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The Effect of Social Studies Learning Based on Ecopedagogy Approach on Students' Ecological Intelligence

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ABSTRACT:
Environmental issues are the center attention to ensure the continuation of sustainable development. Ecological intelligence is one of the important abilities that students have. One way to intervene in students' ecological intelligence can be done through learning with an ecopedagogical approach. This research aims to determine the effect of the ecopedagogical approach in social studies learning on students' ecological intelligence. This research uses a quantitative type using a quasi-experimental method. Sampling in this study used a purposive sampling technique, with a total sample of 60 students at MTs Negeri 1 Pamekasan who were divided into 2 (two) classes, namely class VII A as the control class, and class VII C as the experimental class. Based on the results of the research that has been carried out, the following conclusions can be drawn; In the experimental class the average N-Gain was 71.26. Meanwhile, the control class had an average N-Gain of 48.11. Then the t-test shows that the sig value. (2-tailed) of 0.000<0.05 which can be concluded that there is a significant (real) difference in effectiveness between the effect of using an ecological approach in social studies learning on students' ecological intelligence compared to conventional learning. Finally, an ecopedagogical approach in social studies learning needs to be developed to foster sensitivity regarding the complexity of environmental problems in order to contribute to environmental issues.
Keywords: Ecopedagogical Approach, Social Studies Learning, Ecological Intelligence

ABSTRAK:
Permasalahan lingkungan hidup menjadi pusat perhatian untuk menjamin keberlangsungan pembangunan berkelanjutan. Kecerdasan ekologis merupakan salah satu kemampuan yang penting dimiliki siswa. Salah satu cara untuk mengintervensi kecerdasan ekologis siswa dapat dilakukan melalui pembelajaran dengan pendekatan ekopedagogis. Penelitian ini bertujuan untuk mengetahui pengaruh pendekatan ekopedagogis dalam pembelajaran IPS terhadap kecerdasan ekologis siswa. Penelitian ini menggunakan jenis kuantitatif dengan menggunakan metode eksperimen semu. Pengambilan sampel dalam penelitian ini menggunakan teknik purposive sampling, dengan jumlah sampel sebanyak 60 siswa MTs Negeri 1 Pamekasan yang terbagi dalam 2 (dua) kelas, yaitu kelas VII A sebagai kelas kontrol, dan kelas VII C sebagai kelas eksperimen. Berdasarkan hasil penelitian yang telah dilakukan, maka dapat diambil kesimpulan sebagai berikut; Pada kelas eksperimen rata-rata N-Gain sebesar 71,26. Sedangkan kelas kontrol mempunyai rata-rata N-Gain sebesar 48,11. Kemudian uji t menunjukkan nilai sig. (2-tailed) sebesar 0,000<0,05 yang dapat disimpulkan bahwa terdapat perbedaan efektivitas yang signifikan (nyata) antara pengaruh penggunaan pendekatan ekologi dalam pembelajaran IPS terhadap kecerdasan ekologis siswa dibandingkan dengan pembelajaran konvensional. Terakhir, pendekatan ekopedagogis dalam pembelajaran IPS perlu dikembangkan untuk menumbuhkan kepekaan terhadap kompleksitas permasalahan lingkungan hidup agar dapat berkontribusi terhadap permasalahan lingkungan hidup.
Keywords: Pendekatan Ekopedagogis, Pembelajaran IPS, Kecerdasan Ekologis.

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A. INTRODUCTION

Extensive use of nature to support human life is not the only cause of environmental damage which is increasingly widespread today. However, things like hedonism, materialistic individualism, greed, greed, short-term goals, and lack of empathy can also be the cause (Fadjarajani & As'ari, 2021). The findings of the Millennium Assessment show that global environmental conditions are experiencing significant degradation. There are 60% of the world's ecosystems experiencing degradation. Then, 15 of the 24 ecosystems studied were in a damaged condition. And 35% of the world's mangrove ecosystems have been lost, and around 20% of coral reefs have been lost or degraded (Nadakavukaren & Caravanos, 2020).

The reality of the condition of Indonesia's Environmental Quality Index (IKLH) in 2023 shows the following categories; water quality index: 54.59 (medium quality), air quality index: 88.67 (good quality), land cover quality index: 61.79 (medium quality), sea water quality index: 78.84 (good quality) (Wihardjo & Rahmayanti, 2021). Ecological intelligence is another term for people's knowledge about the environment. According to Goleman in (Walter & Kluttz, 2021), ecological intelligence is the ability to understand natural systems through a combination of cognitive skills and empathy for all living creatures. Ecological intelligence is characterized by real attitudes and actions that pay attention to ecological capabilities and foster a devout attitude towards nature in humans (Hjorth Warlenius, 2022).

People who have high ecological intelligence are expected to be able to help protect the environment. In addition, ecological intelligence produces solution efforts. Real and concrete actions are more expected to occur than just ideas in the head, in order to take action to save the environment, real action is needed, such as not littering, not polluting the environment, taking part in animal conservation actions and taking part in environmental clean-up activities. In general, a person's ecological intelligence is characterized by explaining how the idea of ecological intelligence in humans can be measured by; 1) Knowledge of the consequences of human actions, including recognizing their implications; 2) Increasing environmental awareness, including sharing ecological awareness with other parties; 3. Eco-friendly skills; 4. Participation in environmental protection initiatives (Zocher & Hougham, 2020).

Indonesia still has many social and environmental problems, including environmental damage due to industrial waste which can cause damage to environmental components which have an impact on living creatures, especially humans. Environmental problems that arise due to the disposal of industrial waste that does not comply with regulations result in various kinds of environmental problems. Based on research by Shoaib et al (2020), the impact of environmental pollution includes various diseases such as damage to the nervous system, physical disabilities, disruption of immune function and poisoning in humans if it accumulates in the human body for a long time and death in other living creatures.

A social studies teacher can use an ecopedagogic approach in developing students' awareness and concern for the surrounding environment (Rizaq & Sarmini, 2021). In developing ecopedagogy in social studies learning, it must cover all aspects so that the learning objectives of environmental pollution material can be achieved. So it does not only involve cognitive aspects, but must include various

aspects of attitudes, behavior, challenges, feelings of attachment to the human community as well as students' concern and awareness of their natural environment. (Danirmala et al., 2020).

Through changing mindsets, skill development, and critical reflection, an ecopedagogical approach can empower students to contribute to a better future (Manik et al., 2021). If humans prioritize the ecopedagogic paradigm, then humans are not considered the rulers of the earth but humans are part of nature. So humans and nature cannot be separated but are an integral part of nature. So that the ecopedagogical approach in environmental learning is able to unite human rights with human rights (Hung, 2021).

Social Sciences (IPS) education has an important position in building ecological intelligence among students (Soemantri, 2001). Through social studies education, students are taught to understand the relationship between humans and the environment, as well as the impact of human activities on ecosystem balance (Supriatna, 2016). This knowledge includes an understanding of the importance of preserving natural resources, sustainable environmental management, and mitigation and adaptation efforts to climate change. Thus, social studies education not only provides insight into social phenomena, but also forms responsible attitudes and behavior towards the environment. This is very important to build a generation that is aware of the importance of preserving nature and is able to take concrete action to protect the environment for the sake of sustainable life in the future.

Based on the findings of various studies conducted by Misiaszek (2020), the use of ecopedagogical learning strategies has a big impact on the ecological intelligence of classroom students. In contrast to the control class which only got scores on the knowledge aspect (58.87) and skills (8.59), the experimental class got scores on the knowledge aspect (76.12) and skills (9.24). Research by Irianto, Yunansah, Herlambang, and Mulyati (2020) found that the ecological intelligence of experimental class students was significantly influenced by the use of a multiliteracy model based on an ecopedagogical approach. This shows how ecopedagogical methods have succeeded in developing the character and ecological intelligence of elementary school students in the various subjects taught to them. There is a significant influence of the ecopedagogical learning model on the knowledge aspect, attitude aspect, and skills aspect of ecological competence, in accordance with the findings of experimental research which tested the influence of the ecopedagogical model on the ecological competence of high school students (El Rizaq & Sarmini, 2020). Research carried out using an ecopedagogical approach can be an effort to increase awareness, understanding, attitudes, skills and active participation of students in efforts to preserve the environment which is currently experiencing environmental degradation (Fauzi et al., 2022).

An interesting thing is shown by the environmental conditions in Madura that need to be paid attention to. The condition of environmental pollution in Madura covers a variety of quite complex problems. One of the main issues is air pollution caused by industrial activities and waste burning. Many factories in this area dispose of their waste without adequate treatment, causing air pollution that is dangerous to the health of local communities. Apart from that, water pollution is also a serious problem, especially in coastal areas. Domestic and

industrial waste is often dumped directly into the sea without treatment, causing a decrease in water quality and damage to marine ecosystems. Plastic waste and other waste also pollute beaches in Madura, threatening marine life and natural beauty.

Lack of environmental awareness among the public exacerbates this situation. To overcome this problem, integrated action is needed between government, industry and society in an effort to manage the environment better and more sustainably. This study was conducted to measure ecological competence based on the National Curriculum Council (NCC) indicators which consist of knowledge aspects, attitude aspects and skills aspects (Maw, 1993). Based on these conditions, this research was conducted to measure the influence of social studies learning based on an ecopedagogical approach on the ecological intelligence of students at MTs Negeri 1 Pamekasan.

B. METHODS

This research uses a quantitative type using quasi-experimental methods. A quasi-experiment was chosen in this research to determine whether there was an effect of special treatment on the object under study. The design in this research is a nonequivalent control group design, namely forming two groups, namely a control group and an experimental group (Purwanto & Nugroho, 2020). Group selection was carried out randomly, without giving any treatment to the experimental group or control group. Apart from that, there was also no difference between the pre-test and post-test which were used as measuring tools in the experimental group and control group (Satori & Komariah, 2009). The difference lies in the treatment given to the experimental group in the form of learning using an eco-pedagogical approach in social studies learning after a pre-test, while the control group did not.

This research was carried out at MTsN 1 Pamekasan. Sampling in this study used a purposive sampling technique, with a total sample of 60 students divided into 2 (two) classes, namely class VII A as the control class, and class VII C as the experimental class. The independent variable in this research is the ecopedagogical approach in social studies learning. Meanwhile, the dependent variable is ecological intelligence. Research data collection techniques through observation and administering questionnaires in the pre-test and post-test.

Meanwhile, the pre-test and post-test results are tested through parametric statistics, where the data must be normally distributed and homogeneous as the main requirement. Therefore, normality and homogeneity tests were carried out in this study. Based on the Shapiro Wilk normality test, the results of the pretest and posttest data for both the control class and the experimental class were both > 0.05. So the data can be stated to be normally distributed. Based on the results of the pre-test homogeneity test calculation above, it can be seen that the Sig column shows a value > 0.05. Both pretest and poster scores were > 0.05. This means that the pre-test data for the experimental class and control class are homogeneous.

The research hypothesis uses the t test with the Independent Sample t-test. The decision rule is if Sig. (2-tailed) < 0.05 then Ha is accepted and Ho is rejected. On the other hand, if Sig. (2-tailed) > 0.05 then Ha is rejected and Ho is accepted (Djaali, 2021).

C. RESULT AND DISCUSSION

1. Pre-Test and Post-Test N-Gain Value

The pre-test and post-test were obtained after the teacher distributed the pre-test and post-test sheets to the control class and experimental class. The pre-test sheets were distributed to both classes before receiving treatment or doing learning activities, while the post-test sheets were distributed after receiving treatment or while studying, both in the control class and the experimental class.

After the pre-test and post-test results for both groups are known, what needs to be done next is the N-Gain test, to determine the magnitude of the treatment effect on the ecological intelligence of the educational participants. The test calculations obtained This helps with IBM SPSS 26, with the following results.

Table 1. N-Gain Pre-Test and Post-Test

No	N-Gain	
	Control Class	***Experimental Class***
1	50.00	72.73
2	50.00	75.00
3	50.00	77.78
4	22.22	62.50
5	22.22	85.71
6	50.00	87.50
7	40.00	75.00
8	37.50	85.71
9	20.00	66.67
10	57.14	81.82
11	50.00	50.00
12	54.55	72.73
13	58.33	71.43
14	50.00	83.33
15	44.44	66.67
16	55.56	66.67
17	72.73	72.73
18	50.00	100.00
19	45.45	55.56
20	54.55	57.14
21	66.67	81.82
22	66.67	60.00
23	60.00	58.33
24	38.46	55.56
25	44.44	69.23
26	66.67	37.50
27	44.44	100.00
28	42.86	71.43
29	50.00	62.50
30	28.57	75.00
Mean	**48.11**	**71.26**
Minimal	**20.00**	**37.50**
Maximum	**72.73**	**100.00**

Based on the presentation of the N-Gain table, the pre-test and post-test scores in the control class and the control class in the control class, it can be concluded that the average score for the control class is 48.11, the minimum score is 20.00, and the maximum score is 72.73. These results show an average N-Gain value of 48.11 in the less effective category.

Meanwhile, the results obtained from the experimental class showed that the average score for the control class was 71.26, the minimum score was 37.50, and the maximum score was 100. These results show that ecopedagogy-based learning is also quite effective in increasing ecological intelligence. Thus, the ecopedagogical approach in social studies learning can be stated to be quite effective in increasing the ecological intelligence of class VII C students at MTs Negeri 1 Pamekasan.

After going through the normality test, homogeneity test and knowing the N-Gain from the pre-test and post-test results of the influence of the ecological approach in social studies learning on students' ecological intelligence, then proceed to measure the effectiveness of the ecological approach in social studies learning on students' ecological intelligence. the approach has significant status or not through the following Independent Sample Test:

Table 1. Independent Sample Test

		Levene's Test for Equality of Variances	
		Sig.	Sig. (2-tailed)
n_Gainpersen	Equal variances assumed	.736	.000

Based on the output table above, the sign value is known. Levene's Equality of Variances test is 0.736>0.05 which shows that the N-Gain data (%) of the experimental class and control class data is the same or homogeneous. So the independent t test is guided by the sig value. (2-tailed) is in the Equal variances assumed column.

Based on the Equal variances column, it is assumed that the sig value is known. (2-tailed) of 0.000<0.05 which can be concluded that there is a significant (real) difference in effectiveness between the effect of using an ecological approach in social studies learning on students' ecological intelligence compared to conventional learning.

2. The Efect of Ecopedagogic Approach

Ecopedagogy is a type of learning that pays attention to contextual learning. Where this learning model requires students to better understand the surrounding environment as a source of learning through environmental problems. Applying the ecopedagogical approach in social studies learning is an effort to address environmental problems which have recently been increasingly discussed, because from the research results it turns out that this ecopedagogical approach can increase students' ecological intelligence, based on the ecopedagogical approach. statement put forward by (Kopnina, 2020) that "Ecological intelligence is often also called ecological literacy (ecological literacy or eco-literate).

This intelligence is based on cognitive aspects or understanding of how nature supports the lives of all living creatures" (Imaroh, 2016). Based on what Capra stated, ecological intelligence is based on cognitive aspects, meaning that students' knowledge about environmental problems that exist in everyday life, both locally and globally, needs to be applied by teachers in social studies learning. This is in line with the opinion of (Goleman, 2010) "ecological

intelligence is the human ability to adapt to the surrounding environment.

Students must have ecological intelligence in responding to conditions that occur in the surrounding environment and implementing them in students' lives." The application of social studies learning with an ecopedagogy approach is expected to provide changes to students' basic competencies regarding ecological aspects to improve environmental problems by providing knowledge to change attitudes and improve skills regarding the environment.

The scope of the study was carried out to measure the influence of the ecopedagogical approach on ecological competence based on the National Curriculum Council (NCC) indicators which consist of knowledge aspects, attitude aspects and skills aspects (Maw, 1993). If explained further, in general there is a significant influence of the ecopedagogical approach through social studies learning on students' knowledge, attitudes and skills in having an awareness of caring for the environment.

The results of this research are in line with the theory that educators should always strive to support a learning environment that suits the needs of each student. Referring to Piaget's opinion that students develop their scientific insight through interaction with the learning environment, both culture and residence, which is obtained through social collaboration between students and the learning environment. This confirms the link between the interaction of the emphasis of the ecopedagogical education model which is based on environmental conditions and the knowledge and skills of ecological intelligence through the learning process.

Ecological intelligence is an important thing that needs to be built in students. The role of teachers is very important in increasing ecological intelligence through education as expressed by (Mowling et al., 2018) "...teachers strive to develop ecoliterate students..." Teachers in teaching ecological intelligence is not a separate thing but is an inseparable part of teaching . Ecological intelligence concerns students' critical understanding and awareness in understanding their environment. Ecological intelligence is part of the main goal of education which must be an indicator of students' self-development as multidimensional creatures connected to nature. This means that students as part of nature are obliged to always protect and preserve their natural environment. This is in accordance with the opinion of Hines (Kuc-Czarnecka et al., 2023) who states that ecological intelligence emphasizes the formation of knowledge about environmental problems which is applied in real terms to act to overcome environmental problems that occur.

D. CONCLUTION

Based on the results of research that has been conducted regarding the influence of the ecopedagogical approach in social studies learning on the ecological intelligence of students at MTs Negeri 1 Pamekasan, the following conclusions can be drawn; Students' ecological intelligence is influenced by the ecopedagogical approach in social studies learning. Then there is a significant (real) difference in effectiveness between the effect of using the ecopedag approach in social studies learning on students' ecological intelligence compared to conventional learning.

Finally, the ecopedagogical approach in social studies learning is proven to be in line with Piaget's theory of cognitive

development which directs that learning conditions should be related to the students' environment.

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