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ECO-LITERACY: WHICH BETTER EITHER JOINING STUDY GROUP OR SELF STUDY?

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ABSTRACT

Eco-literacy is one aspect that is important for students to resolve the current environmental issue and sustainable living. Eco--literacy has three dimensions of caring, practical competence, and knowledge. One of the things that can build an Eco-literacy is participation in study groups. This study aims to describe the differences in the eco-literacy of biology students based on participation in study groups. This research was conducted at Universitas Negeri Jakarta on May 2018. The research method used was Ex Post Facto. There were two different sample groups; the first group was X1 contain by students who participated in the study group, and the other group X2 contain by students who had not participated in the study group. The number of the sample from each group was 32 biology students' year 2015. The data score of Eco literacy was taken using an eco-literacy questionnaire. Data were analyzed with t-test at significance level α = 0,05. From the results of the analysis, there were no significant differences between the eco-literacy of students participating in the study group and students who did not participate in the study group.

Keywords: eco-literacy, student, participation

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Introduction

Human life is inseparable from interactions with the environment. Rapid population growth and improved living standards cause a significant increase in the demand for natural resources (Kayihan & Tönük, 2012). It has an impact on environmental problems. There is a need for education and providing information about environmental problems to the community as a way to face challenges on earth (Hallfreðsdóttir, 2011).

Importantly, the resolution of environmental problems aimed at sustainable community life. One way is individuals who have eco-literacy, namely, ecological literacy or the term used by Capra (1999) to describe humans who have reached a high level of awareness of the importance of the environment. The basis of eco-literacy includes caring, knowledge, and practical potential. The term eco-literacy is not only a measurement of a person's ecological knowledge but also to determine the ability and willingness of someone to use that knowledge for a sustainable life (Monaghan & Curthoys, 2008). Puk & Behm (2003) argue that in the realm of education, eco-literacy should be the main focus in the curriculum.

At the university, the Biology department teaches courses that study the structure and function of ecosystems and concepts that are strictly related to environmental problems. Ecology and Environmental Sciences courses that have been taken by students provide their provisions to have eco-literacy. This eco-literacy gives students the ability to be brave in taking a stand on environmental issues (Suryanda, A. et al. 2019). Hammond & Herron (2011) revealed that the eco-literacy level of biology students in Mississippi is higher than non-biology students.

There are five ways to build eco-literacy, one of which is by forming and following a positive community, having a global perspective, healthy relationships, and inviting other people to act (Goleman et al., 2013). Heryanti et al. (2018) concluded that there was a positive relationship between student participation in scout extracurricular activities and environmental awareness attitudes. The existence of the community is currently developing at the university. One example of an existing community or organization is a study group. The study group is a collection of several people who study together in order to achieve specific goals (Nurisshobah, 2016). The activities of the study groups are carried out outside of class hours, and students can participate (Ginting, 2003). Study groups are positive activities, educating and conserving the environment.

Students and lecturers establish several study groups that aim to accommodate student interests and provide knowledge about the biodiversity of living things and their ecology through a series of activities, including the study of scientific articles, ecological training, exploration, or seminars. The activity aims to provide knowledge to the public about ecological, conservation, and biodiversity issues. The expectation of participation in study groups will influence student eco-literacy. The study groups are 1) Nycticorax CDE, a study group that studies the ins and outs of birds; 2) Macaca KSP, a study group that focuses on primates; and 3) CMC Acropora, a study group that focuses its activities on marine and coral reefs. Therefore, this study describes the eco-literacy of Biology students in terms of participation in the study group.

Research Method

The research was conducted at the Biology and Biology Education Study Program, Jakarta State University. The research method used is the ex-post facto research method with a quantitative approach. Data collection techniques using questionnaires. It modified from McBride et al. (2013); McGinn (2014); Morrone et al. (2001); and Pitman & Daniels (2016). The sample was determined purposively, a class of 2015 students who had taken an ecology course — a sample of 32 students for each group of students who participated in the study group and not. Ecoliteracy is measured using three dimensions, namely care, practical competence, and knowledge. There are 45 valid items from 80 items that have been tested for validity using the Pearson Product Moment formula (r-table = 0.361) and reliability testing using the Cronbach Alpha formula. Data analysis used the t-test to test the average scores of two different groups, namely students who participated in the study group (KPB Nycticorax or CMC Acropora or KSP Macaca) and students who did not participate in the study group.

Result and Discussion

The data obtained is student eco-literacy scores. Student eco-literacy scores were divided into two groups: students who participated in the study group and students who did not participate in the study group (Figures 1 and 2).

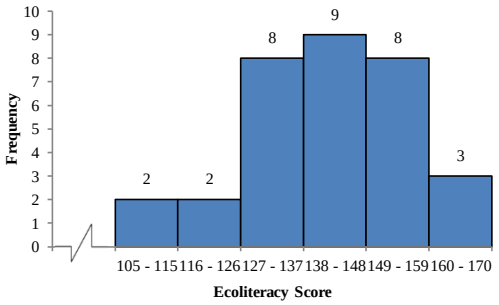

Figure 1. Frequency Distribution of the students' eco-literacy score who participated in the study group.

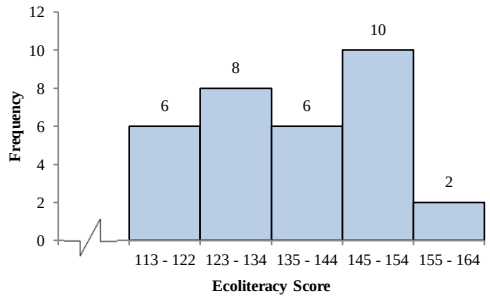

Figure 2. Frequency Distribution of the students' eco-literacy score who did not participate in the study group.

Based on figures 1 and 2, it shows that the frequency distribution of students who participated in the study group that achieved an eco-literacy score of 138-170 was 20 students. On the other hand, those who did not participate in the study group were 18 students. The difference in the average eco-literacy score of students based on participation in the study group can be seen in Table 1.

Table 1. The average student's eco-literacy score.

No.	Group	Average
1	Student's who participated in the study group	140,75
2	Student's who did not participate in the study group	137,09

Eco-literacy of students who took part in study groups was higher than students who did not participate in study groups. It can be seen from the average number of eco-literacy scores of students who participated in the study group that is 140.75 greater than students who did not participate in the study group that has an average value of 137.09 eco-literacy scores. In contrast to the average results, based on the results of statistical tests conducted on Biology students at the Jakarta State University class of 2015 it can be seen that there is no significant difference between the eco-literacy of students who participated in the study group and students who did not participate in the study group.

The average score of each dimension of student eco-literacy can be seen in Figure 3.

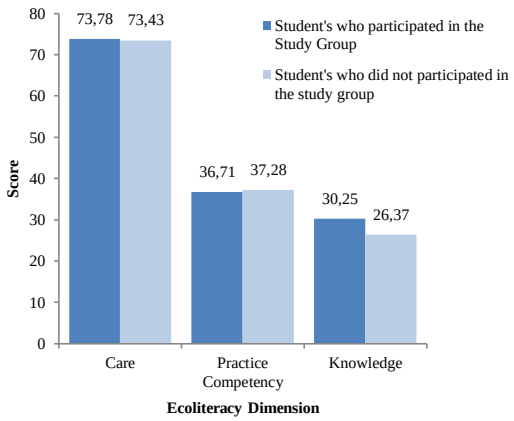

Figure 3. The average score of the eco-literacy dimension.

Based on Figure 3, it shows that the three dimensions of eco-literacy (caring, practical competence and knowledge) show that the scores obtained by students are not much different. In the dimension of knowledge, students who take study groups are superior. It shows that the education program in the study group has a positive impact. Study articles in study groups add new information to students on ecological studies. Furthermore, it is essential for study groups that have been formed to enhance the study of scientific articles with renewable issues. On the dimensions of caring and practical competence, there is no difference. Because, in general, students already have the right level of concern for the environment and practical ability to preserve the environment.

Furthermore, the eco-literacy score is categorized according to the eco-literacy level criteria (Figure 4).

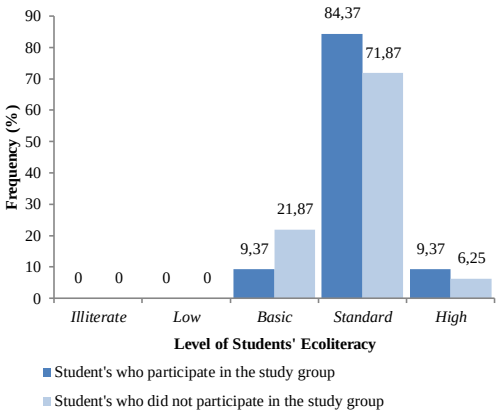

Figure 4. Comparison of student eco-literacy levels.

Based on Figure 4, it can be seen that the level of eco-literacy of students is not at the illiterate and low levels, all students are at the basic, standard, and high levels. The characteristics of eco-literacy at the basic level understand basic ecological principles, having enough care, and taking enough actions to protect and repair environmental damage. The standard level that is understanding more advanced ecological principles having adequate care but not being overly enthusiastic, taking more significant action to safeguard and repair environmental damage. While, the high level means understanding most of

the principles of ecology, having high awareness and environmental concern, and being enthusiastic, demonstrating exemplary actions that can be emulated to protect and repair environmental damage.

However, at the level of eco-literacy, biology students in general already have a sufficient understanding of ecological principles, concern for environmental problems, and take action to protect and repair environmental damage. So there is no significant difference between the eco-literacy of students who participated in the study group and students who did not participate in the study group.

In addition, the thing that reinforces one's eco-literacy is through education (Barnes, 2013). Based on the results of Hammond & Herron's research (2011), student eco-literacy is influenced by lecture programs and experience. However, there is no significant difference between the eco-literacy of students who participate in study groups and students who do not participate in study groups because all respondents are biology students who generally have taken ecology courses so that most individuals already have specialized knowledge and interests separate to ecology (Moore et al., 2009). The focus of studying ecology through individual subjects can build eco-literacy (Puk & Behm, 2003). Besides, biology students have taken basic biology courses that study the basics of biology from the cellular level to the ecosystem.

In fact, another course that has been followed in environmental science. Environmental science studies several scopes of science related to the physical, chemical, and biological environments in which organisms live (Allaby, 2002). The benefits of studying environmental science are enlightening about the importance of environmental protection and conservation due to pollution caused today (Singh, 2006). There is education about the environment in the courses already mentioned. Environmental education aims to help individuals, communities, and communities to develop a more profound sense of moral responsibility towards the Earth and an intrinsic desire to adopt lifestyles and behaviours that embrace 3E (Equity or caring for the Earth, Economy or economic preservation, and Ecology) (Barnes, 2013).

Another subject that has been taken by students is Conservation Biology. Issues discussed in conservation biology include diversity, population demographics, population and habitat viability, landscape fragmentation, and management of natural areas and endangered species (Meine, 2010).

The lecture program that is followed by students is not only lectures in the room, but several courses require students to take field courses such as zoology, botany, ecology, and Field Work Lectures. Outdoor education has an essential role in the development of eco-literacy and sustainable communities (Monaghan & Curthoys, 2008). Outdoor lecture programs require students to conduct research, recognize diversity, and adapt to the environment. It is in line with the opinion of Pilgrim et al. (2007), who found that an important factor influencing eco-literacy was spending much time in nature and that this was one of the factors that influenced knowledge of environmental diversity and sensitivity.

For this reason, the level of eco-literacy can also be explained in several ways, namely: there is a possibility that the initial knowledge possessed triggers frequent outdoor activities; involvement in outdoor activities has sparked interest that leads to learning; third, knowledge and active involvement develop

simultaneously (Pitman et al., 2018). In addition, following a lecture program that provides environmental education and involvement with nature. Morrone et al. (2001) suggested that changing one's perspective is also needed to increase eco-literacy. Furthermore, the factors mentioned above, participation in the study group did not affect eco-literacy because respondents had only been in the study group for 1.5 years, so participation had not contributed much to the formation of eco-literacy because students were still in the adjustment and introduction stages.

There are five tools that people can use to achieve eco-literacy, namely education from the mass media, formal education, financial incentives, being actively involved with the environment or education outside the classroom environment, and linking with researchers (McBride et al., 2013). Another potential trigger is the traditional educational experience. Through these experiences, someone can connect the three fields of eco-literacy better. For example, allowing students to work in agriculture and eating the food they harvest, giving students space to learn about agriculture, connecting them to work in the field, and allowing students to take action on what is being experienced.

Sustainability is a term for humans to find alternatives to everything that is finished now, and these alternatives must have a slight negative impact on the environment and others (Orr, 1992). Eco-literate people will make decisions and take action based on environmental problems that are on their minds (McGinn, 2014). Eco-literacy itself is important because people and countries have the potential to improve the economy significantly.

Higher education is an institution that should prepare students to enter a society that is full of environmental challenges. Higher education must also create space and time for students to grow intellectually, personally, and interpersonally. It does not matter if students at a new level have low eco-literacy or even do not have eco-literacy. However, the problems are students finished their studies and go community without strong concepts in each aspect of eco-literacy. Therefore, universities should play a role in helping develop student eco-literacy by creating programs that can develop and enhance student eco-literacy.

Conclusion

Finally, there was no significant difference between the eco-literacy of students who participated in the study group and students who did not participate in the study group. However, eco-literacy is needed for a sustainable and essential life to be taught to students. Other researchers are advised to further develop this research through different variables that might affect a person's eco-literacy.

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