The Implementation of Ecoliteracy as a Learning Resource to Improve Environmental Care Attitudes in Elementary Schools

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Abstract. Ecoliteracy refers to learning outside the classroom by utilizing the surrounding environment as a learning resource. This study aimed to determine the steps for implementing ecoliteracy with nature as a learning resource in improving environmental care attitudes in elementary schools. This study employed classroom action research, involving 20 fourth-grade students as participants. This study was divided into two cycles, each of which comprised four stages. The instruments used in the study were the student's environmental care attitude observation sheet and environmental care attitude sheet, and the teacher's activity sheet. The findings revealed that the caring attitude towards the environment reached an average of 61%; 14 students (70%) were in the caring category and six students (30%) in the very caring category. The learning outcomes of Cycle 1 were four students (20%) who passed and 16 students (80%) who failed. The attitude of caring for the environment in the Cycle 2 increased following the implementation of ecoliteracy learning steps, as indicated by the questionnaire results that one student (5%) was in the caring category, and 19 students (90%) in the very caring category. Meanwhile, the learning outcomes obtained in the Cycle 2 were 15 students (75%) in the complete category and five students (15%) in the incomplete category.

Keywords: Ecoliteracy, Learning Resources, Environmental Care, Elementary School

1. Introduction

Learning is an activity carried out by students and teachers in a learning environment that aims to produce information (Madden & Dell'Angelo, 2016). Excellent and effective learning allows students to be more active and explore curiosity through their abilities (McBride et al., 2013). To maintain students' attention, learning must be engaging and practical, making it easy for them to understand the material, enabling simple learning (Hardiansyah, 2022). Learning also needs to be supported by apt learning facilities and resources, as well as teacher's creativity to facilitate students in achieving learning goals, such as exhibiting behavioral changes following their participation in teaching and learning activities (Hardiansyah & AR, 2022). One of the learning resources that teachers in learning can employ is ecoliteracy. Ecoliteracy can be interpreted as learning outside the classroom by utilizing the surrounding environment as a learning resource (Pursitasari et al., 2022). The application of ecoliteracy in learning aims to provide students with an understanding of how the environment works and how to preserve nature (Iskandar et al., 2019).

1.1. Problem Statement

Through education, responsibility and concern for the environment can be nurtured. Education plays a key role in shaping students' sensitivity and respect for the environment (Oktaviani & Supriatna, 2018). Every individual can have awareness of preserving the nature through a lifelong learning process, ultimately shaping the knowledge, attitudes, character, and skills in processing and preserving nature (Sholeh, 2016). Ecoliteracy is a term that was first used by an American educator David W. Orr and a physicist Fritjof Capra in 1990 to introduce an environmentally friendly lifestyle through the practice of values education. The values taught are responsibility and love for the earth. Ecoliteracy entails a lifelong process that begins with growing awareness in an individual about the importance of living in synergy with

the universe (Herawati et al., 2020). This makes the application of ecoliteracy very suitable in science learning; One of the lesson content that has a goal in elementary school to develop process skills in investigating the natural environment, solving problems and making decisions, and developing knowledge and understanding of scientific concepts that will be useful and can be applied in everyday life, participating in maintaining, protecting, and preserving the natural environment, and appreciating the various forms of God's creation in the universe (Hardiansyah & Mulyadi, 2022).

Natural Science studies natural phenomena through facts, concepts, and laws tested for truth (Majumdar & Chatterjee, 2022). The science learning process combines relevant concepts, resulting in more potential to develop the experience and competence of students to understand the natural surroundings (Wallace, 2019). Science learning plays a vital role in producing quality students who are capable of receiving lessons and then applying them in everyday life, mastering rational and objective thinking skills so that students are not only competent and skilled in the psychomotor field, but they can seek and investigate a symptom/problem (Noverita et al., 2021). Currently, thematic books are the only source of learning, in which the implementation of education is oriented; for example the fourth-grade students, especially in science learning, have not fully explored the potential of the environment to be used as a learning resource.

Based on the results of an interview with one of the fourth-grade teachers, the teaching methods performed by the teachers are lectures and discussions; when learning is taking place, the class is dull and the students feel bored; some are not focused on the teacher's explanations, some are chatting with friends, while some others are busy playing alone. This is due to the teachers' lack of capability in classroom management; the teacher should not only apply the lecture and discussion methods, they should also look for methods to help the students focus on the learning material. Science learning can introduce students to a caring attitude tow ard the environment (Setiawati et al., 2020). An environmentally friendly attitude is one of the goals that must be developed in science learning in elementary schools. By learning outside the classroom, students can explore using various kinds of actual material to be used as learning resources, with the aim that students can study or investigate the environment such as tourist attractions, gardens, the natural surroundings, and so on (Pursitasari et al., 2022).

Using the natural environment as a learning resource can nurture students' caring attitudes towards their surroundings. The limitations of the fourth-grade science learning resources are that they are only available in the classroom, or the learning resources made by the teacher will cause the students' knowledge to become limited because they are not directly invited into the learning process (McBride et al., 2013). To address these issues, the teacher must devise a solution that ensures the learning process is carried out properly and in accordance with the learning objectives. One of the learning resources that can be employed to produce educational processes and outcome s in quality learning for students is the environment around them (Supriatna, 2016). By studying the natural environment, it is hoped that students will better understand the natural phenomena that occur in everyday life and learn how to preserve the environment surrounding them. Furthermore, it is also hoped that it can raise awareness to love nature and that students participate in protecting and preserving the natural environment.

Based on the results of interviews with the teacher, it was claimed that the fourth-grade students' concern for the school environment was still low, as it could be seen when there were students who littered and vandalized books and school walls. This state is a real proof that many students still do not care about the environment. Furthermore, the teacher stated that the character of the environmental care attitude of each individual was different hence it required daily habituation by organizing classroom cleaning schedule and instructing the students not to litter. However, some of these students still disobeyed. To overcome this, ecoliteracy was applied to students by learning outside the classroom, such as visiting tourist attractions to promote fun learning, allowing the students to learn while traveling. This approach aims to reduce student boredom while boosting students' environmental experience and knowledge. Through learning outside the classroom, the teacher can make

the environment a source of learning, gradually establishing a caring attitude towards the surrounding environment. The building of this environmental care attitude must begin early, but guidance and introduction are required for the attitude to grow in students as it will not automatically form by itself.

1.2. Related Research

A previous study conducted by Wasino et al., (2020) entitled Cultural Ecoliteracy of Social Science Education at Junior High School in North Java Indonesia reveals that cultural eco-literacy approach works successfully and is compatible with the new curriculum content in social science education learning; and 2) social science education learning which employs ecoliteracy successfully shapes students' understanding concerning representation, relation, and identity of historical heritage preservation. As a result, students are able to think analytically and see critically that cultural environment preservation is everyone's responsibility that can be conducted collectively. This indicates the advanced beliefs about the impact of ecoliteracy. The study concludes that ecoliteracy as curriculum content, educational rationale, and learning activity has successfully led to more progressive learning in attempt to achieve the purpose of forming the belief pertaining cultural environment preservation. A further study by Kumpulainen et al., (2020) features the material and performative nature of the children's augmented storying in nature, demonstrating how the augmented story-telling tool and its main character, Julle, was involved in the children's literacy practices whilst interacting and relating with nature. The results will be introduced and discussed with empirical data examples, illustrating how the children played with and through the AR character Julle; felt and sensed with and through Julle; recalled their experiences, cultural knowledge, and identities with and through Julle; and engaged in critical thinking with and through Julle, along with the literacies that were enacted through these sociomaterial engagements. We understand our examples and their interpretation as entangled with the whole data and our findings that connected into our discussion. The results demonstrate the children's engagement in playful literacies in which the AR character Julle, nature, peers, and the children themselves interacted in imaginative and creative ways. Many of the children imagined and played with the AR character, placing Julle in, on, or beside different plants and built constructions using abandoned objects, such as a bicycle. The character was placed peeking behind the trees, sometimes hiding from adults or children or secretly observing them. Some of the children also pictured themselves, their peers, or the researchers in their stories, illustrating how they or other humans were interacting with Julle and nature in the story. The children also actively played with the technology, making the character larger or smaller or turning the character upside down. This technological feature invited the children to experiment with proportions and composition. In one child's augmented story, a giant Julle is peeking out behind the school building, prompting amusement among the children. The different versions of the character that the children could choose from in the app also invited playful experimentation and students' creativity.

1.3. Research Objectives

Ecoliteracy-based learning must be implemented in a sustainable manner, both for now and in the future, in order to raise students' awareness of the importance of protecting the environment by increasing knowledge, caring attitudes, and skills that are oriented towards sustainable development and taking action in the name of nature conservation. Students needs to be taught to have a high sense of caring for the surrounding environment. In this case, the teacher has the responsibility to make students understand the importance of environmental awareness, hence ecoliteracy learning is oriented towards sustainable development. Researchers are interested in conducting a study in regards to the implementation of natural ecoliteracy as a learning resource to improve environmental care attitudes in elementary schools.

2. Theoretical Framework

2.1. Ecoliteracy

Ecoliteracy entails a learning process aimed at fostering students' knowledge, awareness and skills in managing and preserving nature (Stone, 2017). Similarly, Juhriati et al., (2021) define ecoliteracy as a movement to increase one's awareness, attitude, knowledge, skills, and sensitivity to the natural environment that needs to be maintained and used appropriately for the present and future. There are three indicators of ecoliteracy: aspects of knowledge, awareness, and application. These three indicators make the focus of this study, for if students have insufficient knowledge and awareness of the importance of protecting the environment, environmental damage is in order.

Ecoliteracy needs to be developed from the elementary school level as it is very important to be instilled in students. Ecoliteracy can be developed while still paying attention to several aspects of the students, namely cognitive, affective, and psychomotor (Lam, 2014). Therefore, all components and indicators of ecoliteracy can also be developed in all three Education Centers, from families, schools, and the community. Individuals who are aware of the environment will be able to harmonize development with the environment, so that a harmonious environment will be realized between society and the environment (Kim et al., 2017). However, the attitude of caring for the environment will not grow by itself, introduction and guidance are necessary so that this attitude can be fostered in students.

2.2. Learning Resources

Everything that provides teaching materials can be called a learning resource (Muthukrishnan, 2019). Learning materials can be found in a variety of settings, including schools, villages, inanimate objects, the environment, and so on. Humans, materials, the environment, tools, equipment, and activities are examples of learning resources. Learning materials aid in the optimization of learning. (Rahmawati, 2019). The learning process can be used to optimize learning outcomes through students' engagement with various kinds of learning resources in the environment. In general, learning resources have the following functions; (a) increasing learning productivity, (b) providing the possibility of learning that is more individual in nature, (c) providing a more factual basis for learning by designing more systematic and planned programs to create effective learning, (d) focusing more on learning in form of more accurate and significant information and learning materials (Rahma et al., 2022).

2.3 Environmental Care

Environmental care is an attitude that needs to be manifested in everyday life to preserve, repair and prevent environmental damage and pollution (Nugraha et al., 2022). These attitudes can be seen from behavioral or conative responses – responses in the form of actions and statements about behavior. As for ways to preserve the environment can be done as follows; (a) maintaining the cleanliness and health of the environment, such as keeping the gutters and wells clean, (b) maintaining domestic cleanliness, such as providing window illumination and keeping the kitchen clean at all times, (c) saving energy, like saving electricity by turning off lights that are not used, during the day, and when sleeping, and saving water by turning off the faucets that are not used, (d) utilizing vacant land by reforesting or growing valuable plants, and keeping the yard clean and comfortable. It is everyone's obligation to care for the environment, always maintaining and preserving what is in nature and preventing environmental damage and pollution. (Johns & Pontes, 2019).

3. Method

3.1. Research Design

This study employed classroom action research. The model used was that of Kemmis and Mc. Taggart (Kemmis et al., 2014) consisting two cycles; each of which comprised four steps, namely; (a) The planning stage. This was the initial stage for researchers, undertaken by

looking at the problems regarding the low environmental care attitude in students, and carrying out discussions with the teachers. The first step in preparing for this stage was to propose solutions to improve environmental care attitudes, namely through ecoliteracy learning, which will invite students to directly observe objects in the school environment. Furthermore, the researchers checked the syllabus, prepared a learning implementation plan specifically designed for ecoliteracy-based learning, and set competency standards and basic competencies that will be used in science subject. Subsequently, researchers and teachers drafted indicators to be used in basic competencies, (b) Implementation stage. In this stage, the researchers carried out planning procedures that had been previously made, such as learning implementation plans, giving the students test questions for assessment, giving teacher observation sheets and also student observation sheets. Teachers and researchers took actions to improve learning to increase students' caring attitudes toward the environment. Teachers conducted activities using the learning implementation plans through ecoliteracy-based learning steps. In this learning, students were directly involved in taking real action, (c) Observation stage. In this stage, the researchers were assisted by the class teacher to become an observer. The activities being observed were student and teacher activities, the atmosphere of the learning environment, and anything else that the researchers must take note both in terms of planning, open and flexible observations, (d) Reflection stage. In this stage, the researchers reviewed and reflected on the results obtained from the observation. Next, the teacher and the researchers analyzed the results in form of the student observation sheets and questionnaires that the researchers distributed during the process. Should the Cycle 1 not show a change in the results, the researcher would refine the actions in the Cycle 2 as an attempt to improve the stages and results obtained. The reflection of the results of the Cycle 1 served as a reference for making refined plans in the following cycle.

3.2. Participants/Respondents

The participants in this study were 20 fourth-grade students (eleven male students and nine female students). The study was conducted in the even semester of the 2021/2022 academic year, adjusting the school schedule, which had previously been discussed with the teachers and the principals.

3.3. Data Collection

Observation and questionnaires were used as the instruments of data collection. In the observation stage, observation sheets on students (see Table 1) and teachers (see Table 2) were used; the results obtained from the observation were to be used in the learning process. Observations in this study were in the participant's perspective. This observation was used as a reference in assessing the behavior of students and teachers as evidenced by the observation sheet prepared by the researcher. Moreover, the questionnaires were used to determine the affective domain as they helped the researchers to better understand how students cared about the environment.

Table 1. Observation Sheet for Students' Environmental Care Attitude in Science Learning

Variable	Indicators	Observed aspects	Item number	Number of items
Environmental care attitude	Always protecting the environment	Keeping the school environment clean	1	2
		Following classroom cleaning schedule	6	
	Being wise in using natural resources	Saving electricity	8	2
		Saving water	7	
	Supporting reforestation program	Participating in planting activities	10	2
		Not damaging plants	3	

	in the school environment		
Doing participatory based activities	Not littering	5	2
	Reusing waste	2	
Loving tidiness and cleanliness of the environment	Keeping school desks or walls clean	4	2
	Cleaning the tools that have been used	9	
Total		10	10

Based on table 1, several indicators are observed, namely, Always protecting the environment, Being wise in using natural resources, Supporting reforestation program, Doing participatory based activities, Loving tidiness and cleanliness of the environment totaling 10 questions. The number of students whom researchers will observe is 20 people with the teacher's help.

Table 2. Teacher's Observation Sheet in Developing Environmental Care Attitude

Indicators	Observed aspects	Item number	Number of items
Integration of daily activities	Being a good example of the indicators that have been set	7	6
	Responding to students when taking actions that deviate from established indicators	6	
	Reprimanding students who engage in deviant behavior and providing support to students in any form that these indicators can be used	5	
	Providing cleaning tools and conditioning the environment	2	
	Keeping the environment (classroom) clean in relation to environmental care attitude	3	
	Following classroom cleaning schedule, either at the beginning or at the end of the lesson	4	
Integration in programmed activities	Making a lesson plan before the teaching and learning process	1	1
Total		7	7

Based on table 2, the teacher carried out several activities to improve environmental care attitudes. However, before learning was carried out, there were several activities carried out by the teacher, including (1) preparing cleaning tools in class, such as trash cans, brooms, and erasers, (2) the teacher asking students to check the cleanliness of each table, if there is trash in the desk drawer, they are asked to clean it and throw it in the trash that has been provided.

3.4. Data Analysis

The researcher modified the criteria for each indicator of environmental care in the observation sheet and questionnaire based on the score that the researcher used. Two

alternatives were used in the management of the observation value, namely the answer yes (score 1) and no (score 0). The management of the questionnaire scores referred to the Likert scale by assessing each statement that appeared with an alternative score of answers; (a) strongly agree (score 4), (b) agree (score 3), (c) disagree (score 2), (d) strongly disagree (score 1). Then the scores of observations and questionnaires were analyzed based on the percentage formula as follows;

$$P= \frac{F}{N} X\ 100\%$$

Figure 1. Percentage Formula

The analysis results were grouped according to the percentage of answers from the respondents according to the criteria (see table 3).

Table 3. Category Observation Percentage

No	Percentage	Category
1	81%-100%	very caring
2	61%-80%	caring
3	41%-60%	caring enough
4	21%-40%	not caring
5	0%-20%	not caring at all

Classroom action research can be successful if it has reached the defined indicators. The indicators are adjusted in accordance with the agreed plan to improve the environmental care attitude of fourth-grade students. Meanwhile, the learning outcomes of the specified minimum completeness criteria reached 70%.

4. Findings

The observation results of Cycle 1 revealed that the students' attitude in keeping the classroom clean was still poor, as evidenced by some students who still littered and scrawled the books and walls. This signified the need to take further actions. The results of observations were followed up as material for reflection on further actions. The percentage of students' environmental care attitudes is displayed in the table below:

Table 4. Results of Observation of Students' Environmental Care Attitude in Cycle 1

No	Percentage	Category	total students	Percentage
1	81%-100%	very caring	4	20%
2	61%-80%	caring	7	35%
3	41%-60%	caring enough	9	45%
4	21%-40%	not caring	0	0%
5	0%-20%	not caring at all	0	0%
	Total		20	100%

Based on table 4 the results of observations of students' environmental care attitudes are starting to be sensitive to environmental cleanliness, such as not scribbling on walls, and some students have disposed of trash in its place. They also understand enough about using natural resources; one example is when washing hands with water, many students realize how important it is for us to save and keep the water clean. This is proven when students wash their hands without using too much water. The drawbacks at this stage are that not many students are aware of the importance of protecting plants in the surrounding environment, such as uprooting plants and breaking tree branches. Students should not do this because it will impact environmental damage.

Environmental care attitude questionnaire sheets were distributed to students in every cycle. Following are the results of the environmental care attitude questionnaires in Cycle 1. The percentage data for each statement item and the cumulative percentage for each indicator from the student questionnaire are as follows;

Table 5. Students' Questionnaire Response Data Percentage

Indicator	F	%	F	%	F	%	F	%	F	%
1	4	12.0	37	37.0	37	37.0	17	17.0	5	4.0
2	0	0.0	43	42.0	25	21.0	25	26.0	8	8.0
3	0	0	37	37.0	33	29.4	26	80.0	4	4.0
4	1	1.0	15	15.0	30	30.0	29	28.0	14	13.0
5	3	11.0	42	42.0	38	38	13	9.0	8	8.0

Based on the table above, each indicator was in the category of *not caring*, meaning that overall, the students had not achieved indicators of success in the implementation of ecoliteracy-based learning as a learning resource. Therefore, the researcher carried on with the corrective action in Cycle 2. Recapitulation of students' answers from each indicator can be seen from the table of SPSS processed results.

Table 6. Recapitulation of students' answers

		Indicator	Percent age	Valid Percentage	Cumulative Percentage
Valid	.09	3	20.0	20.0	20.0
	8.86	5	20.0	20.0	40.0
	12.20	3	20.0	20.0	60.0
	12.40	2	20.0	20.0	80.0
	12.72	1	20.0	20.0	100.0
	Total	5	100.0	100.0	

At the end of the Cycle 1, students were assigned a post-test in form of a description question aiming to see the success of the learning outcomes achieved by students with a minimum score of 70 to pass.

Table 7. Students' Learning Score in Cycle I

Average Score	57.38
Highest Score	81
Lowest Score	20

Based on the table above, the highest value obtained in Cycle 1 was 81, and the lowest value was 20. The class obtained 20% in the Cycle 1, meaning that it had not reached 70% in the Cycle 1, thus improvements were in order. The results of the reflection of actions in Cycle 1 failed to reach the success indicators, so that the researchers made improvements in Cycle 2. However, in the Cycle 1, each indicator increased compared to the results of the pre-action observation stage.

The observation in the Cycle2 on the fourth-grade students revealed that the environmental care attitude among students began to grow, as evidenced by students who started to take care of the plants in the environment. The percentage of observation on students' environmental care attitude can be described in the following table;

Table 8. Results of Observation of Students' Environmental Care Attitude in Cycle 2

No	Percentage	Category	Total students	Percentage
1	81%-100%	very caring	15	75%
2	61%-80%	caring	5	25%
3	41%-60%	caring enough	0	0%
4	21%-40%	not caring	0	0%
5	0%-20%	not caring at all	0	0%
	Total		20	100%

Based on table 8 The results of reflection show that the actions in cycle II have achieved indicators of success based on observations, questionnaires, and student learning outcomes that have achieved classical completeness, namely 75%. Improvements made to students

include; Students practicing how to care for and care for plants in the salt field tourism environment and students will practice how to plant medicinal plants as a form of supporting greenery also so that students will get used to carrying out environmental eco-literacy activities; the teacher guides students regarding the importance of disposing of trash in trash cans, and the importance of maintaining the cleanliness of salt field tours. Students will get used to checking cleanliness in desk drawers before and after learning.

Environmental care attitude questionnaire sheets were given to students in every cycle. Following are the results of the environmental care attitude questionnaire in Cycle 2. The percentage data for each statement item and the cumulative percentage for each indicator from the student questionnaire are as follows;

Table 9. Students' Questionnaire Response Data Percentage

Indicator	F	%	F	%	F	%	F	%	F	%
1	45	53.0	50	51.0	2	2.0	0	0.0	0	0.0
2	43	43.0	32	42.0	18	18.0	3	3.0	0	0.0
3	58	52.0	19	19.0	18	18.0	0	0.0	0	0.0
4	49	49.0	47	47.0	3	3.0	1	1.0	0	0.0
5	42	42.0	52	52.0	6	6.0	0	0.0	0	0.0

Based on the table above, each indicator was in the *caring* category, meaning that overall, students had successfully implemented ecoliteracy learning as a learning resource. Test result data in Cycle 2 can be seen in Table 10.

Table 10. Students' Learning Score in Cycle 2

Average Score	76.33
Highest Score	93.33
Lowest Score	40

The table above shows that the highest score obtained in Cycle 2 was 93.33, and the lowest was 40. Student learning outcomes had reached minimum score of 70. The results of observations on the increasing environmental care attitudes from Cycle I to Cycle II are presented with the histogram as follows;
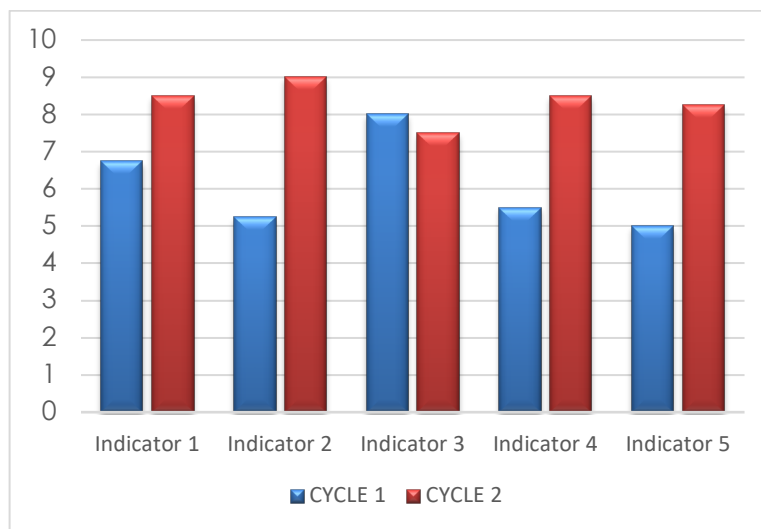

Figure 4. Improvement of Environmental Care Attitude from Cycle 1 to Cycle 2

Cycle I shows an increase in each indicator, especially in the first and second. The first cycle of student activity is better than the pre-action stage. One of the students' attitudes that were not visible at the stage of the cycle I was that students did not scribble on the table or tear up the paper, which students in the pre-action stage usually do. In cycle II, the researchers retook action to correct deficiencies in cycle I. Researchers and teachers worked together to instill an attitude of caring for the environment through the existing indicators. Forming this

attitude requires the teacher to give a good example and reprimand and condition students to be accustomed to instilling eco-literate attitudes at school and in the surrounding environment.

5. Discussion

The questionnaire results in the Cycle 1 showed an increase in each indicator, particularly in the first and second indicators. This was due to the fact that no students harmed the environment's natural resources during the Cycle 1. This indicates that the Cycle 1 of student activity was better than the pre-action stage. When the learning process took place, students were granted the opportunity to look into various problems they encountered in their surroundings. Students were also allowed to access a variety of learning resources about how to protect natural resources in the environment. To explore their understanding, students were assigned to make reports and present the results in form of group discussion. Although some students were still shy, with the teacher's support and directions, students gained more confidence when expressing their ideas or the conclusions of their thinking.

One of the environmental problems the students encountered was the piling garbage. The students learned to solve the problems. Scrawling and tearing paper, which students used to do during the pre-action stage, were not done in the Cycle 1. The unfavorable behaviors among students began to decline. Instilling environmental care attitude in students increased every existing indicator, albeit not all indicators were met. In the Cycle 1, many students were indifferent about the school's cleanliness; for example, when the teacher organized a collective school cleaning activity, students preferred to play with their peers. Despite being instructed to clean the classroom, the students, particularly the fourth-graders, did not heed. Any shortcomings in the Cycle 1 were addressed in the Cycle 2.

In the Cycle 2, actions were taken to address the shortcomings occurred in the Cycle 1. Referring to the existing indicators, the researcher and the teacher collaborated to instill environmental care attitude in students. This attitude called on the teacher to set a good example, reprimand, and condition in order to accustom them to ecoliteracy both at school and in their surroundings. According to Noverita et al., (2021), ecoliteracy learning equips students with knowledge, concern, and competence to maximize their positive impact on the environment through resolving environmental issues. This is in line with Setiawati et al., (2020) who suggest that someone with good ecological literacy is aware of environmental problems and has the responsibilities and skills needed to minimize adverse environmental impacts. In this study, the teacher set a good example by emphasizing the importance of keeping and caring for plants at school or at home. In exchange for rewarding the students who participated, the teacher directed the students to clean the classroom together at the end of the lesson. Madden and Dell'Angelo (2016) state that a person's ecoliteracy is obtained from knowledge of ecological principles and sensitivity and concern for the environment so that they can contribute significantly to the environment. Students reprimanding their peers who are negligent or intentionally not respecting the environment are an example of students' responsibility to preserve nature.

Additionally, in terms of learning outcomes in Cycle 2, students also experienced a significant increase; in Cycle 1, many of them did not pass, while in Cycle 2, there were 17 students (85%) who passed the minimum score, with the average score obtained in Cycle 2 being 78.25%, the highest score was 91, and the lowest score was 52. The results of observations, questionnaires and learning outcomes obtained in Cycle 2 met the criteria of success on each indicator, so this study was concluded in that cycle. According to Juhriati et al., (2021), a person should not only be knowledgeable about ecology, but also have the responsibility to solve environmental problems effectively. In line with this, Majumdar and Chatterjee (2022) explain that the existence of environmental knowledge, awareness and life skills that are in harmony with nature also increasingly supports the success of ecoliteracy. Students' ecoliteracy in several sub-competencies in each domain of ecoliteracy competence has

been shown by students well. Students also remind each other to take care of the school environment.

6. Conclusion

The implementation of ecoliteracy learning in the Cycle 1 of environmental care attitudes of students has not met the indicators that have been set because some students still care less about maintaining the cleanliness of their surroundings, such as when learning outside the classroom, some students littered on the side of the road, and some even uprooted plants. For this reason, the researchers made improvements in the Cycle 2 by making smaller study groups, then planting plants in the surrounding environments so that students could realize ecoliteracy in the surrounding environment. Meanwhile, in the Cycle 2, students were asked to make handicrafts using used goods. From the results of these data, implementing ecoliteracy as a source of learning in increasing environmental care attitudes for sustainable development in elementary schools can improve environmental care attitudes and students' learning outcomes because they had reached the predetermined success indicator of 70%. The environmental care attitude in Cycle 2 increased following the observations on five students (25%) in the *caring* category and 15 students (75%) in the *very caring* category. This increase was also supported based on the results of the questionnaire; it was found that one student (5%) was in the *caring* category, and 19 students (90%) were in the *very caring* category. Meanwhile, the learning outcomes obtained in the Cycle 2 were 15 students (75%) in the *passed* category and five students (15%) in the *failed* category.

Limitation

Limitations in this study occur due the teachers in answering each item of the questionnaire statement were suspected of answering the statement that it was not to the actual situation due to several factors, causing the respondents' score to be subjective

Recommendation

Researchers who plan to study the same topic are hoped to conduct it in a more inventive and creative manner because the conditions found in one class will certainly differ from those found in other classes.

Conflict of Interest

We confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome. We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed.

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