (Not Good)

Resoure: (Aini et al., 2020)modified by research

B. Discussion

Data from the survey results of environmental literacy skills of biology education students, both in general and from the perspective of Gender and Parents' occupations, are briefly presented in Table 3, Table 4 and Table 5.

Table 3. Environmental Literacy Value of Biology Education Students in General

Indicator	Score	Criteria
Environmental Knowledge	83,895	Good
Cognitive Skills	83,33	Good
Behavior/Action	76,755	Pretty Good
Attitude	71,875	Pretty Good
Environmental Literacy	78,96	Pretty Good

Table 4. Environmental Literacy Value of Biology education students by Gender

Indicator	Gender (Male)		Indicator	Gender (Female)	
	Score	Criteria		Score	Criteria
Environmental Knowledge	82,11	Good	Environmental Knowledge	85,68	Good
Cognitive Skills	83,33	Good	Cognitive Skills	83,33	Good
Behavior/ Action	74,97	Pretty Good	Behavior/ Action	78,54	Pretty Good
Attitude	68,75	Pretty Good	Attitude	75	Pretty Good
Environmental Literacy	**77,29**	**C (Pretty Good)**	**Environmental Literacy**	**81,53**	**B (Good)**

Table 5. Environmental Literacy Value of Biology Education students based on the work of parents

Indicator	Parents' Occupation					
	civil Servant	Criteria	Private Employee	Criteria	Farmer	Criteria
Environmental Knowledge	82,11	Good	85,68	Good	82,11	Good
Cognitive Skills	74,97	Pretty Good	74,97	Pretty Good	74,97	Pretty Good
Attitude	78,54	Pretty Good	74,97	Pretty Good	74,97	Pretty Good
Behavior/ Action	68,75	Pretty Good	62,5	Pretty Good	75	Good
Environmental Literacy	**76,09**	**C (Pretty Good)**	**74,53**	**C (Pretty Good)**	**76,76**	**C (Pretty Good)**

Based on Table 3, Table 4 and Table 5, it is known that the results of the environmental literacy survey of students of the biology education study program with the background of Islamic Religious College in Jambi province indicate a fact that the ecological literacy level of students, in general, has an average score of 78 .98 which is in the Good Enough criteria and deeper further analysis in a gender perspective it is slightly different where the environmental literacy level of female students is 81.53 which is in the Good criteria while men get an average literacy score of 77.29, namely are in the criteria of Good Enough. However, the differences that occur are not too sharp or significant from the gender point of view.

The data from the environmental literacy survey from the perspective of parents' occupations, in this case the researchers reviewed 3 types of work namely civil servants, private sector and farmers where the three categories were in the criteria of Good Enough. Although when viewed more deeply there are differences in the results from the survey data provided, this

increase is not too significant. Based on the scores on each environmental literacy indicator, in general, it is known that environmental education can actually have a big impact in terms of increasing environmental literacy of students with Islamic Religious College backgrounds. However, the reality on the ground is that gender differences and parents' occupations do not significantly impact students' environmental literacy levels. The results of the study generally show that the environmental knowledge indicator has the highest score of 83,895, followed by cognitive skills with an average score of 83,33, both of which are in good criteria. while the indicators of attitude and behavior are in fairly good criteria. This is an indication that it is proven that assumptions with a lot of knowledge and skills gained will change and increase students' understanding for the better(Carmi, Arnon, and Orion 2015; McBeth and Volk 2009)

The results of a deeper survey show that the results of a survey of good student environmental knowledge can be influenced by the level of literacy given by the lecturer to students who are united with the concepts that the lecturer has taught in explaining and applying knowledge. The results of several studies have also stated in their research that environmental education should be propagated to students, and this is due to the causal relationship between attitudes and human behavior towards the environment(Craig & Allen, 2015; Pe'er et al., 2007) So that increasing environmental knowledge indicators will also improve cognitive skills where in general it can be seen that the correlation betweenenvironmental knowledge and cognitive skills is both within the same criteria, namely being in Good criteria. Meanwhile, the attitude and behavior indicators are slightly lower, namely on the criteria of good enough. These results illustrate that several factors can influence students' behavior and attitudes. They are in the pretty good criteria that impact students' environment, such as parents, college curriculum, student habits at home, and their interactions with

the environment (Karimzadegan & Meiboudia, 2012; Price, 2014). Individual behavior and attitudes towards the environment cannot be formed just like that. It takes a situation that can routinely create comfortable conditions both in continuous interaction with both culture knowledge, thinking patterns, and beliefs, wanting to change for the better, will be very influential towards good behavior and attitude. This is also common in the world of education where the best conditions in a lecture will produce learning outcomes, creativity and a good level of understanding as well(Sulman, Tanti, et al., 2021; Zb et al., 2020; Zb, Novalian, Rozal, et al., 2021)

The results of the survey also show as depicted in table 5. The researcher only drew three types of parental occupations from the several listed, and this is intended to focus the research results into a simpler one. That students' literacy scores are based on parents' occupations categorized into three references, namely civil servants, private and farmers, which are in the same criteria, namely the Good criteria. This is in line with the theory developed in the world of education, namely if learning can be received well, then external factors will very little affect children's cognitive thinking patterns(Blau et al., 2020; Vosniadou et al., 2020), this is a finding that can state that people's lives in various fields of life can be a pillar of success even though it cannot be stated absolutely because the learning provided by the lecturer is appropriate and reasonable by emphasizing activities on the natural conditions of the environment around students, can open insight into thinking. Diverse students in solving a problem (Putra et al., 2021; Sulman, 2019; Sulman, Tanti, et al., 2021). Indicators of behavior, cognitive skills and attitudes for children who are civil servants and also private are in the sufficient category, while for children whose parents are private have sufficient scores and have increased, this is because the knowledge embedded in students will affect their attitude towards the environment that will be realized in action or behavior that should be able to

support environmental literacy In addition, there are differences in children whose parents are farmers in the behavioral category slightly better, namely being in a Goodcategory. This may be due to the ability to change oneself to be better than others to be more careful in attitude and behavior, so as to increase creativity with high and quality art as a result of the learning process (Zb, Novalian, Ananda, et al., 2021).

Overall, the literacy understanding of biology education students in Jambi province with a background in studying at Islamic Religious Colleges does not have a significant difference when viewed from the perspective of parents' occupations and gender and the level of environmental literacy of students in general. The study results indicate that the environmental literacy skills of biology education students in the province are still in a pretty good category. However, it is hoped that biology education students in Jambi province can have excellent literacy skills in facing the era of the industrial revolution 4.0 and the independent learning campus, which was proclaimed by the government. In fact, it should be an early warning for education leaders in Jambi Province because the environment on campuses in Jambi Province is not yet maximized that is able to provide direct learning experiences that are actually able to increase student understanding(Güryay, 2016; Sergis et al., 2018), towards environmental knowledge and skills in the cognitive domain, in other words, it is hoped that educators, especially in universities, will bring new patterns for students to be able to interact with the environment, provide a sense of confidence and love for the environment so that not increasing understanding can instill and develop student environmental literacy for the better category. This may be due to the ability to change oneself to be better than others to be more careful in attitude and behavior, so as to increase creativity with high and quality art as a result of the learning process (Zb, Novalian, Ananda, et al., 2021).

Overall, the literacy understanding of biology education students in Jambi province with a background in studying at Islamic Religious Colleges does not have a significant difference when viewed from the perspective of parents' occupations and gender and the level of environmental literacy of students in general. The study results indicate that the environmental literacy skills of biology education students in the province are still in a pretty good category. However, it is hoped that biology education students in Jambi province can have excellent literacy skills in facing the era of the industrial revolution 4.0 and the independent learning campus, which was proclaimed by the government. In fact, it should be an early warning for education leaders in Jambi Province because the environment on campuses in Jambi Province is not yet maximized that is able to provide direct learning experiences that are actually able to increase student understanding(Güryay, 2016; Sergis et al., 2018), towards environmental knowledge and skills in the cognitive domain, in other words, it is hoped that educators, especially in universities, will bring new patterns for students to be able to interact with the environment, provide a sense of confidence and love for the environment so that not increasing understanding can instill and develop student environmental literacy for the better.

C. Conclusion

Based on the results of the research that has been described above, it can be concluded that higher education should be able to improve environmental literacy, especially environmental literacy for biology education students with an Islamic Religious College background in Jambi province. By providing more support to students both in theory and in the application so as to improve literacy knowledge and cognitive skills. The findings in the field show that both in general and from the perspective of gender and parental occupation, there is no significant difference in results on the level of environmental literacy of students. Appropriate

understanding and information both in the lecture process and in the environment should be emphasized on knowledge about systems in environmental literacy, for example, the cause-and-effect relationship of the impact of human activities on the environment that can threaten and risk in the realm of a better life so that it is expected to have an impact in the form of belief on the importance of student environmental literacy.

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