

# The Uncovering Environmental Knowledge of Senior High School Students about the Local Potential Area Based on Reviewed from Gender and Grade

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## ABSTRACT

This research aims at (1) describing students' environmental knowledge based on local potency in West Nusa Tenggara Province, (2) analyzing students' environmental knowledge in terms of gender, and (3) analyzing students' environmental knowledge in term of level or grade. This survey research is analyzed descriptively and inferentially using t test. The subjects consisted of 431 Senior High School students around West Nusa Tenggara Province. The research instrument uses questionnaire consisting of 5 positive and negative statements with 4 scales namely Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS). The results showed that (1) there were 27.3% of students who had environmental knowledge in the low category, 40.6% sufficient category and 32% high category, (2) there was a different value of environmental care between male and female students (Sig<.05) in the mean score of 70.21 and 66 respectively; and (3) there was a different in the environmental care scores of students in grades 10 and 11 (Sig<.01) in the average of 73.09 and 64.45. Thus, the findings indicate the importance of introducing local potency based on environmental insights to increase students' environmental knowledge.

**Keywords:** Environmental Knowledge, Local Potential Area, Gender and Grade

## 1. INTRODUCTION

Environmental knowledge is knowledge that must be possessed by students, so that students know and understand the ins and outs of the environment around where they live, what are the available local potentials or various problems that develop in their environment, so that students have a concern for caring for, developing and preserving their environment. The environment is currently experiencing many changes, including an increase in global warming, a decline in the quality of ecosystems and the depletion of natural resources. In West Nusa Tenggara, particularly in Lombok, climate and environmental changes have also occurred, including damage to the coral reef ecosystem which is mostly caused by human activities [1], forest damage due to being used as agricultural land [2], damage to mangrove ecosystems caused by community social factors [3], [4],

reduced number of animals and plants due to poaching and so on.

The destruction of ecosystems and the depletion of natural resources are caused by the lack of public knowledge regarding environmental management and preservation, so that people are less concerned about the environment. For this reason, insight into the environment needs to be encouraged, one of which is through education based on local potential in schools [5], [6]. In schools, teachers can integrate environmental knowledge according to the local potential of the area where they live or the environment where they study into the basic competencies of the subjects being taught [7], [8], [9], [10], by presenting information, conditioning the student learning environment and being able to be an example. for student. According to [11] teachers must have environmental knowledge and high environmental

awareness, so that they are then able to transmit it to students.

The level of students' environmental knowledge is closely related to environmental problems, including students having different perceptions regarding to environment, this is influenced by the extent to which students understand the environment, which will have an impact on the level of student care for the environment. For this reason, students as the younger generation have to have insight and be able to understand and apply the attitude for taking care of the environment therefore they will be able to maintain, develop and preserve the environment by paying attention to ecological principles and environmental ethics [12].

Having insight or knowledge about the importance of the sustainability of the surrounding environment or local potency, the students will be more responsive to the environmental issues besides fostering attitude of caring for the environment, solving problems, and being critical [13], [14], [15] increasing curiosity [16], [17]. In addition, the students will also be more respect to the surrounding environment by applying such insight in maintaining environment, caring and preserving the learning environment [10], [18], [19], [20], [21].

Awareness of the students' environmental care is influenced by several factors including: Parental education, parental occupation, and gender, sources of information and education level [22]. Gender differences affect students' knowledge and level of care [23], [24] [25], [26], female students have higher environmental knowledge and awareness than boys. The level of education or grade level of students also affects students' knowledge and environmental awareness [27].

There are several previous studies that examine environmental care including: Profile of environmental care attitudes in junior high school students with an integrated local wisdom model of the Sasak tribe [28], conservation of mangroves in North Lombok through environmental-based local education [7], and integrating local education curriculum in the district. North Lombok based on the perspective of the people of NTB [2]. These studies reveal the caring attitude of junior high school students and the integration of local education in North Lombok Regency.

**2. METHODS**

This type of research is a survey in which all high school students on the island of Lombok as the population, due to the coverage is quite wide and to obtain representative research data, the sample taken in the study is represented by one high school in each sub-district, namely 52 schools. The research data obtained were then analyzed by descriptive and inferential statistics. Descriptive analysis was performed to calculate interval, frequency, mean, and percentage.

Meanwhile, inferential statistical analysis was conducted to determine the effect between variables, namely the independent variable the influence of gender (male and female) on students' environmental knowledge through t test analysis and post hoc test. The process of data analysis using the SPSS-19 program for windows.

The instruments used in this study were a validated questionnaire on environmental care. The indicators discussed know the importance of the surrounding environment (local potential) which is then developed into five statements, which are packaged in the form of positive and negative statements using a Likert scale (4-1). Positive statements are given a score of 4 for the statement Strongly Agree (SS), a score of 3 for the statement Agree (S), a score of 2 for the statement Disagree (TS), and a score of 1 for the statement Strongly Disagree (STS), while negative statements use the opposite score.

**3. RESULTS AND DISCUSSIONS**

**3.1. Descriptive Analysis of Student Environmental Knowledge**

Data on students' environmental knowledge was taken through survey by giving questionnaires to senior high school students in five districts/cities around Lombok Island. The data were analyzed descriptively and presented in Table 1 below.

**Table 1.** Distribution of students' environmental knowledge level

Classes	Interval	Frequency	Percentage	Categories
1	5-9	118	27,3%	Low
2	10-15	175	40,6%	Enough
3	16-20	138	32%	High

The students' environmental knowledge data is also presented in the following pie chart.

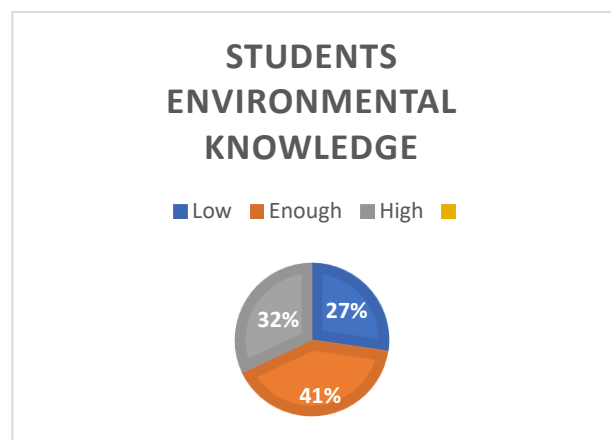


Table 1 and the pie chart showed that students' environmental knowledge is classified as low with a percentage of 32% low and 41% quite adequate. The low environmental knowledge of students causes students to

be less concerned with the surrounding environment, so students do not control their actions which can later be fatal to the environment. This is in line with [29] that low environmental knowledge causes students to lack information which is the basis for not damaging the environment. In addition, students pay less attention to any behavior that can have an impact on the environment [30]. Low environmental knowledge and students' concern for the environment can also be caused by lack of application of knowledge in solving environmental problems in daily life, lack of maintaining and caring for school buildings and environments, less use of land and school facilities in accordance with environmental management rules and lack of following actions, social environment held by other parties [31].

Sufficient environmental knowledge for students will cause students to care enough about their environment, so students can control their actions so as not to damage the environment, while students who have high environmental knowledge have awareness to be able to control their actions and be able to preserve their environment. According to [29] students who have a moderate level of environmental knowledge tend to pay more attention and empathy to the consequences of their behavior on the environment, while students who have high environmental knowledge will be more aware of preserving their environment. High environmental knowledge of students can increase students' awareness of the environment [32].

Environmental knowledge has a significant relationship with environmental care attitudes in students [33], [34]. The level of students' environmental knowledge has an influence (contribution) in determining environmental care attitudes for students, namely the higher students' insight or knowledge related to the environment, the higher students' concern for the environment, because it is supported by knowledge and understanding related to environmental management [35]. Students' environmental awareness also increases if students have good environmental knowledge [22].

**3.2. Environmental Knowledge of Students in terms of Gender**

The data on students' environmental knowledge in term of gender (male and female) were analyzed inferentially using t-test to determine the difference in environmental knowledge between male and female students. The results of the analysis are presented in Table 2 below.

**Table 2.** The results of the t test analysis in defferentiating students' environmental knowledge in term of gender

		Independent Samples Test									
		Levene's Test for Equality of Variances					t-Test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
Peduli lingkungan	Equal variances assumed	5.134	.024	-2.440	413	.016	-4.15041	1.70099	-7.49408	-88674	
	Equal variances not assumed			-2.420	371.015	.016	-4.15041	1.71496	-7.52290	-77816	

Table 2 shows that there is a significant difference in the value of environmental knowledge between male and female students (Sig < .05). Further analysis to find out which gender gives better score, a post hoc analysis is carried out and the results of the analysis are shown in Table 3 below.

**Table 3.** Results of Post hoc analysis of Students' Environmental Knowledge in term of Gender

Treatments Pair	Tukey HSD Q statistic	Tukey HSD p-value	Tukey HSD Inference
A vs B	3.4507	0.0151074	* p<0.05

The results of the Post hoc analysis in Table 3 showed that there is a significant difference in the value of students' environmental knowledge between boys and girls (p <0.05), where female students have higher environmental knowledge value comparing to boys with a successive average -70.21 and 66.06 respectively.

The results of this study are in line with research [23], [24], [25], [26] that there are differences in knowledge and environmental awareness between women and men. Women have higher environmental knowledge and awareness than men. This is because women are always involved in responsibilities in the home environment, while men are not often involved [25]. Women are also more often involved in forest conservation, while men are considered to be more often involved in forest destruction, for example illegal logging in the forest [23]. Judging from the psychological aspect, men are indeed more active, aggressive and rational, while women are more attentive, affectionate and have deep feelings [26]. Environmental knowledge is very important for students, both female and male students. According to [27] a person's environmental knowledge can serve to determine which behavior is good and which is bad for his environment. Through environmental knowledge, they can raise awareness of themselves towards the environment, so that they are more concerned and able to preserve the environment.

**3.3. Environmental Knowledge of Students seen from Grade Level**

Students' environmental knowledge is also influenced by grade level because it has an impact on the maturity of the mindset. The data were inferentially analyzed using t-test to determine the difference in environmental

knowledge between students in grades 10 and 11. The results of the analysis are presented in Table 4 below.

Table 4. Results of t test analysis on Students' Environmental Knowledge in terms of Class Levels

		Independent Samples Test								
		Levene's Test for Equality of Variances				t-Test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Pendid. Lingkungan	Equal variances assumed	5.203	.023	-4.805	384	.000	-8.64862	1.78912	-12.17620	-5.12104
	Equal variances not assumed			-4.910	278.415	.000	-8.64862	1.78977	-12.10477	-5.17848

The results of the t-test analysis in Table 4 showed that there is a significant different in the environmental knowledge value of students in grades 10 and 11 (Sig < .05). Further analysis to find out which grade level gives better grades, a post hoc analysis is carried out and the results of the analysis are shown in Table 5 below.

Table 5. Results of Post hoc analysis of Students' Environmental Knowledge in terms of Grade Level

Treatments Pair	Tukey HSD Q statistic	Tukey HSD p-value	Tukey HSD Inference
A vs B	6.7958	0.0010053	* p<0.01

The results of the post hoc analysis in Table 5 showed that there is a significant different in the value of students' environmental knowledge between grades 10 and 11 (p<0.01), where grade 11 students have a higher environmental knowledge value when compared to grade 10 with the average is 73.09 and 64.45 respectively.

The results of this study are in line with research conducted by [22], [27] that students with different levels have different environmental knowledge. The senior high school students had a significantly higher average environmental knowledge score than the junior high school students [22]. The level of education of students can affect the habits and concerns of students towards the environment, including limited environmental knowledge can affect the attitudes and behavior of students towards their environment [27]. The higher the level of education/class, the higher the environmental knowledge for students which will have implications for maturity of students' mindsets. According to [36] mindset is a way of assessing and giving conclusions on something based on a certain point of view. With good environmental knowledge, students are expected to have a positive point of view in responding to any environmental problems or changes, so that environmental sustainability is maintained. [37] emphasized that protecting the environment cannot be done by just one, two people or institutions, but must be done by all parties, because changing and improving the condition of our environment is a shared responsibility.

#### 4. CONCLUSION

This research proves that students' environmental knowledge is quite low and the knowledge is significantly influenced by gender and gradel. In general, female students' environmental knowledge is better than male students and grade 11 students have a higher environmental knowledge value when compared to grade 10.

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