

HOW TO FOSTER STUDENTS' ECOLITERACY IN PRIMARY SCHOOL?

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Abstract: Human and environment have inseparable relationships. Maintaining and preserving the environment are the responsibility of all parties. School is a place to transform the activities in maintaining and preserving the environment to the students. Fostering students' ecoliteracy is the responsibility that teachers must take. Therefore, before fostering students' ecoliteracy, teachers need to have an ability to maintain and preserve the environment. This study aims to provide the illustration about teachers' ecological intelligence in primary school. This study used descriptive qualitative method that the sample was 21 teachers in SDN 147, Pekanbaru. The instrument of this research was ecological intelligence questionnaire which was divided into three aspects namely: aspect of attitude, skill, and participation. The technique of collecting the data used questionnaire technique and descriptive analysis used to analyse the data. Research findings proved that teachers' ecological intelligence is at high category with the average score of 79,83. On attitude aspect, it was obtained the score of 85,00 with high category. On the aspect of skill, it was obtained high category with the score of 75,86. Meanwhile, on the aspect of participation, it was obtained 75,30 as high category. Based on the data analysis, it can be concluded that teachers' ecological intelligence is at high category so that it is expected to be able to foster students' ecoliteracy in primary school.

Keywords: ecological intelligence, ecoliteracy, primary school teachers, primary school students.

1. Introduction

Sustainable education is education that can provide knowledge, skills, and participation from all elements of education who are aware of the importance of the future. Ecological intelligence is an awareness in which people, in this case, are teachers, students and all elements in the school aware of the importance of the environment as an ecosystem that provides mutual benefits which are safeguarded and preserved and if not maintained and preserved, will have a negative impact and cause harm.

The teacher has an important role in delivering, teaching and educating students in an effort to preserve the environment, both at home, at school, and in the surrounding environment. The role of the teacher around is the main thing in transforming environmental conservation efforts. The effort to plant the importance of maintaining and preserving the environment carried out by the teacher through the education process is assumed to provide knowledge, understanding, skills, and participation to students in preserving and preserving the environment. By providing experiences to students through the learning process, students are expected to be aware of and have awareness of the importance of the environment as a very important place in the future. This awareness is called eco-literacy. Ecoliteracy describes the awareness of the importance of the environment. Ecoliteracy is human awareness in preserving and preserving nature. This awareness can be owned by individuals through a lifelong learning process that will eventually shape knowledge, attitudes, character, and skills in processing and be preserving nature. Ecoliteracy is the moral awareness of the human community to respect the biotic community. Human position in eco-literacy is literacy of critical issues and providing effective and wise solutions related to the environment both in the human environment and in the living environment globally (Capra, 2010)^[1].

The effort to foster awareness of the environment to the students is an important task that must be done by the teacher. Because the teacher's task in education, especially in learning has a very important role. The role of the teacher that must be developed is as follows: teacher as a learning resource, teacher as facilitator, teacher as manager, teacher as the demonstrator, teacher as mentor, teacher as the motivator, and teacher as the elevator (Sanjaya, 2006)^[2]. Therefore, to grow and develop students' ecological intelligence as the goal of achieving eco-literacy of students, it is necessary to grow and develop ecological intelligence of teachers. Ecological intelligence owned by the teacher will give effect to participants in an effort to develop the ecological intelligence of the student.

Referring to the above explanation, this study tries to provide an overview of the ecological intelligence possessed by the teacher in an effort to foster and develop ecological awareness (eco-literacy) for students. The formulation of the problem in the study is how the description of ecological intelligence possessed by the teacher in an effort to foster and develop ecological awareness (eco-literacy) to students so that this study aims to describe the ecological intelligence of elementary school teachers in an effort to foster and develop ecological awareness (eco-literacy) for students.

2. Related Works/Literature Review

The environment as a human residence is a very important component, therefore humans are expected to be able to optimally optimize human knowledge, attitudes, and skills. Knowledge, attitude and human skills are used to think and do intelligently in maintaining and preserving the environment for survival and life. Ecological intelligence confirms the ability of humans to adapt to the environment. Ecological is an understanding of the organism and its ecosystem, while intelligence is the capacity to learn from experience and effectively deal with the environment. According to Goleman (Muhaimin, 2015)^[3] states, ecological intelligence is the ability of individuals to adapt to the ecological space in which humans are located. Ecological intelligence makes individuals apply what is learned to everything as a result of human activities on their ecosystems, so as to reduce environmental damage.

Ecological intelligence is a capability or competence possessed by humans in responding to the circumstances that occur in their environment and can apply it in their daily lives. Goleman *et al* (2012) states that ecological intelligence combines cognitive skills with empathy for all forms of life.

Ecological intelligence shows empathy for feeling sad when you see the damage that is happening on earth (environment), or when determined to make things better. This widespread empathy enhances rational analysis of the causal element and can change motivation to help and arouse shared awareness to live in harmony with the environment^[4].

Goleman, Bennet, & Barlow (2012)^[4] state that there are five things that must be developed to form ecological intelligence, namely as follows: (a) develop empathy for all forms of life that encourage students to expand their compassion to other forms of life; (b) developing a sustainable life with the collective ability to work together to preserve the sustainability; (c) developing behaviors that are in harmony with the environment with an understanding of time, space and impact; (d) anticipate various impacts with human-caused behavior and predict the possibility that will occur; and (e) understanding how nature sustains life is very important for students to grow a society that takes into account future generations and sustainable life.

Based on the description described above and the formulation of the research problem, the development of ecological intelligence in this study is divided into three aspects, namely aspects of attitude, aspects of skills and aspects of participation. Details of aspects of ecological intelligence can be seen below:

TABLE 1. Aspects and Indicators of Ecological Intelligence^[3]

Aspects	Indicators
Attitude	Appreciate health and cleanliness Maintain cleanliness
Skills	Use and utilize resources wisely Responsible for the environment
Participation	Conduct activities to preserve the environment Engage in environmental movements

3. Material & Methodology

The data in the study are data on ecological intelligence, which is divided into three aspects. The first aspect is the attitude aspect, the second is the skill aspect and the third is the participation aspect. The attitude aspect consists of two indicators, namely indicators that value health and cleanliness and maintain hygiene indicators. The skill aspect consists of indicators using and utilizing resources wisely, indicators responsible for the environment. Whereas for the aspect of participation consists of indicators carrying out activities to preserve the environment and indicators involved in environmental movements. The research data was developed using an ecological intelligence questionnaire instrument, consisting of 30 statement items. Research respondents were elementary school teachers in SD Negeri 147 Pekanbaru, amounting to 21 people. The selection of respondents and research sites is that the school is an Adiwiyata School. Completion of research instruments by respondents is done by choosing a score of 1 to 4, a score of 1 shows never and a score of 4 shows very often in each statement item on the instrument. The study was conducted using a descriptive quantitative approach with survey methods. The stages of the research were carried out by (a) problem analysis; (b) literature review; (c) development and validation of research instruments; (d) collection of research data; (e) tabulation of research data; (f) interpretation of research data; and (g) drawing conclusions. Data analysis using descriptive analysis, with the formula: $(P = \frac{f}{n} \times 100\%)$ ^[5] (Sugiyono, 2012), this formula is used to describe the number of respondents and the percentage of ecological intelligence categories. Ecological intelligence is developed based on the following categories:

TABLE 2. Intervals, Interval Conversions and Ecological Intelligence Categories^[5]

Intervals	Interval Conversions (%)	Ecological Intelligence Categories
2047,5 - 2520	81,25 - 100	Very high
1575 - 2047,5	62,5 - 81,25	High
1102,5 - 1575	43,75 - 62,5	Enough
630 - 1102,5	25 - 43,75	Low

4. Results and Discussion

a. Result

This study describes the teacher's ecological intelligence which consists of three aspects, namely: aspects of attitude, aspects of skills and aspects of participation. The results showed that the teacher's ecological intelligence was included in the high category, the achievement was seen in during the acquisition of an average score of 79.38 with details: on the aspect of attitude the average score obtained was 85.00, on the aspect of the average score skills obtained is 77.86, and on the participation aspect the average score obtained is 75.30. The data acquisition for each aspect of ecological intelligence is as follows:

1. Teacher's Ecological Intelligence on Attitude Aspects

Data acquisition on teacher ecology intelligence on attitude aspects is shown in table 3 below.

Table 3. Teacher's Ecological Intelligence Data on Attitude Aspects

Categories	Count	Percentage	Average (%)	Ecological Intelligence Categories
Enough	2	9.52		
Very high	5	23.81		
High	14	66.67	85.00	High
Grand Total	21	100		

The table above, provides an explanation of the recapitulation of teacher's ecological intelligence data on aspects of attitude, the number of respondents who obtained enough categories amounted to 2 respondents with a percentage of 9.52%, in the very high category amounted to 5 respondents with a percentage of 23.81%, in the high category numbered 14 respondents with a percentage of 66.67%. In addition, the average score obtained is 85.00 in the high category.

2. Teacher's Ecological Intelligence on Skills Aspects

Obtaining data on the teacher's ecological intelligence on skill aspects is shown in table 4 below.

Tabel 4. Teacher's Ecological Intelligence Data on Skills Aspects

Categories	Count	Percentage	Average (%)	Ecological Intelligence Categories
Enough	5	23.81		
High	16	76.19	77.86	High
Grand Total	21	100		

The table above provides an explanation of the recapitulation of teacher's ecological intelligence data on aspects of skills, the number of respondents who received enough categories amounted to 5 respondents with a percentage of 23.81%, in the high category amounted to 16 respondents with a percentage of 76.19%. The average score obtained was 77.86 with a high category.

3. Teacher's Ecological Intelligence in the Aspect of Participation

Data acquisition on the teacher's ecological intelligence on participation aspects is shown in table 5 below.

Tabel 5. Teacher's Ecological Intelligence Data on Participation Aspects

Categories	Count	Percentage	Average (%)	Ecological Intelligence Categories
Enough	5	23.81		
High	15	71.43	75,30	High
Low	1	4.76		
Grand Total	21	100		

The table above provides an explanation of the recapitulation of teacher's ecological intelligence data on the aspect of participation, the number of respondents who obtained enough categories amounted to 5 respondents with a percentage of 23.81%, in the high category numbered 15 respondents with a percentage of 71.43%, in the low category amounted to 1 respondent with a percentage of 4.76%. The average score obtained is 75.30 in the high category.

b. Discussion

Talking about ecological intelligence is not independent of the sense of human consciousness with nature, for that the sustainability of nature or an environment depends on the level of human consciousness. In line with Palmer and Neal's views (Noviana, 2018), it is of the view that ecological intelligence emphasizes the concept of students' sensitivity and concern to solve environmental problems in their daily lives until an ideal perspective and ethics for the environment is formed.

A teacher has high ecological intelligence measured in three aspects, namely: aspects of attitude, skills, and participation. In the aspect of attitude, contains several things that have been owned by the teacher, such as having an awareness of the attitude of respecting health and cleanliness and maintaining a clean attitude. Based on the results of research that has been carried out shows that the teacher's ecological intelligence in the attitude aspect is included in the high category with an average score of 85.00. This can be seen from the achievement of each indicator, namely in the indicator of respect for health and cleanliness, the number of respondents included in the category of adequate amounted to 2 respondents with a percentage of 9.52%, in the very high category amounted to 4 respondents with a percentage of 19.05%, in the high category amounted to 15 respondents with a percentage of 71.43%. In addition, the average score obtained was 85.48 in the high category. In the aspect of attitude on the indicator of maintaining cleanliness, the number of respondents included in the category is enough with 2 respondents with a percentage of 9.25%, in the very high category amounted to 6 respondents with a percentage of 28.57%, in the high category amounted to 13 respondents with a percentage of 61.90 %. In addition, the average score obtained is 84.52 in the high category. The achievement of this high score, influenced by the high level of teacher awareness of the environment, the level of awareness of the teacher is seen in the activities of providing guarantees, the health of food or school snacks and maintaining the cleanliness of the school environment. This is also seen in the picture that reflects the attitude of the teacher's awareness of the environment (school) as follows.



Fig. 1. Appreciate and Maintain Cleanliness

While for the aspect of skills, it contains several things that must be owned by the teacher, such as having the skills in using and utilizing resources wisely, and having the skills to be environmentally responsible. The results showed that the teacher's ecological intelligence in the aspect of skills was included in the high category, with an average score of 77.86. This can be seen in the indicators of using and utilizing resources wisely, the number of respondents included in the sufficient category amounted to 5 respondents with a percentage of 23.81%, in the low category amounted to 1 respondent with a percentage of 4.76%, in the high category numbered 15 respondents with 71.43% percentage. In addition, the average score was 78.33 in the high category. In the indicator of environmental responsibility, the number of respondents included in the category of adequate amounted to 5 respondents with a percentage of 23.81%, in the high category numbered 16 respondents with a percentage of 76.19%. In addition, the average score obtained was 77.38% in the high category. The achievement of this high score, influenced by the high level of teacher awareness of the environment, the level of awareness of the teacher is seen in the activities of using resources around the environment to be used as a value. This is also seen in the picture that reflects the attitude of the teacher's awareness of the environment (school) as follows.



Fig. 2. Using and Utilizing Resources Wisely and Responsibly

In the aspect of participation, it contains several things that must be possessed by the teacher, such as conducting activities to preserve the environment and be involved in environmental movements. Based on the results of the study showed that the teacher's ecological intelligence included in the high category with the average score of 75.30. This can be seen in the indicators of carrying out activities to preserve the environment, the number of respondents included in the category is quite 4 respondents with a percentage of 19.05%, in the low category amounted to 2 respondents with a percentage of 9.52%, in the very high category amounted to 1 respondent with a percentage 4.76%, in the high category amounted to 14 respondents with a percentage of 66.67%. The average score obtained is 76.79 in the high category. In the indicator indicators involved in the environmental movement, the number of respondents included in the sufficient category amounted to 5 respondents with a percentage of 23.81%, in the low category amounted to 1 respondent with a percentage of 4.76%, in the high category amounted to 15 respondents with a percentage of 71.43%. The average score obtained was 73.81 with a high category. The achievement of this high score, influenced by the high level of teacher awareness of the environment, the level of awareness of the teacher is seen in the activities of planting and cleaning the environment. This is also seen in the picture that reflects the attitude of the teacher's awareness of the environment (school) as follows.



Fig. 3. Activities to Preserve and Clean the Environment

The results of the achievement of the three aspects of the teacher's ecological intelligence are concrete manifestations of the teacher's awareness of the environment or nature. This is in accordance with the opinion of M. T. Zen in Neolaka (2008)^[7], which states that every citizen must grow and foster awareness to preserve the environment, based on the value system, namely the value system of the environment itself with philosophy living peacefully with the natural environment. In line with the above opinion by Muhaimin (2015)^[3] which states that human obligation in interacting with nature is to utilize responsibly in accordance with environmental ethics by maintaining and preserving it. Based on the results of the research above, it can be concluded that the teacher's ecological intelligence is included in the high category.

5. Conclusion

This research is a study that discusses the ecological intelligence of teachers which contains the level of teacher awareness of the environment or nature. Based on the results of research on teacher ecological intelligence, it can be concluded that the level of teacher awareness of nature or the environment is included in the high category. This can be seen from the achievement of an average score of 79.38 with details: on the aspect of the average attitude score obtained is 85.00, on the aspect of skill the average score obtained is 77.86, and on the aspect of participation is average the average score obtained is 75.30.

The recommendation given by researchers is to carry out activities aimed at increasing awareness or concern for nature or the environment, especially in the education sector. Besides recommendations for further research, it is expected to conduct research studies on factors that influence and developments such as the development of teaching materials or textbooks to increase ecological intelligence itself.

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