

IMPROVING STUDENT'S ECO-LITERACY SKILLS THROUGH THE USE OF THE ECO-LITERACY MODULE

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ABSTRACT

This research is motivated by the low level of eco-literacy of elementary school students. This study aims to improve students' eco-literacy skills by using the eco-literacy module. The method used in this study is an experimental method with the object of research being 40 students. The sample chosen was 40 respondents consisting of 18 male students and 22 female students of Karangsembung III State Elementary School, Kadipaten District, Majalengka Regency, West Java Province. The instrument used tests and non-tests, to measure knowledge consisting of 20 questions, and to measure attitudes used attitude observation sheets, and the psychomotor instrument used performance tests. Data analysis techniques in this study used the independent sample t-test with a significance level of 0.05. In addition, to find out how much the level of effectiveness of using the eco-literacy module has on students' ecological abilities, the researchers conducted the Cohen's d test. The results showed that the use of the eco-literacy module could improve the eco-literacy ability of elementary school students. The increase in ability is influenced by the activities of students and teachers in the learning process in the classroom. The eco-literacy module has a positive impact on students so that students become enthusiastic about learning so they don't feel bored when studying the material. Based on the research results, other schools need to implement eco-literacy-based learning modules in an effort to form better ecological literacy and the ability to solve environmental problems.

1. INTRODUCTION

Current development progress is dangerous if it is not accompanied by environmental awareness. Humans tend to use natural resources indiscriminately without regard to the impact they cause (Dewberry, 2016; Ds, 2020; Fadjarajani & As'ari, 2021; Hartono, 2020; Lees, 2017; Lopez-Leon & Encino-Muñoz, 2020; McBride et al. , 2013; Muliana et al., 2018; Noviana et al., 2019; Nurlaili et al., 2020; Seidl, 2021, 2021; Snow, 2020). To create an environmentally

friendly society, it is necessary to instill environmental awareness in the younger generation from an early age. The changes that have occurred due to the advancement of the times have given rise to many problems, one of which is environmental problems (Arga & Rahayu, 2019; Ds, 2020; Hartono, 2020; Lees, 2017; Litz, 2010; McBride et al., 2013; Nurbaeti et al. ., 2020; Rosyid et al., 2019; Sullivan, 2018; Tiwari, 2022). Firdausi & Wulandari (2021) explained that based on research by the IPCC (Intergovernmental on Climate Change) and the G-8 Group (developed countries) with 20 major economic countries, environmental damage, global temperature increases, and the depletion of natural resources occur due to human activities. Arga & Rahayu (2019) explained that humans who care about the environment certainly cannot be separated from the role of education, where the function of education is to teach humans to have a caring attitude towards the environment. Furthermore, Itafarida et al. (2019) said that environmental awareness related to education is called eco-literacy, this awareness affects the mindset of individuals in responding to environmental conditions in the present and in the future. McBride et al. (2013) argue that Eco-literacy has an important effect on environmental awareness. Ecoliteracy needs to be instilled from an early age.

This is in line with Desfandi et al. (2017) who say that the introduction of eco-literacy from an early age makes individuals aware of the environment. Anifa et al. (2017) mentioned that many elementary school students in Indonesia throw away their food/snack wrappers carelessly. This means that students' self-awareness has not yet grown. Based on the problems above, it is necessary to reform the learning process so that students are able to instill awareness of the environment. Rosidah et al. (2022) say that through the integration of educational programs that insert environmental materials into the curriculum, students are able to become characters who have a high awareness of the environment and its impacts. Learning must focus on awareness, the behavior of feeling the environment in students (Desfandi & Maryani, 2017; Febriani et al., 2020; Nadiroh et al., 2019; Sigit et al., 2021). Furthermore, Basically, every child has a sensitivity (feeling) to their environment (Firdausi & Wulandari, 2021; Hilmi et al., 2021; Lam, 2014; Lestari & Siskandar, 2020; Maulana & Surtikanti, 2020; Maulidah et al., 2021). This attitude can be seen when students feel sorry for living beings when they are hurt. This attitude of sharing must be developed by the teacher in the classroom, as a result, the sense of feeling for the students is getting stronger. Through this sustainable practice, children can assess and reflect on what it does good or bad for the environment.

This research begins with conducting field observations and conducting interviews with teachers and students in elementary schools in Majalengka Regency. From the results of the observations and interviews, it was found that eco-literacy is very helpful and makes it easier for students to learn, but the interviewed teachers stated that teachers still do not know and do not understand the appropriate eco-literacy according to the material and needs of students. Furthermore, from elementary schools, the researchers observed that they had not implemented eco-literacy. Furthermore, the results of interviews conducted by researchers with students in these elementary schools, stated that 100% of elementary school students did not know about eco-literacy. In addition, it is seen from the results of the initial scores/pretests conducted on fourth-grade students at State Elementary Schools in Majalengka Regency. It shows that 74% of students have not reached the KKM that has been determined, while the other 26% of students have achieved the KKM score. Based on this, there needs to be learning that can lead students to have eco-literacy abilities. One alternative solution for the low level of students' eco-literacy ability is to use the eco-literacy module. The eco-literacy module is needed to increase student's awareness of the environment.

Next, the basis for consideration is that the student's eco-literacy module can foster students' awareness of the environment in practical ways. The introduction of eco-literacy can be done through learning in schools. According to eco-literacy learning must be taught and applied in every curriculum at the education level. Ecoliteracy learning can be applied through the use of the eco-literacy module. This is in line with the opinion Sigit et al. (2019) that the

implementation of eco-literacy can be done by using modules as learning media that have been combined with eco-literacy. Furthermore, Nugraha et al. (2022) stated that the model aims for students to learn independently. The eco-literacy module is a module that examines the understanding of the importance of environmental awareness (Gunansyah et al., 2020; Johns & Pontes, 2019; Latifah et al., 2020; Lestariyanti & Hakim, 2020; Nadiroh et al., 2021; Okur-Berberoglu, 2014; Puspitasari & Khomarudin, 2020).

Based on the previous explanation, researchers need to conduct a scientific study of students' eco-literacy abilities through the use of the eco-literacy module. This study aims to determine the increase in the eco-literacy ability of elementary school students through the application of the eco-literacy module.

2. METHODS

2.1. Research Design

This study aims to determine the increase in students' eco-literacy abilities by using the eco-literacy module. This type of research is quasi-experimental (quasi-experimental) with a pretest-posttest control group design. Pretest-posttest control group design is a research design consisting of two groups that were chosen randomly (randomly), then given a pretest before learning and a posttest after learning which serves to determine whether there is a difference between the control group and the experimental group. The experimental class was given treatment using the eco-literacy module, while the control class used conventional teaching materials. The results of the pretest and posttest in the experimental and control classes were compared.

2.2. Respondent

Respondents in this study were fourth-grade elementary school students. The sampling technique used in this study is a purposive sampling technique (samples aimed). Purposive sampling is a sampling technique with certain considerations. The reason for using the purposive sampling technique is because it takes two classes that are homogeneous in their abilities and can represent the characteristics of the population. The sample chosen was 40 respondents consisting of 18 male students and 22 female students.

2.3. Instrument

The instrument used in this research is the eco-literacy module. The next learning tools used are lesson plans, worksheets, and practice questions. In order to determine students' ecological abilities, researchers used an ecological measurement instrument consisting of three indicators including knowledge, attitude, and psychomotor. The instrument used tests and non-tests, to measure knowledge consisting of 20 questions, and to measure attitudes used attitude observation sheets, and the psychomotor instrument used performance tests. Furthermore, in order to determine the level of validity and reliability of the instruments used by researchers, researchers first tested the instrument and tested the validity and reliability.

2.4. Data analysis

Collecting data in this study was obtained by doing a pretest and posttest. The pretest is used to measure initial abilities before learning begins and the posttest is used to measure students' abilities after learning is complete. Pretest and posttest were given to the control class and the experimental class. Then a different test was carried out on the initial average performance in each experimental group. This is done to find out whether there is a difference in the average initial achievement of the two groups. The test used is the independent sample

t-test with a significance level of 0.05. Besides that, to find out how much the level of effectiveness of using the eco-literacy module has on students' ecological abilities, the researchers conducted the Cohen's d test.

3. RESULTS AND DISCUSSION

3.1. Results

The results of data analysis in this study were to find out how the use of the eco-literacy module was for fourth-grade elementary school students.

Table 1 Values of Descriptive Statistics of Pretest and Posttest in Experiment Class and Control Class

	Respondent	Mean
Pretest Experiment Class	20	77,30
Pretest Control Class	20	75,20
Posttest Experiment Class	20	81,50
Posttest Control Class	20	79,95

Numbers in the tables are not to be repeated in verbal descriptions, either before or after the It can be understood that the average score of students before being given action in the experimental class was 77.30, while in the control class it was 75.20. Furthermore, the average score of students after being given action in the experimental class was 81.50, and the average score in the control class was 79.95. So descriptively there is a difference in the average before and after the use of the Eco-literacy Module for fourth-grade elementary school students. Next, the researchers conducted a Paired Sample T-test for the experimental class and the control class. The following table shows the results of the Paired Sample T-test statistical analysis:

Table 2 Paired Sample T-Test

Class	Value Sig.
Pretest Posttest Experiment	0,000
Pretest Posttest Control	0,070

Based on the table of t-test results it can be understood that the significance value of the experimental class is 0.000, it can be said that the significance value of the experimental class is less than 0.05 (sig. 2-tailed <0.05), it can be stated that in the experimental class there are differences in students' understanding abilities before and after using the eco-literacy module. Furthermore, the significance value in the control class is 0.070. It can be understood that the significant value in the control class is greater than 0.05, it is stated that in the control class there is no difference in eco-literacy skills before and after learning.

Next, the researcher conducted a simple linear regression test with the aim of testing the effect of one independent variable on the dependent variable. You can also see how big the impact is. The results of the simple linear regression test can be seen in the table below:

Table 3 Simple Linear Regression Test

Regression	R	R Square
Eco-literacy	0,956	0,913

It can be understood that if the correlation value (R) is 0.956, then the coefficient of determination (R square) is 0.913. Based on the results of these statistical tests, it can be concluded that there is an effect of the eco-literacy module on elementary school students. Furthermore, to see the effect of using the eco-literacy module on students' eco-literacy skills, as follows:

Table 4 Interpretation of Cohen's d. Value

Cohen's Standart	Effect Size	Persentase (%)
Medium	0,562	69%

Based on these calculations, it is known that the effect size is 0.562 Percentile Standing at 69%, then the Interpretation is Medium, which means that the interpretation table is included in the Medium category. So it can be concluded that the effect of the eco-literacy module on students' eco-literacy skills is 69% and is classified as moderate.

3.2. Discussion

Characters that can be applied after using the project-based learning-based eco-literacy module, namely the environmental care character who respects the environment as a resource must be maintained and its function is maintained with the slogan, the earth is inherited from the ancestors, but the mandate of the children and grandchildren must be preserved. The attitude of caring for the environment must be instilled in a person as early as possible, so that later when he grows up an attitude of caring for the environment is attached to him. Students who have the character of caring for the environment are reflected in not destroying nature while in the school environment and maintaining the cleanliness and beauty of the classroom and school. In the head aspect on the sub-competency of identifying waste environmental problems in schools, the results showed that before using the eco-literacy module there were 10 students who knew how to behave when there was garbage, while after students learned using the eco-literacy module there were 15 students who knew about how to behave when there was garbage. . In the sub-competency mentioning the impact of littering, as many as 15 students know how to behave towards garbage and know the impact of littering, while after learning by using the module there are 18 students who have mastered the sub-competency.

Furthermore, in the sub-competency mentioning natural resources in schools after learning by using the module, there are 18 students who understand and can mention natural resources around the school environment. In the sub-competence of distinguishing the types of natural resources that exist around the school environment, before learning by using the module there are 20 students who are able to name and distinguish the types of natural resources in the school environment and after learning by using the module that has been developed there are 15 students who are able to mention and distinguish the types of natural resources that exist around the school environment. The next aspect of eco-literacy is the heart or emotional aspect. It can be understood that in addition to having good knowledge of the environment, the ability to be eco-literate is also supported by empathy or a sense of responsibility to care for and protect the environment so that a sense of concern arises to continue to protect and care for the environment. The students' eco-literacy ability in the heart aspect in the sub-competency shows an empathetic attitude towards living things, there are 10 students who have shown a caring attitude towards plants around the school environment. Meanwhile, after learning by using the module that has been developed, there are 15 students who have shown concern for the plants in the school, this can be seen in the students who show the habit of watering the plants in front of the class.

In the sub-competence explaining attitudes when dealing with friends who don't care about the environment, after learning by using the module there are 18 students who say they advise or remind each other of their friends who forget or intentionally don't take care of the school environment. This is also reinforced by the findings of the researchers during observations which found that students reminded each other of their friends who forgot to throw garbage in the trash. Next, the aspect of competence is committed to protecting the school environment such as not littering, using sufficient energy, and having empathy for living things in the school environment, all students show their commitment to always protecting the school environment. Thus, it can be concluded that the students' eco-literacy ability in the heart realm gets good results. The students' eco-literacy ability in the hand's aspect got quite good results. In the sub-competency of understanding cleaning tools, all informants know the cleaning tools provided by the school that they often use well, this can be seen from all students who have been able to use cleaning tools properly and correctly. However, in the sub-competency of bringing lunch from home, there were 15 students who said they preferred to buy food from school. This was also reinforced by the class teacher, who said that it was rare for students to have the habit of bringing lunch from home.

In the sub-competency of saving resources at school, after using the developed module, 15 students said they were accustomed to saving resources, especially electricity through the daily class picket program. Students also explained the importance of saving resources at school, especially electricity. The results of the research and discussion that have been described above are in line with the results of research conducted. Research that has been conducted by (Firdausi & Wulandari, 2021; Sigit et al., 2019) the results of the study shows that the ecopedagogic interactive multimedia application that has been developed can foster environmental care habits in students, through sensitivity to environmental problems and efforts to preserve the environment. The environment starts from small things around the school and community environment. Based on the research results, other schools need to implement eco-literacy-based learning modules in an effort to form better ecological literacy and the ability to solve environmental problems.

4. CONCLUSION

Based on the results of the research and discussion described above, it can be concluded that the use of the eco-literacy module can improve the eco-literacy ability of elementary school students. The increase in the value of learning outcomes is influenced by the activities of students and teachers in the learning process in the classroom. The student eco-literacy module has a positive impact on students so that students become enthusiastic about learning because they formulate learning techniques that are very fun so that students do not feel bored while studying the material. Based on the research results, other schools need to implement eco-literacy-based learning modules in an effort to form better ecological literacy and the ability to solve environmental problems. Furthermore, future researchers are expected to be able to conduct research on other skills related to environmental issues.

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