

The Implementation of Ecological Literacy Learning for Students of Elementary School

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Abstract

This research aims to describe the implementation of ecological literacy learning for students of elementary school. The research approach applied is mixed method. In this case, the data collection techniques used are observation, interviews, questionnaires, and documentation. Data analysis was carried out by applying a descriptive qualitative interactive model approach by Miles and Huberman in which the steps are data collection, data condensation, data display, and conclusion. The results of research relating to students' knowledge and attitudes regarding ecological literacy show that the level of students' ecological literacy is lacking. If we look at the ecological literacy indicators, we get different averages, namely ecological knowledge of 8.71% (sufficient criteria), cognitive ability of 3.24% (poor criteria), environmental awareness attitude of 89.11% (good criteria), and environmentally responsible behavior of 75.33% (good criteria). Factors that influence students' implementation of ecological literacy learning are students' lack of knowledge and attitudes about ecological literacy. Students who have good ecological literacy will behave responsibly towards the environment through knowledge, skills and awareness of environmental problems so that ecological literacy plays a role in building character to care about the environment. Students' ecological literacy learning is carried out through several series of activities, namely providing space for students to improve their knowledge and attitudes about ecological literacy as well as real activities.

Keywords: *Ecological literacy, ecological literacy learning, elementary school*

Abstrak

Penelitian ini bertujuan untuk mendeskripsikan implementasi pembelajaran literasi ekologi pada siswa sekolah dasar. Pendekatan penelitian yang diterapkan adalah metode campuran. Dalam hal ini teknik pengumpulan data yang digunakan adalah observasi, wawancara, angket, dan dokumentasi. Analisis data dilakukan dengan menerapkan pendekatan model interaktif deskriptif kualitatif Miles dan Huberman yang langkah-langkahnya adalah pengumpulan data, kondensasi data, penyajian data, dan penarikan kesimpulan. Hasil penelitian yang berkaitan dengan pengetahuan dan sikap siswa mengenai literasi ekologi menunjukkan bahwa tingkat literasi ekologi siswa kurang. Jika dilihat dari indikator literasi ekologi diperoleh rata-rata yang berbeda-beda yaitu pengetahuan ekologi sebesar 8,71% (kriteria cukup), kemampuan kognitif sebesar 3,24% (kriteria buruk), sikap peduli lingkungan sebesar 89,11% (kriteria baik), dan perilaku bertanggung jawab terhadap lingkungan. sebesar 75,33% (kriteria baik). Faktor yang mempengaruhi keterlaksanaan pembelajaran literasi ekologi siswa adalah kurangnya pengetahuan dan sikap siswa mengenai literasi ekologi. Siswa yang memiliki literasi ekologi yang baik akan berperilaku bertanggung jawab terhadap lingkungan melalui pengetahuan, keterampilan dan kesadaran terhadap permasalahan lingkungan hidup sehingga literasi ekologi berperan dalam membangun karakter peduli lingkungan. Pembelajaran literasi ekologi siswa dilakukan melalui beberapa rangkaian kegiatan yaitu memberikan ruang kepada siswa untuk meningkatkan pengetahuan dan sikap tentang literasi ekologi serta kegiatan nyata.

Kata kunci: *Literasi ekologi, pembelajaran ekologi, sekolah dasar*



INTRODUCTION

Environmental damage by human factors is greater when compared to natural factors. This is because the damage done can occur continuously and tends to increase. This damage is generally caused by human activities that are not environmentally friendly, such as forest destruction and conversion of forest functions, mining, air, water and land pollution and so on. Koc (2013) states the exploitation of the environment by humans has exhibited differences throughout the recorded history. In the hunting-gathering period, humans did not have the sufficient intelligence and technology to change natural environment. In this period, humans were striving for gaining a familiarity with the environment and they were leading lives totally depending on the natural environment (Rusmawan, 2017, h. 40). Several facts related to the high level of environmental damage in Indonesia due to human activities include the rate of deforestation reaching 1.8 million hectares/year which resulted in 21% of Indonesia's 133 million hectares of forest being lost. Loss of forests causes a decrease in environmental quality, increases the incidence of natural disasters, and threatens the preservation of flora and fauna. 30% of the 2.5 million hectares of coral reefs in Indonesia were damaged. Damage to coral reefs increases the risk of disasters in coastal areas, threatens marine biodiversity, and reduces marine fisheries production (Suroyo, 2021, p. 17).

Schools as large communities in society have a major impact on the sustainability of sustainable development (Dadaczynski, et. al., 2020; Findler, et. al., 2019). The quality of education in schools is the key to the quality of human life and also the sustainability of world life in the future (Burbules, et. al., 2020). One way to increase awareness of the importance of the environment is through ecological literacy activities. Ecological literacy is the ability to understand the natural systems that make life on earth possible and understand the principles of organizing sustainable human communities. A society that is ecologically literate will be a sustainable society that does not damage the natural environment on which humans depend (Susilowati, 2019). Students who are in educational institutions or schools are part of society. For this reason, strengthening ecological literacy for students is very important so that students become more aware of the importance of protecting the natural environment for the survival of life.

Awareness of the importance of ecological literacy and concern for the environment needs to be supported by a new paradigm for environmental education. School is a place to learn about life, how to behave in real life, and not primarily a place for transferring knowledge. In the school environment, students are introduced, taught, and trained on how to best behave towards the living environment. The school environment must be understood in a broad sense, namely all interactions and processes involving many parties that occur not only in the classroom but also outside the classroom, for example in field study activities, social activities, or adventure trips. This paradigm needs to be supported by a practical approach in the sense that students are trained by fully involving cognitive, affective and psychomotor abilities (Rezkita, 2018).

In the learning process at school, students are involved in coaching that what students do in cleaning activities in the school environment is a medium for instilling and fostering an attitude of respect and a clean environment. Students are encouraged to see and look for positive and creative tips in using school waste, for example plastic waste such as drink bottles can be collected and sold so that something that is considered waste can be valuable because of the caring and clean attitude towards the environment by all students. Activities that were initially aimed at fostering a respectful attitude and a clean environment turned out to have a double effect for students and for the school. Even in terms of character, students will learn that nothing is instant in life, that everything requires a process and hard work. Schools as institutions for

developing the character of loving the environment need to facilitate adequate supporting facilities such as rubbish bins throughout the school environment which enable students to place rubbish in the places provided. It would be very good if schools provide trash bins with the classification of paper waste, organic waste and plastic waste so that apart from students learning and practicing how to live regularly when dealing with waste, they also learn that there is waste that can be produced again so that it brings economic value, and especially value. clean environment because it is well organized and managed.

Facing increasingly complex environmental problems, the role of science and technology is also very important. There has been much criticism of the role of science and technology in accelerating environmental damage (Sugiarto, 2020). Students need to realize that science and technology are only tools and their use depends on humans. Technology, if used correctly, will help humans overcome environmental problems. Since school, the benefits of waste processing technology, creating artificial rain, need to be introduced or mastered by students in order to be able to use it. Mass media and social media can also be used to educate, foster and develop ecological literacy and students' respect for the environment. Studying at school does not always allow direct observation activities. However, advances in science and technology have created media that overcomes distance and time by audio-visually showing a clean place or living environment. Through broadcasts, students learn about nature and take a stand against environmental destruction that occurs due to human activities. Teachers facilitate discussions that inspire them to respond to what is happening in their environment (Prastiwi, 2020).

Currently, the places of this this research are implementing ecological literacy activities. According to the results of pre-research observations, the school is trying to utilize used goods through ecological literacy activities. This program is implemented in intracurricular and co-curricular activities at school which aim to develop students' creative thinking abilities. It started with a negative problem with the large number of used items that were easily found both in the school environment and around the school. The results of interviews with school principals during pre-research highlighted that the school invited students to reprocess used items into more useful objects. In its implementation, the schools implemented the use of used goods through ecological literacy activities. Apart from reducing waste, this activity is also expected to improve students' creative thinking abilities. At this school, ecological literacy is implemented in extra-curricular activities, namely by providing reading materials that include activities related to the environment. It is hoped that activities related to the environment can increase students' awareness of having a positive impact on the environment and activities to make products using used goods, such as making puppets to present data in mathematics learning or making water cycle displays in science subjects.

Apart from that, the schools also carried out ecological literacy activities through co curricular activities, namely during the implementation of a project to strengthen the profile of Pancasila students (P5) with a creative theme. In this case, each student is given the opportunity to carry out project activities to develop a creative product by utilizing used items found in the home or school environment. The ecological literacy program that has been implemented by the school shows positive changes. One of them is being able to reduce the accumulation of used material waste in schools. Apart from that, students' creative work from used goods is now increasingly being used for school purposes.

Research related to ecological literacy activities was conducted by Wijaya, et al. (2021) with the title "Development of Ecological Literacy for Elementary School Students". The results of this research are that ecological literacy can be expressed as a unity between knowledge about the environment, positive attitudes towards the environment and skills in protecting the environment. Ecological literacy can be

developed at the elementary school student level by paying attention to the cognitive, affective and psychomotor development of elementary school aged children. Another research conducted by Napitupulu, et al. (2022) with the title "Strengthening Ecological Literacy Culture in Schools". The results of this research are that strengthening the culture of ecological literacy can be carried out during counseling and after counseling. The evaluation results during the counseling "Building a Culture of Ecological Literacy" showed an average percentage of 60.4%, consisting of 45% understanding of ecological literacy, 23.1% understanding of ecological literacy skills, 88.9% of students understanding the issues ecologically, but only 50% understand the impact of careless cutting of trees in the forest on damage to the atmosphere, and 90% know the impact of careless cutting of trees. The results of the evaluation "Building Behavior and Go Green School Activities" obtained an average percentage of 84.9%, consisting of understanding organic and inorganic waste of 84%, knowledge of how to dispose of waste properly and correctly of 89.5%, behavior in throwing away waste properly and correctly by 66.7%, and knowing the efforts that must be made to reduce environmental damage by 81.8%. Research conducted by Santoso, et al. (2021) entitled "Analysis of Students' Environmental Literacy" shows the results that students' environmental literacy levels are sufficient. If we look at the environmental literacy indicators, we get different average values, namely ecological knowledge of 8.71% (sufficient criteria), cognitive skills of 3.24% (poor criteria), environmental awareness attitude of 89.11% (good criteria) , and environmentally responsible behavior of 75.33% (good criteria).

Based on the description of relevant research that has been carried out by previous researchers, this research has similarities, namely that it is related to ecological literacy learning in schools. The difference between previous research that is relevant to this research is the level of students' knowledge and attitudes regarding ecological literacy. Another thing that is different is that this research also focuses on the factors that influence students' implementation of ecological literacy learning. Learning ecological literacy at the places of this research made the author interested in revealing further how it was implemented. This needs to be done considering that awareness of protecting the school environment is important because it can create a good teaching and learning process. Students at school should play an active role in establishing a harmonious relationship with the environment considering the role of the environment which is very important for human survival. However, the fact is that this relationship has not occurred harmoniously. This can be seen from the high rate of environmental damage caused by human activities. This damage will certainly threaten human survival. Therefore, it is necessary to change students' mindsets to be more friendly to the environment. One way is to instill ecological literacy activities. The title of this research is "The Implementation of Ecological Literacy Learning for Students of Elementary School".

METHOD

Research Design and Procedure

This research applies a mixed method research. According to Creswell and Creswell (2018), a mixed method research combines elements of quantitative research and qualitative research in order to answer research problems. A mixed method research can help the researcher gain a more complete picture than a standalone quantitative or qualitative study, as it integrates benefits of both methods. A mixed method research is used in multidisciplinary settings and complex situational or societal research.

Research Subject

The subjects used in this research were the principal, teachers, and students of elementary schools. As a first step, the researcher met the key informant, and then the

key informant was asked to appoint other informants who were considered to know the research problem in more depth.

Research Instrument

This research applies observation, interview, and questionnaire as the techniques of collecting data. In connection with this, the research instruments used were lists of questionnaire questions, lists of observation indicators, and lists of interview questions. The preparation of the research instrument was carried out by paying attention to the grid containing the indicators observed and those asked about. For the research instrument grid, researchers used ecological literacy indicators, namely 1) implications; 2) ecological knowledge; 3) socio political knowledge; 4) knowledge of environmental issues; 5) cognitive abilities; and 6) environmentally responsible behavior.

Data Analysis

Data analysis in this research refers to qualitative data analysis by Miles and Huberman which is carried out interactively and takes place continuously through data reduction, data display, and conclusion drawing or verification (Sugiyono, 2020). Data analysis in this research was carried out in three stages, namely data reduction, data presentation, and drawing conclusions or verification. The data that appears is in the form of words and not a series of numbers. The data has been collected through several methods, namely observation and interviews, and then processed through recording and noting using words arranged into expanded text. The data analysis steps are presented in the following figure.

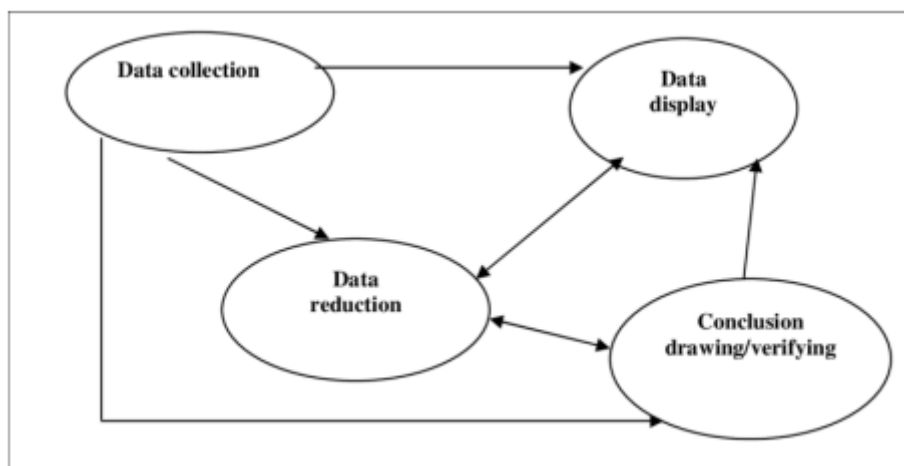


Figure 1. Steps of Interactive Data Analysis

Based on the picture above, the stages of data analysis in this research can be explained as follows. First, the researcher collects data about ecological literacy learning for students' of elementary school through observation, interviews, and questionnaire. Second, after the data collection is complete, the researcher reduces the data that has been obtained, namely by classifying, directing, discarding what is not necessary, and organizing the data. Third, researcher presents the data of ecological literacy learning in the form of descriptive words. Fourth, the researcher makes conclusions from the data obtained. Furthermore, this research uses an induction thinking pattern in the form of drawing general conclusions from specific cases in the form of interpretation results. This means achieving a correct understanding of the reality faced and studied because it relies on objective evidence and achieving authentic truth, namely information about the implementation of ecological literacy learning for students of elementary school.

RESULTS AND DISCUSSION

Based on the range and criteria that have been determined, it can be seen that students' knowledge and attitudes about ecological literacy vary. The following are the results of the percentage of students' knowledge and attitudes regarding ecological literacy which are presented in Table 1.

Tabel 1. Rata-rata Skor Observasi Keterampilan Proses

	Criteria	Range	Frequency	Percentage (%)
1	Very good	81-100	0	0,00
2	Good	61-80	17	37,78
3	Enough	41-60	28	62,22
4	Less	21-40	0	0,00
5	Very less	≤20	0	0,00
	Amount		45	100

Table 1 shows that the highest percentage of students' knowledge and attitudes regarding ecological literacy with a sample size of 45 students was 62.22%, namely sufficient criteria. The percentage with good criteria has a value of 37.78%. Based on the average environmental literacy score obtained, it can be seen that students' knowledge and attitudes regarding ecological literacy have an average score of 58.48%.

Discussion

Environmental literacy has 6 indicators that can determine students' environmental literacy achievements, including 1) implications; 2) ecological knowledge; 3) socio-political knowledge; 4) knowledge of environmental issues; 5) cognitive abilities; and 6) environmentally responsible behavior, it can be seen that the four environmental literacy indicators have different average values.

The highest average score is found in the indicator of environmental awareness which has an average score of 89.11 with good criteria but not as expected. Meanwhile, the lowest average value is found in the cognitive skills indicator which has an average value of 3.24 with poor criteria. Based on the results of data analysis, it can be stated that the environmental literacy achievements of students are not very good, they are poor or very poor. The environmental literacy achievements of students on average are included in the adequate criteria with a percentage of 62.22%, while the environmental literacy achievements of students who are included in the good criteria are 37.78%. The results of the environmental literacy analysis of students obtained an average score of 58.48% on the sufficient criteria. Learning in schools also influences the level of environmental literacy possessed by students as stated by Miller (2012) is a process where a person's environment is deliberately managed to enable him to participate in certain behaviors in special conditions or produce certain responses, learning. is something that is most special in the world of education.

Based on a comparison of the average scores for each environmental literacy indicator of students, ecological knowledge and cognitive skills achieved low results, while environmental awareness and environmentally responsible behavior achieved low results. tall one. Ozsoy et al, (2012) stated that students' low environmental literacy skills are not caused by the small number of books about the environment in schools but because there is no environment in schools that is able to provide direct learning experiences for students to interact with the environment.

The low achievement of environmental literacy in indicators of ecological knowledge and cognitive skills is influenced by many factors, both in terms of students, teachers and school facilities and infrastructure. This can be seen from the results of interviews with students, namely that when working on environmental literacy questionnaires they felt difficulties in analyzing environmental problems and

complained because there were many words they had never read or heard. Students found the environmental literacy questionnaire difficult to understand and difficult to complete. According to Orion and Assaraf (2005), developing students' environmental literacy is not only delivered by one subject, for example science or science. The environment, which consists of various complex and interacting components, also needs to be understood as a system.

Low cognitive abilities can also be caused by students' lack of learning experience, namely students do not have the opportunity to interact directly with environmental problems that occur around them. So far, learning is more often carried out in the classroom and is guided by textbooks as well as some additional information from teachers regarding environmental issues (Rokhmah, 2021). According to Suryawati et al., (2020) learning experience is the activity of identifying problems in the surrounding environment through a scientific approach, so it needs to be designed to train the ability to observe, ask questions, experiment, associate and communicate. Thus, learning is needed that is able to develop a systematic thinking process, namely the ability to think to connect and organize several pieces of knowledge into a unified whole. Susilastri (2015) also stated that science learning will be easier for students to understand directly in the field. For science learning material that cannot be done directly in the field, students are given information through learning videos.

Behavior does not form by itself but is formed through a learning process. Knowledge of environmental problems and knowledge of various appropriate actions to overcome them are one of the prerequisites for responsible behavior. Having knowledge and ability alone is not enough, it needs to be accompanied by a passion or desire to realize the action in question. A person's desires or desires are greatly influenced by personality factors, namely attitude, locus of control and sense of responsibility. Individuals who have knowledge and skills and have a positive attitude towards the environment and towards pro-environmental behavior usually have the intention to carry out responsible behavioral actions (Wibowo, 2009).

CONCLUSION

Based on existing data, it can be concluded that students' knowledge and attitudes towards ecological literacy are sufficient. If we look at the environmental literacy indicators, we get different average values, namely ecological knowledge of 8.71% (sufficient criteria), cognitive skills of 3.24% (poor criteria), environmental awareness attitude of 89.11% (good criteria), and environmentally responsible behavior of 75.33% (good criteria). Further research in improving students' environmental literacy should introduce students to the natural surroundings or learning outside the classroom, observing problems that disturb the environment and behaviors that can have a positive impact on the environment, all of which must be adapted to the existing material so as to enable increased students' environmental literacy level.

Based on the results and discussion, it was concluded that strengthening the culture of ecological literacy at the place of study was carried out through teacher guidance and assistance. The results of these activities show an average percentage of "Building a culture of Ecological Literacy" of 60.4%, consisting of: understanding of ecological literacy of 45%; understanding of ecological literacy skills 23.1%; 88.9% of students understand ecological issues but only 50% understand the impact of cutting down trees carelessly in the forest on atmospheric damage, even though 90% know the impact of cutting down trees carelessly. The results of the activity "Building behavior and go green school activity" obtained an average percentage of 84.9%, consisting of: understanding organic and inorganic waste of 84%; knowledge of how to dispose of waste properly and correctly was 89.5%, but only 66.7% had the behavior of disposing of waste properly and correctly; and 81.8% know the efforts that must be made to increase the students' ecological literacy.

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