



Ecoliteracy as Deep Learning Innovation Realizing the Primary School Literacy Movement in the Freedom of Learning Era

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Abstract. The aim of this research was to describe the role of student ecoliteracy in realizing the literacy movement. The research method used is qualitative with a phenomenological design with teacher informants, school principals and teachers. Data collection techniques use in-depth interviews, observation and documentation. Test the validity of the data by source triangulation and technical triangulation. Data analysis uses interactive analysis with reduction, display and conclusion stages. The results of the research show that students' understanding of ecoliteracy can be seen in activities in class and outside class, when students are disciplined in being able to throw rubbish in the right place, manage waste. be something useful. making compost and ecobricks. able to interact with the environment, control so that the natural environment remains healthy, care for it and always look after it - preserve it by diligently watering, applying fertilizer and utilizing the natural surroundings for the sustainability of the ecosystem and human life.

Keywords: Ecoliteracy, Innovation, Deep, ecobrick.

INTRODUCTION

Environmental sustainability and integrity cannot be separated from the role of human behavior, both individually and in groups. The environmental components in question can be, the unity of space and everything, forces, circumstances and creatures [1]. In principle, humans cannot be separated from the environment [2]. The interaction of humans and their environment is a natural process, occurring from birth to death. In line with that, [3] explains that the integrity and harmony of humans and the environment can shape a person's disposition or character. Berman [4] explains that the term ecological literacy or ecoliteracy, which was associated with Orr and physicist Fritjof Capra in the late 1990s, has advocated the importance of providing guidance to students of all ages about the relationship between human behavior and the environment.

Explained that the environment is a place of existence for humans. In order to show the existence and self-actualization of humans in the context of social life, it cannot be separated from the role of the environment [5]. There is no meaning in the achievements achieved by humans without being accommodated by a conducive environment. This is also supported by the opinion of O'Neil et al. [6] Environmental education can help address this need by aiming to reach all sectors of society, including students, teachers, citizen scientists, community organizations, business and government, to help develop skills and understanding of global challenges to create a more sustainable future for the future.

Thus, humans should act wisely towards the integrity and preservation of the surrounding environment. Concern for the environment in daily life, society (*society*) can be interpreted as a person's reaction to the environment. The reaction in question can be interpreted in the form of behavior that does not damage the natural environment. With an environmentally caring attitude, a clean and beautiful environment will be created [7]. This is also reinforced by the opinion of Maulidah et al., [8] that education in the 21st century must be able to connect not only with technological devices, partner with society and the world of work but also be able to provide broad access to the environment so that it can raise awareness and concern for environment (ecoliteracy) in an effort to increase awareness and concern for the environment so as not to damage the natural environment.

Whether we realize it or not, human interaction with nature can sometimes damage the balance of the ecosystem, resulting in disasters. Various forms of environmental problems are currently becoming an endless problem. Environmental problems are an issue that continues to be discussed, not only on the national stage, but also internationally. Various forms of exploitation of natural resources are carried out in many areas without paying attention to the impacts, both on local communities and the earth's ecology [9]. One of the factors that causes damage and disasters is the low level of public environmental awareness [10].

From an educational perspective, ecological intelligence has an important role in achieving educational goals. Education is required to be able to develop educated people who have character and awareness of the natural environment [11,2,13] ecology provides deep empathy and concern for the environment [14]. The low level of students' ecological literacy raises questions about the causes of students' low ecological literacy [15].

Muhammadiyah I Elementary School's readiness to implement the literacy movement since 2018 [15]. This can be seen in several school programs to support the implementation of GLS including: 15 minute reading program, Friday Qurani, school library, mobile library, reading corner, reading park, e-money application, mini library, writing and synopsis competition, magazines, media, and Posterization. The use of various media in implementing the literacy movement can make it easier for students to understand ecological knowledge [16]. The stages of implementing the literacy program at SD Muhammadiyah 1 have reached 3 stages, namely the habituation, development and learning stages, each of which is accompanied by clear indicators of achievement through monitoring books which are always monitored by the school monitoring team. Literacy is not just reading and writing, but includes thinking skills applying printed, visual, digital and auditory sources of knowledge [17, 18]. It is better to provide environmental literacy as early as possible to correct mistakes that make the earth increasingly worrying. This statement is one of the reasons for conducting this research. Elementary schools are the object of research because of the importance of understanding the environment of basic education.

The reality of life that occurs today is that humans sometimes do not pay attention to the environmental order in the process of achieving self-existence, both individually and in groups. Environmental sustainability is not an important aspect when trying to achieve achievements in life so that it has an impact on environmental damage. Thus, environmental damage becomes a global issue. This is in line with Vozza's [19] statement that environmental problems are an important issue. Environmental damage This is a global problem that occurs all over the world.

Based on the results of *the Global Competitive Index*, Indonesia is ranked 45th out of 140 countries with three main problems that require priority handling, namely basic education, the economy and the environment. This achievement is not good enough if you look at the current demographics of the Indonesian nation. One of the serious problems that the world is paying attention to in Indonesia is the low level of ecoliteracy and the problem of waste, especially plastic waste. So it is not surprising that Indonesia has been named the second country as the largest waste contributor in the world. It cannot be denied that the problem of immorality among the Indonesian population in treating plastic waste is causing the quantity of waste to become increasingly unlimited. In the national scope, (assuming a population of 180 million people, the waste production rate for each person is two liters per day with a composition of 6.17%) so that the amount of waste accumulated in Indonesia each year can reach 1,599,000 tons [20]. The concern about the unfortunate paradox that the 3rd President of the Republic of Indonesia is worried about seems to prove that abundant human resources are not necessarily directly proportional to good natural resource management. One indicator that is clear evidence is the lack of awareness of the Indonesian people in treating waste.

Garbage is indeed seen as an object that has no value and value, so it is often treated inappropriately by most people. This unfairness is what drives most people to throw away rubbish at will without considering the impact it has on health, social, economic and cultural aspects. Even though now Indonesia is a waste emergency country. Based on data from the Ministry of Environment and Forestry (KLHK), Indonesia produced 67.8 million tons of waste in 2020. And the current amount is up 1 million tons from the previous year. Based on a report by the Minister of Environment and Forestry, Siti Nurbaya, the waste produced is dominated by organic waste which reaches around 60 percent and plastic waste which reaches 15 percent of the total waste pile, especially in urban areas. According to the data, it shows that in the last 10 years the amount of plastic waste has continued to increase [21] This waste problem can be

categorized as a serious problem because it will have implications for other fields, especially education as a means of increasing the ecoliteracy of the Indonesian population so that they care and love the natural environment. So systematic and comprehensive efforts are needed to create learning patterns that prioritize effective aspects through internalizing the values of concern for the natural environment in all aspects of educational intervention. Educational policies regarding environmental friendliness are realized through Environmental Education which is the embodiment of Law no . 32 of 2009 concerning environmental protection and management, especially article 65 paragraph 2 which states that one of the community's rights is to receive environmental education. Process implementation of environmental education is at SD Muhammadiyah 1 Ketelan through a school literacy movement that integrates the values that will be obtained by implementing the curriculum and learning in the classroom and outside the classroom.

Research related to ecoliteracy research was conducted by Kurniasih [21] regarding ecoliteracy in thematic books in elementary schools. Another research conducted by Maulana[22] regarding ecoliteracy in Adiwiyata schools. Isnanda et al. [23] related to ecoliteracy in Indonesian language learning. The novelty of this research compared to previous research is that this research discusses the relationship between the literacy movement in learning and understanding ecoliteracy in elementary schools.

Based on this explanation, the literacy movement is very important to support students' understanding of ecoliteracy in elementary schools. Studies on the integration of school literacy movements with ecoliteracy have not yet been carried out much research. Based on the description above, researchers are interested in describing the role of ecoliteracy for students in realizing the literacy movement in learning.

METHOD

Type and Design

This research uses a quantitative approach with data collection, data interpretation and data presentation [24]. This includes descriptive research which is intended to provide a detailed description of a particular symptom, phenomenon or object without any intervention being given to the object under study [25],[24]. Surveys are conducted to quantitatively describe the tendencies, attitudes or opinions of a certain population by examining population samples [26]

Data and Data Sources

The object of this research is ecoliteracy applied in elementary schools. The subjects in this research were students from class I to VI, teachers from class 2 and 4, and the principal of SD Muhammadiyah 1 Ketelan Surakarta. The primary data source for this research is interviews with teachers and students. Meanwhile, secondary data sources are documents related to activities related to environmental awareness, such as documentation of school literacy movement activities.

Data Collection techniques

The data collection techniques used in this research were interviews and documentation. An interview is a dialogue carried out by an interviewer to obtain information from the person being interviewed [27]. This technique was carried out to obtain data about ecoliteracy implemented at SD Muhammadiyah 1 Ketelan. Interviews were conducted with teachers, students and school principals who are school policy makers. The documentation is in the form of learning lesson plans in the form of environmentally friendly activities, as well as documentation of ecoliteracy activities.

Data Analysis

The data analysis technique used in this research is the componential analysis technique. In componential analysis, the data that is sought is not those that have similarities, but those that have differences in the ecoliteracy projects implemented in each class. Data was obtained through triangulation data collection techniques so that a number of specific and different dimensions were found for each element.

RESULTS

Based on the results of research that has been carried out on students' understanding regarding environmental issues (ecoliteracy), students at SD Muhammadiyah 1 Surakarta already understand and have awareness of the importance of ecoliteracy because human existence in nature must be studied in order to have a good sustainable life. Students also realize that between individuals, the surrounding environment influences human life. For If we take care of the environment, we will get good, just as if we damage it, we will get the impact of what we have done.

The understanding that students have regarding ecoliteracy gives rise to attitudes and character, namely a spirit of caring, protecting and preserving the environment. From this understanding, students will act according to their understanding and apply it in their lives consciously. Students' concern is also based on what the teacher instills, then there is a compulsion to put this understanding into practice so that it continues continuously . This is in line with the explanation of the class teacher who is the student coordinator:

By implementing environmental literacy (ecoliteracy), students finally have a strong character regarding the character of caring for the environment by having an awareness of the importance of the existence of the environment, they consciously or not really love the natural environment. This can be seen in their daily activities outside the classroom.

The school also facilitates facilities and infrastructure to increase students' understanding of ecoliteracy, including by providing rubbish bins with descriptions of waste categories. Apart from that, schools also hold outreach such as sorting and differentiating waste based on its class. School programs also facilitate the socialization of Clean and Healthy Living Behavior (PHBS) to students , as well as the existence of a waste bank that utilizes school waste. This is in line with the student's guardian (NA), the student's guardian (MM), who said that:

I feel that the role of this school has had a positive impact on its students, this can be seen in Ananda who now enjoys gardening and prefers taking care of the plants in front of the house. I realized that this was because SD Muhammadiyah 1 had become an environmentally friendly adiwiyata school so that the students thought about how to use plants to live a healthier and more sustainable life.

Table 1. Observation Process

No	Observation aspect	Activity
1	Ecoteracy as a form of innovation	<ol style="list-style-type: none"> 1. Garden Competition once a year in each class. 2. Reading Corner Competition. 3. Disciplined students can throw rubbish in their place (mapping the rubbish bin) 4. Making compost and ecobricks. 5. Innovating schools with clean and healthy living behavior (PHBS) . 6. Activities include: being able to interact with the environment, controlling the natural environment to remain healthy , caring for and always looking after it - preserving it by diligently watering, applying fertilizer and utilizing the natural surroundings for the sustainability of the ecosystem and human life. 7. Utilizing used goods as learning media materials. 8. Learning project making ecobricks, making tote bags from used packaging . 9. Using used goods or waste can be recycled to make useful items and protect the surrounding environment from global warming.
2	Teacher Innovation in implementing ecoliteracy.	<ol style="list-style-type: none"> 1. The teacher implements ecoliteracy in the learning process by instructing several stages, namely; preparation, implementation, final activities, and evaluation. 2. In preparing the learning process, teachers first create learning tools or teaching modules. These learning tools will be linked to the environment.

No	Observation aspect	Activity
		<ol style="list-style-type: none"> 3. After thorough preparation, the teacher will carry out the learning process according to the tools that have been created by linking it to environmental topics. 4. Teachers relate local issues such as religion, the environment, changing times, and students' interests as material for learning 5. The final activity that is expected from thorough preparation to implementation is the emergence of attitudes and self-awareness towards the environment.
3	Contribution of Ecoliteracy to schools	<ol style="list-style-type: none"> 1. Instilling ecoliteracy values through balancing the content of environmental values in the implementation of the independent curriculum. 2. Awareness of all school stakeholders in implementing it, 3. The school has a strong policy which will be the basic principle of implementation.

The teacher implements ecoliteracy in the learning process by instructing several stages, namely; preparation, implementation, final activities, and evaluation. In preparing the learning process, teachers first create learning tools or teaching modules. These learning tools will be linked to the environment. After thorough preparation, the teacher will carry out the learning process according to the tools that have been created by linking it to environmental topics. Teachers also link local issues such as religion, the environment, changing times, and students' interests as material for learning. The final activity that is expected from thorough preparation to implementation is the emergence of attitudes and self-awareness towards the environment. After the expected attitude and awareness emerges, the teacher will evaluate it by holding a Work Degree by applying the 6 characteristics of the Pancasila student profile, namely: 1) believer, devoted to God Almighty and has noble character; 2) independent; 3) work together; 4) global diversity; 5) critical reasoning; and 6) creative. Teachers play a role in instilling an attitude of ecological intelligence in the learning process so that an attitude of concern for the environment is imprinted in a person. Colliteration has the meaning or is related to the attitude of someone who is enlightened about the importance of protecting the environment. Thus, if someone understands the importance of caring for the environment, they will automatically have reached the level of e- colliteracy . As Mrs. KS (SS) stated that:

The independent curriculum really supports the school liberalization movement and the realization of environmentally friendly education at SD Muhammadiyah 1 Ketelan, because through P5 projects the independent curriculum has been implemented in a structured and systemic manner in the education unit, each student will gain a strong understanding of the lessons because learning is more meaningful and educational . character as the outcome.

Apart from the learning process that incorporates ecoliteracy, SD Muhammadiyah 1 Surakarta also provides programs that support the implementation of ecoliteracy. In terms of stimulus, the school holds a Garden Contest once a year in each class. Meanwhile, from a cognitive perspective, a Reading Corner Competition was held. In implementing ecoliteracy, teachers also use used goods as learning media materials. Learning projects include making ecobricks, making tote bags from used packaging, and others. This aims to convey to students that used goods or waste can be recycled to make useful items and protect the surrounding environment.

DISCUSSION

Schools and the learning process are effective means for improving students' abilities and potential. Potential students have their own abilities. The diversity of students' abilities depends on family conditions, the local and global natural environment. The main ability that must be developed by students is concern for the surrounding environment, one of which is ecoliteracy [28] (Pandikar, 2020) . According to Yusnidar et al. (2015) [29] in realizing ecoliteracy requires serious efforts from all components, including the efforts of the school principal, the participation of the school community and community support in order to create clean, beautiful and comfortable environmental conditions as the program is realized.

Ecoliteracy is a process of increasing understanding, knowledge, attitudes and behavior based on ecology. Ecoliteracy seeks to introduce and renew one's understanding of the importance of global ecological awareness, in order to create a balance between the needs of society and the ability of the earth to support it (Sapanca, 2012) [30]. So a movement to understand ecoliteracy is needed for students to have awareness from an early age (Rahmawati, 2017) . [31]

Students' understanding of ecoliteracy at SD Muhammadiyah 1 Surakarta has increased at every grade level. In the lower classes, students can throw rubbish in the trash, manage waste by processing it back into useful items. Meanwhile , in the upper class , namely making compost and ecobricks . Ecoliteracy is not only the ability to identify, classify and differentiate environmental aspects, but includes the ability to react and participate in decision-making processes to solve environmental issues and problems [32] (Locke et al., 2013) . Students are prepared to become members of sustainable communities, with a combination of head, heart, hand and soul abilities, which includes understanding the world and participatory action in and with the environment [33] (McBride et al., 2013) . Chile (2014) [34] explains that the ecological intelligence mastered by a person cannot be separated from the role of a teacher. Teachers play a role in instilling an attitude of ecological intelligence in the learning process so that an attitude of concern for the environment is imprinted in a person. Keraf (2014) [35] explains that ecoliteracy has meaning or is related to the attitude of someone who is enlightened about the importance of protecting the environment. Thus, if someone understands the importance of caring for the environment, they will automatically have reached the level of e- colliteracy .

Knowledge of ecological values is discussed in detail to provide students with a deep understanding . However, the knowledge aspect is not yet sufficient to meet needs in terms of protecting and improving the environment and environmental literacy [17] (Suwandi, 2019: 5) . In accordance with the research results of Suwandi & Yunus (2016) [2] Understanding ecology is not just knowing through literacy about the environment but must be balanced with the ability to interact with the environment, adapt, control, regulate, care, maintain, preserve, and utilize the natural surroundings for the sustainability of the ecosystem and human life .

The existence of school literacy movement activities, apart from directing students to literacy skills, also strengthens their ecological competence, because a balance of ecoliteracy values is needed to grow and realize people who are competent and have character. Textbooks must cover a broad range of environmental values and attitudes, to increase personal awareness, commitment, concern and responsibility for a sustainable environment (Suwandi, 2019) [17] . Education about nature and the environment is not just a cognitive process or *transfer of knowledge* but includes the realm of attitudes and skills. Ecological competence is an effort to create a person who understands his or her nature as a multidimensional creature, one of which is having a relationship in the dimensions of space and time with nature (Yunansah & Herlambang, 2017:32) . [36]

The instillation of ecoliteracy values is carried out in an integrated manner in the learning process with the hope that there will be a balance of environmental values in the integration. Therefore, understanding ecoliteracy is very necessary, especially at the elementary school level. This is because elementary school is the initial level of education that forms the character and experience as a whole in the child's personality.

CONCLUSION

The existence of ecoliteracy activities makes students more innovative and active in the literacy movement. This is proven by the awareness of students at SD Muhammadiyah 1 Surakarta in terms of throwing rubbish into rubbish bins, managing rubbish into useful items, and making compost and ecobricks and being able to use the surrounding nature as a learning resource. Students' literacy understanding is not only about the environment but must be balanced with the ability to interact with the environment, adapt, control, regulate, care, maintain, preserve and utilize the natural surroundings for the sustainability of the ecosystem and human life. With the effectiveness of ecoliteracy, students understand more about how used goods or waste can be recycled to make useful items and protect the surrounding environment from global warming.

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