

The Effectiveness of Ecological-Contextual Based Learning for Prosocial Behavior (ECOPS) Model in Social Studies Subject in Junior High School

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Abstract

This study is intended to describe the effectiveness of Ecological - Contextual based Learning for Prosocial behavior (ECOPS) Model in Social Studies Subject in Junior High School. The ECOPS is a natural environmental-based social studies learning model. The learning process is based on the surrounding environment and focuses on managing plastic bottle waste. This study employed quasi-experiment method. The topic taught is about social interaction in which environmental-based with the ultimate goal being prosocial behavior. Based on the data collected from the respondents, it was found that social studies learning using the ECOPS model was proven to be effective in increasing the achievement of students' knowledge aspects related to prosocial. This is because social studies learning which was conducted in the classroom was carried out contextually, so that learning becomes more meaningful for students. This study is useful to serve as an alternative social studies learning model that can be used by junior high school social studies teachers. Thus, students can obtain maximum learning achievement.

Keywords: Ecological Literacy, Social Studies, Prosocial.

1. INTRODUCTION

Social studies learning is closely related to humans and the environment. This is because social studies learning aims to help students to find solutions to the problems they face, so that students will be able to understand the social environment of their community [25]. For this reason, it is necessary to have a learning model for social studies that supports this goal, and the ECOPS model is a social studies learning model based on the environment by focusing on plastic bottle waste. The used plastic bottles are included into the category of inorganic waste which is recommended only for single use because it has a bad impact on health [15]. However, people who already know about it is still repeatedly using plastic bottles. Some

people ends up burning trash from these plastic bottles in order to prevent the repeated use of the used plastic bottles. Burning plastic bottles has a bad impact on the environment so that it can cause environmental pollution. As a form of saving the environment, it takes a high level of public awareness of the environment and education is an alternative solution to create a society that has ecological intelligence. Through a learning process based on environmental intelligence, students will be introduced to the importance of maintaining the environment that will have a positive impact on the environment, both the natural and social environments

Contextual social studies learning related to ecology or environmental issues has been carried out by several researchers and one of them is the research conducted

by Nisa in 2017[21]. The study explains the efforts to cultivate the character of environmental care for students through the Social Studies learning model based on Geography literacy. The result of the study indicates that the environmental care character of students can grow through the social studies learning model based on Geography literacy. Therefore, this model is recommended to be used during social studies learning in order to foster environmental awareness of students. A similar study was conducted by a teacher at the Semi Palar school. Satria conducted research on social studies learning through the development of the topic of natural disasters. Based on this research, it was found that the development of the topic of natural disasters in social studies learning was proven to be able to increase students' ecological intelligence in caring for the environment. Departing from these studies, it encourages researchers to conduct research in the field of the environment but has another goal, namely increasing the knowledge aspect of students' prosocial behaviour based on the environment. Thus, the study has concern not only on the environment but also on prosocial behavior. As stated by Albertus [2] that the kind of caring includes two things, namely environmental care and prosocial.

Thus, this article will describe the effectiveness of the ECOPS model in social studies learning on knowledge aspects of prosocial behaviour by using a quasi-experimental method. The novelty of this research is the combination of environmental care and social care. Furthermore, the ECOPS model provides updates in terms of the learning process where students will determine the success of their own learning. Students are required to collect plastic bottle waste and immediately hand it over to the garbage collector, so that students will directly interact with the people who process the plastic waste.

LITERATURE REVIEW

Ecological Literacy

Ecological literacy was first used in the 1990s by Fritjof Capra. Ecological literacy introduces a blend of values related to nature and humans in the world of education. Ecological literacy is a place to get to know ecological principles and use these principles in the context of creating sustainable humans [14]. Furthermore, Capra emphasized that ecological literacy is not just an understanding of the basic principles of ecology, but ecological literacy can be realized in everyday life [6].

An example of the application of ecological literacy is the behavior given in response to plastic bottle waste. Individuals who have ecological literacy will not burn plastic bottle waste because they have knowledge about the harmful effects that will be caused by burning plastic waste. The danger posed by burning plastic waste is contamination with chemical substances that have negative impact on the environment and health. According to Sari [26], plastic is formed through the process of combining molecules, namely simple molecules and large molecules. According to [24] said that the material for making plastic is a synthetic organic polymer that can be found in water bottles, clothing, food packaging, medical equipment, electronics, construction materials, etc. The need for plastic is influenced by the high demand for plastic and its products caused by the high human population. Hazardous chemical compounds that can be produced from burning plastic waste are dioxin chemical compounds. Dioxin is a dangerous substance that can be used as a plant poison. Dioxin is a type of organochlorine that has four chlorines, namely two oxygen and two benzene rings. These chemical contaminants will be formed when burning plastic waste. When the process of burning plastic waste occurs, the release of CO₂ and CO₂ can cause global warming because the CO₂ can trap radiant heat that prevents it from leaving the earth [7]. The chemical structure of dioxin is lipophilic, which

causes the compound to be easily soluble in fat and water.

The dangers arising from burning plastic waste can cause various kinds of pollution, namely water, soil and air pollution. It is undeniable that some of the causes of water pollution come from land [28]. Groundwater pollution resulting from burning plastic waste can be absorbed into groundwater and then empties into the sea and can cause various marine species to be entangled in these dangerous compounds which in turn can cause the worst risk, namely the death of marine species [12]. Another negative impact caused by water pollution by plastic waste is the disruption of public health caused by marine animals that are consumed by humans but are contaminated with microplastics [10]. The impact of burning plastic waste on the soil is that it is difficult to decompose compounds derived from plastic. Microplastic compounds [8] and polymer fibers that are absorbed into the soil can still be detected after 5 years. Thus, the plastic waste is difficult to break down in the soil and causes soil pollution. Furthermore, air pollution caused by burning plastic waste can lead to the risk of respiratory problems so that the impact on future generations cannot be underestimated [13].

In order to prevent and minimize environmental damage for future generations, it is necessary to have a good understanding by individuals about the environment and ecological literacy. Through good understanding and application of ecological literacy, natural and human sustainability will be created.

Prosocial Behavior

Prosocial is an action that aims to help or benefit another person or group that is carried out voluntarily [9]. Furthermore, Eisenberg & Mussen [9] classify aspects of prosocial, namely sharing, cooperative, helping, honesty, and generosity. Prosocial is an important character to be planted and continuously developed in the individual. If prosocial is embedded in students, they will

get used to acting caring for others. As stated by Mareš [16] that if children or adolescents are faced with situations that require them to provide help (a form of prosocial) with the knowledge they have acquired during learning, then they will take these actions with full responsibility.

Prosocial has a role in determining one's happiness. This is reinforced by several opinions that come from Nelson et al [20], Alden & Trew [3], Pressman, Kraft, & Cross [22] which state that doing good deeds, such as participating in prosocial behavior, will increase overall happiness. Furthermore, Nelson [20] added that students in the US and South Korea who were assigned to do good deeds within a span of 6 weeks, showed changes in increasing happiness compared to those who only focused on their academic fields. Seeing the positive impact described above, it is very important to instill social awareness in the school environment for the development of positive emotions in students.

One of the subjects that are able to develop prosocial in schools is social studies subjects. As stated by Fenton as quoted by Alma [4] states that the main objectives of social studies (social studies) are: (1) social studies prepare children to be a good citizenship, (2) social studies teach children how to think, and (3) social studies pass on the cultural heritage. Based on the three main objectives described by Fenton, it shows that the main points in social studies learning emphasize social interests, namely preparing children to become good citizens who are able to think and can carry on cultural heritage.

Implicitly, social studies learning is full of character building for students. Based on the results of research conducted by Masrukhan [17] states that the implementation of prosocial character education includes three things, namely: first, the integration of self-development programs such as habituation carried out in the daily life of students at school, for example providing routine infaq. Second,

integration in subjects by linking social care characters into subjects and one of them is social studies. Third, the integration of school culture by facilitating social activities. Thus, if one of the character values is taken, namely prosocial, then Social Studies can be effectively able to cultivate the character of prosocial. Talking about prosocial, Aknin & Broesch [1] stated that prosocial behavior will reward the perpetrator, which is in the form of positive emotions. Thus, prosocial does not only have benefits for the recipients, but also the perpetrators.

Ecological-Contextual based Learning for Prosocial behavior (ECOPS) Model

Ecological - Contextual Based learning for Prosocial (ECOPS) Model is a social-studies learning model that aims to foster prosocial behavior of junior high school students. This ECOPS learning model departs from environmental problems that occur, so it is necessary to learn contextual social studies based on ecology which aims to foster a sense of prosocial in order to maintain survival. Social studies subjects aim to develop the potential of students to be sensitive to social problems in society, have a positive mental attitude towards correcting all inequalities that occur, and are skilled in overcoming every day-to-day problem that afflicts themselves and those that afflict social life [30].

There are four philosophies that serve as the basis for developing the ECOPS model. First, George C. Homans' Social Exchange Theory, which was later refined by Peter M. Blau. This theory states that interactions that occur in everyday life have similarities with economic transactions, only that they do not always have to be in the form of goods or money, but can also be in the form of an exchange of real and unreal things. This theory is used as the basis for the ECOPS model because when the learning process using the ECOPS model takes place, of course there will be social interaction between teachers,

students, guest teachers, garbage collectors and recipients of donations. Second, Vygotsky's social constructivist theory. This theory states that knowledge is acquired by students through social interactions with other people. This is because social interaction is able to change students' learning experiences [27]. Third, the theory of John Dewey's Progressivism. This theory states that students must be given the opportunity to develop their abilities so that they will grow into human beings who are able to solve problems in real life. Through the ECOPS model, in addition to being required to directly experience the learning process, students are also given the opportunity to develop critical thinking skills when problems occur in the surrounding environment when learning is taking place. Fourth, the theory of ecological intelligence (ecological intelligence) from Goleman. This theory emphasizes that the combination of skills, cognitive with empathy for living things and the ability to understand natural systems is a representative of someone who has ecological intelligence [11].

Departing from these four foundations, the ECOPS learning model was born which can be used as a model for the success of the social studies learning process. The ECOPS model has 5 syntax stages, namely Stimulation, Response, Knowledge construction, Analysis, and Application-communication. The five stages were carried out in each meeting for 4 meetings. During the learning process, students are treated to social interaction material in which material development about the environment is carried out. At the end of the second meeting, students received instructions to collect plastic bottle waste. Once collected, the students will sell the garbage directly to the garbage collectors. This is where the learning process occurs. Students gain knowledge in the form of the process of collecting and sorting plastic waste which will be recycled later without having to burn it. Students gain knowledge and experience at the same

time regarding exchange rates. Garbage which is usually disposed of or burned and can cause pollution, is found to have a use value from the waste. In addition to help of reducing soil, air and water pollution, students also indirectly help the economy of the garbage collectors. Through the plastic waste that is sold to them, the garbage collectors will get paid from the airports that accommodate the garbage. In addition to help the economy of the garbage collectors, the students will also get an imbalance in the form of money from the sales of plastic bottle waste. Furthermore, the money collected can be distributed to people in need. At this time, students' prosocial emerges. Departing from environmental concern by collecting plastic bottle waste, students can carry out donation activities. Thus, two forms of

concern have emerged (environment awareness and prosocial behaviour) when conducting social studies learning using the ECOPS model.

2. METHOD

The data was collected by means of doing pre-test and post- test in Junior high school in Cimahi. The total respondents were 38 students as the experimental group and 10 students as the control group. The statistical data analysis technique in this study used an experimental approach. Thus, there will be a comparison of the group's average value before being treated with after being treated. To examine differences in aspects of knowledge between the control and experimental groups, the following N-gain formula was used [18]:

$$\text{Normalized Gain} = \frac{\text{Posttest score} - \text{pretest score}}{\text{Maximum possible score} - \text{pretest score}}$$

To find out the test of differences in knowledge aspects between the control

group and the experimental group, the following categories or criteria are used:

Table 1 N-gain criteria

<i>N-gain</i>	Category
$g \geq 0,70$	High
$0,30 \leq \text{Alpha} < 0,70$	Medium
$G < 0,30$	Low

After obtaining N-Gain, then statistical tests were carried out to determine the differences in the increase in social awareness in aspects of attitudes, skills and knowledge between the experimental and control groups.

3. RESULT AND DISCUSSION

The results showed that the description of the knowledge of the

experimental group students at the time of the pre-test had an average of 60.32 with a standard deviation of 8.54, at the time of the post-test the average increased to 93.13 with a standard deviation of 5.82. The increase in knowledge aspects is 0.82. The following table 2 presents a complete description of the aspects of student knowledge.

Table 2. Overview of the Knowledge Aspects of the Experimental Group

Descriptive statistics	Pre-test	Post-test	N-Gain
Average	60.32	93.13	0.82
Standard Deviation	8.54	5.82	0.16
The highest score	70.00	100.00	1.00

The lowest score	43.00	77.00	0.28
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Next, a description of the knowledge of the control group students at the pretest has an average of 64.61 with a standard deviation of 8.35, at the post-test the average increased to 78.22 with a

standard deviation of 8.41. The increase in knowledge aspects is 0.35. The following table 3 provides a complete description of the knowledge aspect in the control group.

Table 3. Overview of the Knowledge Aspects of the Control Group

Descriptive statistics	Pre-test	Post-test	N-Gain
Average	64.61	78.22	0.35
Standard Deviation	8.35	8.41	0.27
The highest score	76.00	96.00	0.90
The lowest score	45.00	68.00	0.03

Statistical Assumption Test

Furthermore, the normality test was carried out before the difference test. The

following shows the results of the normality test in table 4:

Table 4. Normality test data again social awareness of junior high school students in Cimahi City on the aspect of knowledge of the experimental and control groups

Group	n	Average	KS-Z	Sig, (2-tailed)	H₀
Experiment	38	0.8161	0.130	0.080	Accepted
Control	18	0.3500	0.152	0.200	Accepted

Source: Data Processing with SPSS Version 22

The test criteria are if the probability value (Sig.) of Z is greater than = 0.05 then the null hypothesis is accepted, and vice versa if the probability value (Sig.) of Z is less than = 0.05 then the null hypothesis is rejected. With the following information:

H₀: The sample comes from a normally distributed population

H₁: The sample comes from a population that is not normally distributed

Based on the results of the normality test, it shows that both data have all sig values. (2-tailed) is greater than 0.05, so H₀ is accepted. So, based on the data n gain of social awareness of junior high school students in Cimahi City on the

aspect of knowledge of the experimental and control groups, the population is normally distributed.

Furthermore, the researchers switched to processing the homogeneity test of the data n gain social awareness of junior high school students in Cimahi City on the knowledge aspect of the two groups with the following hypothesis.

H₀: There is no difference in the variance of the score n gain of social awareness of junior high school students in Cimahi City on the aspect of knowledge in terms of the learning group.

H₁: There is a difference in the variance of the score n gain of social awareness of junior high school students in Cimahi City on the aspect of knowledge in terms of the learning group.

Table 5. Test of Homogeneity of Variance Data n gain of social awareness of junior high school students in Cimahi City on the aspect of knowledge of the experimental and control groups

Levene Statistic	df1	df2	Sig.
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5.934	1	54	0.018
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Source: Data Processing with SPSS Version 22

Based on table 5 shows that the data gain of prosocial behavior of junior high school students in Cimahi City on the aspect of knowledge of the experimental and control groups has a sig value. (2-tailed) is smaller than 0.05, so H_0 is rejected. Thus, the variance of the two data groups n gain prpsocial of junior high

school students in Cimahi City on the aspect of knowledge in the two groups is not homogeneous. Therefore, to test the difference in the data n gain of prosocial of junior high school students in Cimahi City in the knowledge aspect of the two learning groups, the independent t statistic equal variance not assumed was used.

Test the difference

The formulation of the statistical hypothesis being tested is as follows:

$$H_0 : \mu_{\text{eksperimen}} = \mu_{\text{kontrol}}$$

$$H_1 : \mu_{\text{eksperimen}} > \mu_{\text{kontrol}}$$

$\mu_{\text{eksperimen}}$: the average n gain of prosocial of junior high school students in Cimahi City on the knowledge aspect of the experimental group.

μ_{kontrol} : the average n gain of prosocial as of junior high school students in Cimahi City on the knowledge aspect of the control group.

Table 6. Test the difference n gain social awareness of junior high school students in Cimahi City on the aspect of knowledge of the experimental and control groups

Groups	Average	Std. Deviation	Varians Not Assumed			
			Difference Average	T Test	Sig	H_0
Experiment	0.8161	0.16305	0.46605	6.679	0.000	Rejected
Control	0.3500	0.27395				

Based on table 6 it can be seen that the probability value or sig. (2-tailed) of 0.000 which is smaller than $= 0.05$, so H_0 is rejected, which means that there is a statistical difference in the increase in prosocial behavior of junior high school students in Cimahi City in terms of knowledge between the experimental and control groups. Thus, the Ecological-contextual based learning for Prosocial (ECOPS) model is effective in increasing the prsocial behavior of junior high school students in Cimahi City on the aspect of knowledge.

Through the explanation depicted from the tables above, it shows the data processing between the experimental class and the control class. Through the data presented in table 2, the increase in

knowledge aspects in the experimental class is 0.82 while in table 3 shows the increase in knowledge aspects in the control class is only 0.35. In plain view, it can be said that the increase in knowledge aspects is higher achieved in the experimental class. This is because the students in the experimental class received the full treatment from the ECOPS model.

The difference in the description of the achievement of knowledge aspects in the experimental class and control class cannot be said to be effective. This is because to measure the effectiveness required a measuring instrument. It is through the processing data shown in table 6 that the effectiveness of the ECOPS model can be measured. Table 6 shows that the initial hypothesis which states that there

is no difference between the experimental and control classes is the rejected hypothesis. This is based on the data shown in table 6 which shows that through the effectiveness test tool, it was obtained that there was a difference in the achievement of knowledge aspects between the experimental and control classes so that the ECOPS model was said to be effective.

This effectiveness can occur because during the learning process using the ECOPS model, the surrounding environment has been utilized as a learning resource so that students are able to construct knowledge directly. This is in line with what was stated by Dewey (1916) which adapted from [14] that education as reconstruction.

4. CONCLUSION

Social studies learning is learning that is closely related to nature as a place to live and humans as the main actors. Therefore, we need a social-studies learning model that is able to accommodate these two things; nature and humans. The ECOPS model is a social-studies learning model that refers to the natural environment as a source of student learning with the goal of achieving student' prosocial. Thus, students will be treated to the development of material that combines the environment and humans. The combination of these two things will foster student awareness that is born from the environmental-based social studies learning process. Through a quasi-experimental research method conducted on 38 students as the experimental group and 10 students as the control group, the researchers found that the ECOPS model was proven to be effective in growing students' prosocial in social studies learning. Thus, the ECOPS model can be used as the choice of learning model for social studies teachers in the development of social interaction materials because in this material there is an explanation of interactions with nature and also humans,

so the ECOPS model will be suitable for learning by using this material.

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