International Journal of Geography, Social, and Multicultural Education
https://journal.unesa.ac.id/index.php/ijgsme

The Influence of an Ecopedagogical Approach in Social Studies Learning on Students' Ecological Intelligence

Agung Dwi Bahtiar El Rizaq[1] (Institut Agama Islam Negeri Madura, Indonesia)
Sujatno[2] (DPRD Kabupaten Magetan, Indonesia)
Sea Thearith[3] (Nationnal Institute of Education, Cambodia)
Sorn Sovanreach[4] (Royal University of Phnom Penh, Cambodia)

Received: 19-12-2023
Accepted: 24-05-2024
Published: 01-06-2024
DOI: https://doi.org/10.26740/ijgsme.v2n1.p38-48
e-ISSN : 2987-9140
Volume : 2 No.1, (2024)
Page : 38-48

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 N-Gain average 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 and environmental issues.

Keywords: Ecopedagogical Approach, Social Studies Learning, Ecological Intelligence

1. INTRODUCTION

The exploitation of natural resources to support human life can cause environmental damage which is increasingly widespread today. However, things like hedonism, materialistic individualism, greed, greed, short-term goals, and lack of empathy can also cause it (Fadjarajani & As'ari, 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 concrete attitudes and actions that take into account ecological capabilities and foster a devoted human attitude towards nature (Hjorth Warlenius, 2022).

People who have high ecological intelligence are expected to help protect the environment. In addition, ecological intelligence produces solution efforts. Concrete and real actions are more expected to occur than just ideas in the head, in the context of actions to save the environment, real actions are more needed, such as actions not to litter, not pollute the environment, participate in animal conservation actions and follow environmental cleanup activities. Goleman in (Zocher & Hougham, 2020) explains how the idea of ecological intelligence in humans can be measured by; 1) Knowledge about the consequences of human actions,

Corresponding Author: E-mail: elrizaq@iainmadura.ac.id
©2023 IJGSME

including recognizing their implications; 2) Increase awareness of the environment, including sharing ecological awareness with others; 3. Eco-friendly skills; 4. Participation in environmental protection initiatives.

Ecopecagogy approach aims to build environmental awareness, ecological responsibility, and concrete actions to maintain the sustainability of our planet (Misiaszek & Torres, 2019). Amidst global environmental challenges such as climate change, biodiversity loss, and pollution, ecopedagogy is becoming increasingly important in preparing future generations to face and overcome these problems. Ecopedagogy helps students understand the relationship between human actions and their impact on the environment, and emphasizes the importance of individual and collective responsibility for the environment (Supriatna et al., 2018). This approach not only increases knowledge, but also influences students' attitudes and behaviors towards a sustainable lifestyle through everyday activities such as recycling, water conservation, and the use of renewable energy (Gaard, 2008). By providing a strong ecological education, ecopedagogy prepares future generations to become environmentally responsible leaders, as well as teaching human values such as solidarity, social justice, and peace. The implementation of ecopedagogy in schools can be done by integrating environmental topics into various subjects, involving students in practical projects that focus on sustainability, and working with local communities to support environmental education. Teach students about the wise and sustainable use of natural resources, including an understanding of renewable energy, water management, and organic farming (Pujianto et al., 2021). By raising environmental awareness, encouraging ecological responsibility, and cultivating sustainable behavior, ecopedagogy prepares future generations to be responsible protectors and stewards of our planet (Hadi et al., 2023; Maslani et al., 2023).

Indonesia still has many social 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 (Shoaib et al., 2020), the impact of environmental pollution includes various diseases such as damage to the nervous system, physical disability, 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 (El Rizaq & Sarmini, 2020). 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 is not only about the cognitive aspect, but must include various aspects of attitudes, behavior, challenges, a sense of attachment to the human community as well as students' concern and awareness of the natural environment. (Danirmala et al., 2020 ; Prasetya et. Al, 2022). Through changes in thought patterns, skill development, and critical reflection, the 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 one unit (integral) with nature. So the ecopedagogic approach in environmental learning is able to unite natural rights with human rights (Hung, 2021).

According to the findings of different research conducted by (Misiaszek, 2020), the use of ecopedagogical learning strategies has a big impact on the ecological intelligence of class 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 aspect (9.24). A study 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 the ecopedagogical method has succeeded in developing the character and ecological intelligence of students at the elementary school level in the various subjects taught to them. There is a significant influence of the ecopedagogical learning model on knowledge aspects, attitude aspects, and skills aspects of ecological competence, according to the findings of experimental research which examined the influence of the ecopedagogical model on the ecological competence of high school students. The research was conducted an ecopedagogical approach as an effort to foster awareness, understanding, attitudes, skills and active participation of students (Fauzi et al., 2022).

2. METHOD

This research uses a quantitative type using a quasi-experimental method. Quasi-experiment was chosen in this research to determine whether or not there is an effect of a special treatment on the object under study. The design in this research is a nonequivalent control group design, which forms two groups as a control group and an experimental group. Group selection was carried out randomly, without giving any treatment to the experimental group or control group. Apart from that, there was no difference between the pre-test and post-test which was used as a measuring tool in the experimental group and control group. The only 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 the pre-test was carried out, 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 are through observation and giving questionnaires to 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 research.

The research hypothesis uses a t-test with an 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.

3. RESULTS AND DISCUSSION

Implementation of Learning

The implementation of learning by applying an eco-pedagogical approach in social studies learning in this research was measured using an observation sheet on the implementation of

learning with the class teacher acting as observer. There are 8 criteria in the observation sheet which are divided into 29 assessment aspects with a rating range of 1 – 4. Score 1 means not good, score 2 means quite good, score 3 means good, score 4 means very good. Meanwhile, the percentage range is 0 – 20 (not good), 21 – 40 (not good), 41 -60 (fair), 61 – 80 (good), and 81 – 100 (very good).

Based on dish table results observation learning mark average Which obtained by 90. So that, can concluded that implementation learning with an ecopedagogical approach in social studies learning in category very Good. Next, the teacher distributes post-test sheets which contains 20 questions with a working duration of 30 minute. Post-test results and student response questionnaires were used as data Which later will processed.

Normality test

The normality test is carried out to measure whether the data is normally distributed or not, so that statistical selection can be done correctly. This test uses the Shapiro-Wilk test as follows;

Table 1. Tests of Normality

Kolmogorov-Smirnov [a]			**Shapiro-Wilk**		
Statistics	df	Sig.	Statistics	df	Sig.
.153	30	,072	,969	30	,518
,169	30	.029	.947	30	.144
.189	30	.008	.945	30	.128
.204	30	.003	.929	30	.097

a. Lilliefors Significance Correction

Based on normality test shapiro wilk, results data pretest and posttest both in the control and class experiment both > 0.05. So that data can stated normally distributed. After both data from two groups or classesdifferent ones are declared to have a normal distribution, nextis processing data with use test homogeneity. Test homogeneity aim For know about similarity or homogeneity data obtained during the research.

Homogeneity test

The homogeneity test functions to find out whether the data being tested has homogeneous data variance or not, which is done using Levene's.

Table 2. Test of Homogeneity of Variances

		Levene Statistics	**df1**	**df2**	**Sig.**
Pretest	Based on Mean	,325	1	58	,571
	Based on Median	,157	1	58	,693
	Based on Median and with adjusted df	,157	1	57,668	,693
	Based on trimmed mean	.273	1	58	.604
Postest	Based on Mean	.002	1	58	.966
	Based on Median	.000	1	58	1.000
	Based on Median and with adjusted df	.000	1	57.921	1.000
	Based on trimmed mean	.000	1	58	.991

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. After the data is declared to be normally distributed and homogeneous, then the data must go through the hypothesis testing stage. Significant test between motivation and results Study student in class experiment And control after get treatment.

N-Gain Value Pre-Test And Post-Test

Mark pre-test And post-test obtained after Teacher share sheet pre-test And post-test on class control And class experiment. Sheet pre-test shared on second class before get treatment or do activity learning, while the post-test sheets were distributed after receiving them treatment or learning, Good on class control as well as class experiment of pre-test and post-test scores in the control class and experimental class are presented in table in lower This. After results pre-test And post-test second group is known, so Which need done next is the N-Gain test, to find out the size the effect of treatment on ecological intelligence participant educate. Calculation test gain This helped with IBM SPSS 26, with results as follows.

Table 3. 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 N-Gain table presentation, the pre-test and post-test values test on class control And class control in on, can 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 that the average N-Gain value is 48.11 in the less effective category.

Meanwhile, the results obtained from the experimental class show 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 indicate that ecopedagogy-based learning is also quite effective in increasing ecological intelligence. Thus, the ecopedagogical approach in social studies learning can be declared 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 finding out 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 approach in significant status or not through the following Independent Sample Test;

Table 4. Independent Sample Test

		Levene's Test for Equality of Variances	
		Sig.	Sig. (2-tailed)
n_Gainpersen	Equal variances assumed	.736	.000
	Equal variances not assumed		.000

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

Based on the Equal variances assumed column, it is known that the sig. (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.

Ecopedagogical Approach and Its Influence

Ecopedagogy learning is a type of learning that pays attention to contextual learning. Where the learning model requires students to better understand the environment around them as a source of learning through environmental problems.

By applying the ecopedagogy approach to social studies learning, it becomes one of the efforts to respond to environmental issues which are increasingly being discussed recently, because from the research results it turns out that this ecopedagogy approach can increase students' ecological intelligence, based on the statement put forward by (Kopnina, 2020) that "Ecological intelligence is often referred to as ecological literacy (ecological literacy or eco-literate). This intelligence is based on cognitive aspects or an 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, which means that students' knowledge of environmental issues 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 implement it 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.

Ecological intelligence is an essential thing that needs to be built in students (Güven & Uyulgan, 2021; Clark, 2013). The role of teachers is very important in increasing ecological intelligence through education as expressed by (Mowling et al., 2018) "...teachers are working to develop ecoliterate students..." Teachers in teaching ecological intelligence are not separate things but are an integral part of teaching. Ecological intelligence concerns students' critical understanding and awareness in understanding their living environment.

Ecological intelligence is part of the main goal of education which must be an indicator of students' self-development as multidimensional creatures who are connected to nature (Collado-Ruano, 2018). This means that students, as part of nature, are always required to protect and preserve their natural environment. This is in accordance with the opinion of Hines (Kuc-Czarnecka et al., 2023) who stated that ecological intelligence emphasizes the formation of knowledge about environmental issues which is applied in real terms to act to overcome environmental problems that occur.

This article examines the influence of an ecopedagogical approach on Social Studies learning and its impact on students' ecological intelligence. According to Rukmana et al. (2023), the ecopedagogical approach integrates environmental education with pedagogical strategies, aiming to foster ecological awareness, critical thinking, and sustainable practices among students. By emphasizing the interconnection between social, cultural, and environmental issues, this approach equips students with the knowledge and skills needed to understand and address ecological challenges (Shutaleva, 2023; Kimmerer, 2012).

In the context of Social Studies, an ecopedagogical approach goes beyond traditional teaching methods by engaging students in real-world environmental problems and encouraging them to actively participate in solutions (Monte & Reis, 2021; McNaughton, 2010). This approach not only focuses on knowledge acquisition but also on developing students' attitudes, values, and behaviors towards the environment (Zsóka et al., 2013; Malsani et al., 2023). Ecological intelligence, in this sense, refers to the ability to perceive, understand, and respond to environmental issues with a sense of responsibility, while recognizing the interconnectedness of social and ecological systems.

The implementation of an ecopedagogical approach in Social Studies learning has the potential to significantly enhance students' ecological intelligence (Basit et al., 2021). It provides them with the opportunity to explore environmental topics from multiple perspectives, engage in hands-on activities, and reflect on the ethical dimensions of environmental decision-making (Pratiwi & Yarliani, 2023). Moreover, this approach encourages students to develop a sense of agency, empowering them to take action in their communities to promote environmental sustainability (Khan, 2008).

However, the success of this approach depends on the integration of ecopedagogical principles into the curriculum and teaching methods. Teachers play a critical role in fostering an

ecopedagogical learning environment by creating opportunities for students to explore ecological issues in a collaborative and reflective manner. Furthermore, the inclusion of interdisciplinary content and experiential learning activities can strengthen students' understanding of ecological intelligence and its practical applications.

4. CONCLUSION

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 as evidenced by the Sig value. (2-tailed) is 0.000 < 0.05, then H0 is rejected and Ha is accepted. In the experimental class, namely the class that received treatment in the form of an ecopedagogical approach to social studies learning, had an average N Gain of 71.26. Meanwhile, in the control class, it was found that conventional learning 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.

REFERENCES

Basit, R. A., Yuliyanto, A., & Maftuh, B. (2021, November). Increasing ecological intelligence through strengthening social studies. *In Educational Innovation in Society 5.0 Era: Challenges and Opportunities: Proceedings of the 4th International Conference on Current Issues in Education (ICCIE 2020), Yogyakarta, Indonesia, 3-4 October 2020 (p. 226).* Routledge. https://doi.org/10.1201/9781003206019

Clark, K. E. (2013). Ecological Intelligence and Sustainability Education in Special Education. *Multicultural Education*, 21(1), 38-45.

Collado-Ruano, J. (2018). Cosmodern education: Emotional, spiritual, and ecological literacy to develop a sustainability mindset. *In Developing a Sustainability Mindset in Management Education (pp. 133-157).* Routledge.

Danirmala, M., Asrowi, A. A. M., & Musadad, A. A. (2020). The Effectiveness of Eco pedagogy based IPS Electronic Module in improving Attitudes Caring for the Environment of students of Islamic School, Diponegoro, Surakarta. *International Journal of English Literature and Social Sciences*, 5(6), 1949–1956. https://10.22161/ijels.56.21

El Rizaq, A. D. B., & Sarmini. (2020). Integrasi nilai karakter lokal dalam pengembangan bahan ajar IPS untuk meningkatkan wawasan kebangsaan siswa. *Jurnal Teori Dan Praksis Pembelajaran* IPS, 5(1), 19–27. https://doi.org/10.17977/um022v5i12020p019

Fadjarajani, S., & As'ari, R. (2021). Ecopedagogy based learning as an effort to increase student ecoliteration and the development of environmental care characters. *IOP Conference Series: Earth and Environmental Science*, 683(1), 012046. https://10.1088/1755-1315/683/1/012046

Fauzi, A., Fitriasari, S., & Muthaqin, D. I. (2022). Development of student ecological intelligence through the implementation of ecopedagogy. *Annual Civic Education Conference (ACEC 2021*), 554–557. https://10.2991/assehr.k.220108.099

Gaard, G. (2008). Toward an ecopedagogy of children's environmental literature. *Green Theory & Praxis: The Journal of Ecopedagogy*, 4(2), 11–24.

Goleman, D. (2010). *Ecological intelligence: The coming age of radical transparency*. Penguin Books.

Güven, N. A., & Uyulgan, M. A. (2021). An active learning framework for ecological intelligence: Using activities of multiple intelligences to achieve ecological awareness. *Science Education International*, 32(4), 358-367. https://doi.org/10.33828/sei.v32.i4.11

Hadi, A. F., Az-Zahra, F., & Salsabila, N. (2023). Educational Organizational Strategies at The Secondary School Level in Facing Global Challenges. *International Journal of Geography, Social, and Multicultural Education*, 1(2), 40–48. https://doi.org/10.26740/IJGSME.V1N2.P40-48

Hjorth Warlenius, R. (2022). Learning for life: ESD, ecopedagogy and the new spirit of capitalism. *The Journal of Environmental Education*, 53(3), 141–153. https://doi.org/10.1080/00958964.2022.2070102

Hung, R. (2021*). Ecopedagogy and education*. In Oxford Research Encyclopedia of Education.

Imaroh, T. S. (2016). Entrepreneurship Education As a Strategy for Improving the Economical Independence and Competitive Ability of Society in Asean Economic Community (Aec) Era. *International Journal of Organizational Innovation*. 9 (2), 287.

Kahn, R. (2008). From education for sustainable development to ecopedagogy: Sustaining capitalism or sustaining life. *Green theory & praxis: The journal of ecopedagogy*, 4(1). https://10.3903/gtp.2008.1.2

Kimmerer, R. W. (2012). Searching for synergy: Integrating traditional and scientific ecological knowledge in environmental science education. *Journal of Environmental Studies and Sciences*, 2(4), 317-323. https://doi.org/10.1007/s13412-012-0091-y

Kopnina, H. (2020). Critical Pedagogy and Eco-pedagogy: Discussing Ethics and Radical Environmentalism at Business School. *European Journal of Sustainable Development Research*, 4(3), 1–10. https://doi.org/10.29333/ejosdr/7855 n

Kuc-Czarnecka, M., Markowicz, I., & Sompolska-Rzechuła, A. (2023). SDGs implementation, their synergies, and trade-offs in EU countries – Sensitivity analysis-based approach. *Ecological Indicators*, 146, 109888. https://doi.org/10.1016/J.ECOLIND.2023.109888

Manik, D., Astuti, D. A. W., Tarwati, L., & Dwi, E. K. L. (2021). Ecopedagogic Based Education in Social Science Learning at Junior High School. *2nd International Conference on Social Sciences Education* (ICSSE 2020), 48–52. https://10.2991/assehr.k.210222.006

Maslani, M., Qadir, A., Muhyidin, A., & Hidayat, W. (2023). Ecopedagogy in action: An ethnographic exploration of environmental preservation strategies in pesantren. *Jurnal Pendidikan Islam*, 9(2), 211-222. https://doi.org/10.15575/jpi.v9i2.29347

McNaughton, M. J. (2010). Educational drama in education for sustainable development: Ecopedagogy in action. *Pedagogy, Culture & Society*, 18(3), 289-308. https://doi.org/10.1080/14681366.2010.505460

Misiaszek, G. W. (2020). *Ecopedagogy: Critical environmental teaching for planetary justice and global sustainable development*. Bloomsbury Publishing.

Misiaszek, G. W., & Torres, C. A. (2019). Ecopedagogy: The missing chapter of Pedagogy of the Oppressed. *The Wiley Handbook of Paulo Freire*, 463–488. https://10.1002/9781119236788.ch25

Monte, T., & Reis, P. (2021). Design of a pedagogical model of education for environmental citizenship in primary education. *Sustainability*, 13(11), 6000. https://doi.org/10.3390/su13116000

Mowling, C. M., Menear, K., Dennen, A., & Fittipaldi-Wert, J. (2018). Using Technology and the Ecological Model of Constraints to Develop Story-Based Interventions for Children with Autism Spectrum Disorder. *Strategies*, 31(3), 5–12. https://doi.org/10.1080/08924562.2018.1442274

Prasetya, S.P, Sarmini., Zain. I.M., Artono., Sadewo. F.X., and Mahat. H., & Hidayati. A. (2020). Analysis of Social Science Education Through an Environmental Approach as a Learning Resource. *JURNAL GEOGRAFI Geografi dan Pengajarannya*. 20 (2). 77-88. https://doi.org/10.26740/jggp.v20n2.p77-88

Pratiwi, H., & Yarliani, I. (2023). The Empowering Ecopedagogical Communities and Restructuring Environment-Based Early Childhood Education Curriculum in Coal Mining Regions. *Engagement: Jurnal Pengabdian Kepada Masyarakat*, 7(2), 3565-377. https://doi.org/10.29062/engagement.v7i2.1502

Pujianto, W. E., Larassaty, A. L., Novie, M., Muzdalifah, L., & Rosyidah, E. (2021). Eco-Pesantren: Islamic Boarding School Transformation Program to Support Natural Sustainability and Sustainable Development. *Proceedings of the International Conference on Industrial & Mechanical Engineering and Operations Management*, 873–885.

Rukmana, A. Y., Mokodenseho, S., & Aziz, A. M. (2023). Environmental education for sustainable development: a bibliometric review of curriculum design and pedagogical approaches. *The Eastasouth Journal of Learning and Educations*, 1(02), 65-75. https://doi.org/10.58812/esle.v1i02.108

Shoaib, M., Mubarak, S., & Khan, S. (2020). Towards Ecopedagogy: A Fiction-Based Approach to the Teaching and Learning of the Environment. *Bulletin of Education and Research*, 42(3), 147–158. https://10.3903/gtp.2008.2.3

Shutaleva, A. (2023). Ecological culture and critical thinking: building of a sustainable future. *Sustainability*, 15(18), 13492. https://doi.org/10.3390/su151813492

Supriatna, N., Romadona, N. F., Saputri, A. E., & Darmayanti, M. (2018). Implementasi Education for Sustainable Development (ESD) melalui Ecopedagogy dalam Pembelajaran Tematik Terpadu di Sekolah Dasar. *Primaria Educationem Journal* (PEJ), 1(2), 80–86. http://journal.unla.ac.id/index.php/pej/article/view/1077

Walter, P., & Kluttz, J. (2021). Ecopedagogy: Critical environmental teaching for planetary justice and global sustainable development: Greg William Misiaszek. Bloomsbury Academic, London, 2021. 270 pp. *Bloomsbury Critical Education series*. ISBN 978-1-3500-8379-0 (hbk), ISBN 978-1-3500-8381-3 (eBook), ISBN 978-1-3500-8380-6 (ePDF). Springer.

Zocher, J. L., & Hougham, R. J. (2020). Implementing ecopedagogy as an experiential approach to decolonizing science education. *Journal of Experiential Education*, 43(3), 232–247. https://doi.org/10.1177/10538259209086

Zsóka, Á., Szerényi, Z. M., Széchy, A., & Kocsis, T. (2013). Greening due to environmental education? Environmental knowledge, attitudes, consumer behavior and everyday pro-environmental activities of Hungarian high school and university students. *Journal of cleaner production*, 48, 126-138. https://doi.org/10.1016/j.jclepro.2012.11.030