How is the attitude of students' environmental literacy through the myth of beringin (*Ficus* sp.) in adiwiyata school?

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Abstract. This research is a preliminary study conducted to know and measure how student's environmental literacy attitudes about local wisdom from the local area, namely Java area through the myth of *Ficus* sp. in adiwiyata school. Data collection techniques and instruments: a closed questionnaire. Questionnaires were then analyzed with SPSS to determine the validity that can be demonstrated by using correlation coefficient. in this study, correlation was calculated with Pearson's correlation for data were assumed to be normally distributed. Validity of each indicator was determined from the significance of its correlation with the sum score (item-total correlation). Reliability test: Cronbach's Alpha formula. Next, the data processing uses descriptive statistical analysis for likert scale data processing. The results showed a percentage of 78.7% which means it is in the good category, but only slightly above the medium category. This indicates that student's environmental literacy attitudes must continue to be improved.
Keywords: *attitude of environmental literacy, myth of beringin (Ficus* sp.*), adiwiyata school*

1. Introduction

Humans and the environment are two things that have a close relationship and influence each other, so that both directly and indirectly both have an impact on sustainable life [1]. So if there are problems in the environment, the root of the problem is the error of the human paradigm towards nature, how human relationship with nature, and the low value of caring for nature and the surrounding environment because the quality of the environment is increasing or decreasing determined and influenced by how human behavior is over-exploiting nature without regard to environmental carrying capacity and ecological functions [2]. So that effort can be done, including by starting to improve the paradigm and awareness through education especially environmental education. In environmental education, environmental literacy is also integrated to make students able to understand the relationship between the environment and the natural environment with humans [3]. Environmental literacy has three components based on environmental insight. The three components are environmental competency, environmental knowledge, and attitudes towards the environment [4]. These three aspects are closely interrelated. One of the goals in developing environmental literacy is to empower people with confidence in their ability to contribute to environmental solutions through personal behavior [5]. Developing environmental literacy is equivalent to developing responsible environmental behavior, and individual behavior reflects

the level of environmental literacy [6], [7]. Environmental attitudes can shape the feelings and priorities of individual environmental responsibilities and thus play an important role in determining pro-environment behavior.

With this concept of environmental literacy can be synergized with local wisdom related to the preservation of an environment. One of the local wisdoms that is still developing in Indonesia is through myth. This myth varies in different regions, one of the myth from Java area which is related to the environment is the myth of *Ficus* sp. The majority of Javanese people in Indonesia have a culture or myth that considers a large tree (for example: banyan (*Ficus* sp.) Tree) is a sacred place [8]. This local wisdom has a positive impact on the environment. If a place is considered sacred, this is a form of conservation. Scientifically, the Beringin has very many roots, so the tree can maintain water sources [9] Trust in this myth plays a role in preserving biodiversity and ecosystems.

Local wisdom like myth of *Ficus* sp. also can be realized in learning in schools one of them through biology with environmental material contained in the material biodiversity, plantae, cell structure and plant tissue and ecosystems. Therefore, the researcher wants to see how the student's environmental literacy (in the Java region, especially DIY) is through the local wisdom in the myth of *Ficus* sp. in adiwiyata school. Adiwiyata school is a program to realize schools that are related and cultured in the environment and the principle of adiwiyata school is educative, participatory, and sustainable. So, the students must be educated in this school to have a higher Environmental Literacy value. However, this research is a preliminary study on a small scale and is limited to knowing and measuring in aspects of students' environmental literacy attitudes.

2. Research method

This research used a survey method with quantitative descriptive analysis.

2.1. Location and Time

This research was conducted in a school with the status of an adiwiyata school. The list of schools was obtained from the top 5 ranks of adiwiyata School based on DIY Governor Decree No 196 / KEP / 2018 About Provincial adiwiyata School Rankings in 2018. And in this study it was a preliminary study using one of these schools. The location at MAN 2 Sleman in Jl. Raya Tajem, Tajem, Maguwoharjo, Depok, Sleman. This research was conducted at January to July 2019.

2.2. *Subject of Research*

The sampling technique used was Purposive Sampling Technique, with the reason that the subject is a student of one of the adiwiyata schools (which has been determined by the Governor's Decree) and is within the scope of the Special Region of Yogyakarta (areas that still have and believe the myth of Beringin), so that the subject was 32 students in class X MAN 2 Sleman who have taken diversity and ecosystem material.

2.3. Instrument Validity and Reliability

The instrument used was a closed questionnaire. This research instrument used 5 ecological dimensions in the "NEP (New Ecological Paradigm)" instrument from Dunlap [10], The scale of the NEP was designed to identify the five components of the ecology [11], namely natural balance, growth limits, anti-exemptionalism, anti-anthropocentrism and eco-crisis [12] which are then developed into several indicators so that 14 statements are obtained. The instrument using the Likert Scale as follows

Table 1. Likert scale.

Option	Scoring	
	Positive	Negative
Agree / Frequently / Positive	3	1
Hesitating / Sometimes / Neutral / Don't know	2	2
Disagree / Almost never / Negative	1	3

Likert scale is a scale arranged in the form of statements followed by responses that indicate levels [13]. Questionnaires were then analyzed with SPSS (Statistical Package for the Social Sciences) to determine the validity that can be demonstrated by using correlation coefficient. in this study, correlation was calculated with Pearson‘s correlation for data were assumed to be normally distributed. Validity of each indicator was determined from the significance of its correlation with the sum score (Item-total correlation). Reliability test: Cronbach's Alpha formula.

2.4. Data Analysis Technique

The analysis used for the data obtained from the questionnaire is by processing the Likert scale data with descriptive statistical analysis. The data are analyzed by calculating the average answers based on the evaluation of each answer from the respondents which then the data is converted into a percentage form. The following is the formula for determining the percentage of results from the respondent's questionnaire.

$$\% = \frac{n}{N} \text{ x } 100\%, \text{ \% = Percentage sought; n = Value obtained; and N = Number of all values}$$

Then the percentage that has been obtained is categorized through the following table and interpreted in descriptive or narrative form.

Table 2. Percentage description.

Percentage Range	Quality
≥ 76 %	Good
56% - 75%	Medium
≤ 55%	Low/Less

3. Results and Discussion

3.1. Validity and Reliability Result

Based on the questionnaire instrument with indicators and statements that have been developed, the validity results obtained using the SPSS are as follows:

Table 3. Item-total statistics.

Item	Scale Mean if Item Deleted	Scale Variance if item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Croanbach's Alpha if Item Deleted
1	30.66	31.330	.099	.719	.827
2	30.59	30.120	.278	.487	.815
3	31.06	28.060	.418	.625	.806
4	30.38	30.758	.224	.585	.817
5	30.75	28.387	.628	.778	.794
6	30.75	28.258	.493	.786	.800
7	30.84	24.975	.763	.900	.775
8	30.28	33.241	-.145	.512	.836
9	30.81	24.673	.790	.808	.772
10	30.81	27.899	.406	.758	.808
11	30.72	28.338	.562	.744	.796
12	31.00	25.871	.619	.712	.788
13	30.16	31.491	.200	.529	.817
14	30.59	25.862	.670	.862	.784

The reliability statistic and item-total statistics were analyzed. The value of Cronbach's alpha for 14 items was 0.815 (see table 4). If 5 invalid items are deleted, the Cronbach's alpha value increased to 0.871. The increase shown is quite high (0.056). This increase indicates that the item is suitable for removal, and by comparison if Cronbach's alpha was directly calculated from 9 items, the value was 0.871 (see table 5).

Table 4. Reliability statistic 14 items.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.815	0.798	14

Table 5. Reliability statistic 9 items

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.871	0.868	9

There are various studies on environmental literacy, especially on aspects of attitude. Most use questionnaires as a research instrument. Thus in this study, a questionnaire consisting of 14 items/statements was used to assess students' environmental literacy attitudes toward the Beringin myth. The results showed that the questionnaire was reliable, with 9 valid items and 5 others declared invalid because they did not have a significant correlation.

3.2. Research Results

The questionnaire was distributed to research subjects and the following results were obtained:

Table 6. Frequency distributions and corrected item-total correlations for 14 items.

Dimension	Indicator	Items	Yes	Don't Know	No
Limits to growth	Water availability	1	12.5%	37.50%	50.00%
	Soil conservation	2	53.13	37.50	9.38
	Air quality	3	37.50	28.13	34.38
Balance of nature	Impact on ecosystems	4	71.88	21.88	6.25
	Interaction of living things	5	34.38	59.38	6.25
	Biodiversity	6	40.63	50.00	6.25
Anti-Anthropocentrism	Conservation efforts	7	31.25	18.75	50.00
	Policy in the use of banyan (*Ficus* sp.) tree	8	81.25	12.50	6.25
Anti exemptionalism	Man's responsibility towards the Beringin	9	53.13	15.63	31.25
	A real form of caring and responsibility	10	53.13	15.63	31.25
		11	9.38	50.00	40.63
Eco-crisis	Impact of Beringin felling	12	40.63	15.63	43.75
	Problems related to exploitation	13	90.63	6.25	3.13
	Problems with the status of existence	14	25.00	6.25	68.75

From this table can describe that:

- Respondent statement use Likert Scale, and format of range from 1 to 3, namely Yes, Don't know, and No.
- The number of positive (+) item/statement are 7 (2, 4, 6, 8, 9, 10, 13)
- The number of negative (-) item/statement are 7 (1, 3, 5, 7, 11, 12, 14)
- The percentage distributions for responses to each of the 14 items are shown in:

  - *Limits to growth*, the perspective that the earth has limitations in providing natural resources that shown in item/statement in indicator: water availability, soil conservation, air quality. Item 1 (-), "*Beringin roots are less effective in maintaining water sources*". Item 2 (+), "*I believe the Beringin can maintain the quality of resources and soil fertility*". Item 3 (-), "*Beringins are less able to reduce pollutants in the air so that planting Beringins around cities is less effective*".

  - Balance of nature, the belief that human activity reflects the balance of nature that shown in item/statement in indicator: impact on ecosystems, interaction of living things, biodiversity. Item 4 (+), "*I don't want ecological disasters like floods, landslides, forest fires and drought to occur, so I have try to prevent it from now on through the tree planting movement*". Item 5 (-), "*Beringins cannot maintain symbiosis between organisms that are in the shade of Beringins*". Item 6 (+), "*The existence of a Beringin, many organisms that maintained their survival*".

  - *Anti-anthropocentrism*, one's perspective about pro-environment attitudes if it does not prioritize the ego as a human being, the belief that humans have the right to modify and controlling the environment, that shown in item/statement in indicator: conservation efforts, policy in the use of banyan (*Ficus* sp.) tree. Item 7 (-), "*I do not support efforts to plant local tree species through various activity programs (biological gardens, arboretums, urban forests, green open spaces)"*. Item 8 (+), "*Market economics should take into account the value of ecosystem functions and biodiversity*".

  - *Anti-exemptionalism*, provides a perspective of someone who considers the thoughts about humans as individuals who are responsible for the environment that shown in item/statement: man's responsibility, areal form of caring and responsibility in Beringin that shown in item/statement in indicator: Man's responsibility towards the Beringin, a real form of caring and responsibility. Item 9 (+), "*I have a principle to care about the life of the Beringin"*. Item 10 (+), "*I learned about environmental education about conservation based on local wisdom*". Item 11 (-), "*There is no need for an institution that can develop a Conservation Action Plan Strategy and protect biodiversity extinction*".

  - Eco-crisis, provides a perspective of the crisis of individuals or natural damage due to the impact of regulations or laws that are not friendly to the environment tree that shown in item/statement in indicator: impact of Beringin felling, problems that related to exploitation and status of existence in Beringin. Item 12 (-), "*I support the felling of a Beringin which disturbs the foundations of buildings and other infrastructure*". Item 13 (+), "*Human behavior or actions become one of the causes of changing the status of the Beringin from the rare to the rare*". Item 14 (-), "*I do not support community movements that maintain the existence of the Beringin both ecologically and socio-culturally*".

Thus, the evidence from this preliminary survey suggests that the set of 14 items can be treated as constituting an internally consistent measuring instrument [16].

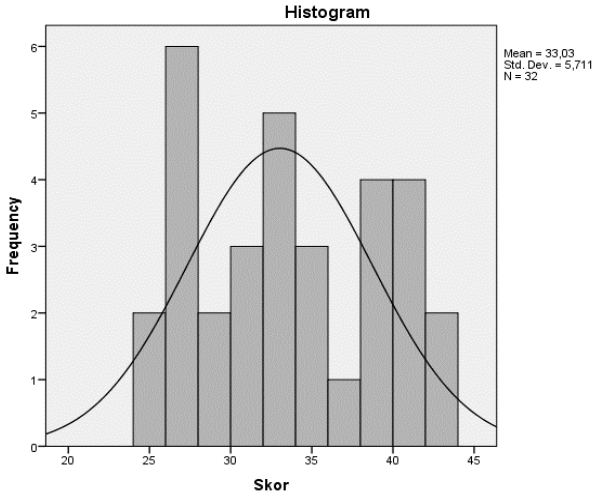

Figure 1. Histogram results of environmental literacy.

The myth of beringin (*Ficus* sp.) Is one of the myths still believed in Yogyakarta and its surroundings. This myth can be different when viewed from various regions. However, in general the existence of myths about banyan trees is intended to preserve the environment, namely as an effort and efforts of the ancestors to maintain environmental balance. That is why the questionnaire has been compiled, incorporating local wisdom from the banyan myth (Ficus sp.) To explore and come up with one aspect of student environmental literacy, namely the behavioral aspect, and is aimed at adiwiyata schools where this school has stronger environmental programs and concepts.

From figure 1, the average value obtained is 33.03 for students' responses in the adiwiyata school to a questionnaire that measures the attitude of environmental literacy in the myth of Ficus sp. Then, with the same formula, a percentage of 78.7% is obtained where this result is included in the range of percentage ≥ 76%, which means it is in the good category, but only slightly above the medium category. Attitudes will influence behavior, if; (1) the factors that influence the statement of attitudes and behavior are reduced to a minimum, (2) When the measurement of attitude refers to a more specific behavior, (3) There is an awareness of attitudes that are owned, when will show a behavior [14]. Exploring the attitudes of students through local wisdom in the form of myths that support the preservation of nature / the environment, which is then associated with the environment of students also shows that in this study the level of environmental literacy aspects of attitudes in students in schools that care about the environment (adiwiyata school) also in the good category. Attitudes toward behavior are defined as positive or negative individual evaluations of behavior. Attitudes toward behavior are determined by individuals regarding the positive and or negative consequences of performing a behavior with an individual's subjective value of the consequences of that behavior [13]. Positive attitude someone will cause positive behavior towards an object. Someone who has an environmentally friendly attitude will have a positive attitude towards knowledge or information and ecological products and will certainly participate in activities that provide protection to the environment. The relationship between explicit and implicit attitudes can influence someone in processing information to the point of behavior change [14]. The relationship between attitudes and behavior can also vary, because attitudes and behaviors are

factors that depend but are influenced by other factors (mood, emotions, personality, social pressure, potential, risk or time).

In this research, the highlighted attitude is especially on pro-environment behavior. Pro-environment behavior is considered as an attempt by someone to take preventive and protective actions towards the environment (protecting nature and addressing environmental issues) [15] also as behavior that specifically pays attention to the environment in everyday life. Then, from this study, it can be attributed that students begin to be sensitive and able to properly implement environmental literacy through attitudes that related with the myths that surround them [16] where this attitude is the point of view of the environmental conditions that arise because the motivation and real evidence of human treatment of the environment that will have an effect on environmentally friendly behavior [17]. So, the environmental literacy attitude of students through the myth of Ficus sp. is needed to be improved, because these environmental attitudes shape the feelings and priorities of individual environmental responsibilities and thus play an important role in determining pro-environmental behavior [18].

4. Conclusion

Based on this this study, the environmental literacy attitude of students at the adiwiyata school in the myth of Beringin (*Ficus* sp.) in the percentage of 78.7 % which means it is in the good category, but only slightly above the medium category. This also means that student's environmental literacy attitudes must continue to be improved, because these environmental attitudes will shape the feelings and priorities of individual environmental responsibilities and thus play an important role in determining pro-environmental behavior.

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