

ENVIRONMENTAL AWARENESS AND ATTITUDE OF GRADE VI STUDENTS: BASIS FOR AN ENVIRONMENTAL EDUCATION PROGRAM IN DIVISION OF LANAO DEL NORTE

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Abstract: The purpose of the study is to determine the level of students' environmental awareness and attitude and propose an environmental education program to improve the awareness and attitude of students in Matungao District, Division of Lanao del Norte. The study used descriptive-correlational research design to test the relationship of environmental awareness and attitude of students. There were 200 students participated in the study randomly chosen from among the nine (9) elementary schools of Matungao District. A 49-item Likert-type questionnaire containing three dimensions was adapted by Napere (2009), Thompson and Hoffman (2002) to measure level of students' environmental awareness and attitude. Frequency counts, percentage, weighted mean and standard deviation were used to analyze the profile of the respondents and Pearson Correlation was employed to determine the relationship of the variables. To determine the differences of students' awareness and attitudes, ANOVA test was also performed. Consequently, environmental awareness and environmental attitudes of the students were significantly related. On the other hand, there is no significant difference in their environmental awareness when grouped according to age and sex likewise on their environmental attitude when grouped to age, sex and family income. However, in the educational attainment of parents there was a significant difference in the attitudes of the students. Parents' education is a significant factor of shaping children's environmental attitudes. These results provide valuable information in understanding environmental awareness and attitude of students such that recommendations to education sector and other stakeholders in the locality to improve the elementary science pedagogical aspects and propose environmental education program which highlight the importance of the outcome-based education focusing on the environment.

Keywords: environmental awareness, environmental attitude, environmental education.

1. INTRODUCTION

Environmental awareness is the ultimate driving force that stimulates knowledge on environmental matters. The acknowledgement that an environmental problem exists, this entails being more cognizant of the facts about the situation of the environment. The power behind the awareness can be categorized into three, the basic beliefs of an environmental problem, factual and scientific knowledge, and a commitment to solve environmental problems (Hansmann, 2009). Shobeiri (2005) states that solving existing environmental crisis requires environmental awareness and its proper understanding which should be deeply rooted in the education system at all levels of school education. The existing curricula at primary, secondary and college levels provide a lot of opportunities to make the students aware of environment. Awareness will make students more knowledgeable on environmental matters thus a possibility of shaping their attitudes and behaviors ((Yurtta and Sullun, 2010).

At the global level, environmental awareness of students is a major focus of many physical, biological, and earth sciences programmes, as well as all geography and environmental education programmes. The United Nations World Commission on Environment and Development (WCED, 1987) advocated that targeting young persons and getting them to think critically about environmental issues is a priority, while at the 5th World Economic and Environmental Conference (Zaleznik, 2012) it was suggested that the development of environmentally sensitive attitudes among students is important for the development of positive environmental behaviours in later life. Schools and other educational institutions particularly at the elementary level are making conscious efforts to infuse environment sensitization initiatives into their curriculum. Students are encouraged to do projects and write reports about environmental issues or to interact with the environment through participation in field trips, hiking, and camping exercises, as well as getting involved in community environmental advocacy groups (Stevenson, 2007). In light of this shift, conscious efforts are being made to trigger environmental awareness among the population by targeting the education system of the country. Teachers are being encouraged more and more to raise environmental issues in their classroom for the students to engage learning activities that focus on the importance of conserving and preserving the environment (Maharaj-Sharma, 2010). The challenge lies on how the students develop respect for the environment and to put in application in their day-to-day activities.

World educators and environment specialists have repeatedly pointed out that a solution to environmental crisis will require an environmental awareness and its proper understanding which should be deeply rooted in the education system at all levels of school education (Shukla, 2001). In this present context the need for studying the environment awareness of students is a must. It is very much an essential need for each individual to develop an awareness of protection and preservation towards environment.

In the Philippines, the ill-effect of environmental destruction is evident and its future potentialities are immense. Environmental awareness through education, particularly the youth who bear the future responsibility for the stewardship of the environment should be equipped with knowledge and skills that could be passed on to future generations (Pardo, C. G. 2012). In the belief that education is normative and awareness is expected to result to attitude and behavior, environmental concerns found its way into the classrooms. Teaching environmental topics would not only be in Science subject but it should be integrated in other learning areas like Mathematics, English, Filipino and Araling Panlipunan. This move is to ensure learners awareness on doing good activities that could not harm the environment (DepEd Order#52, s.2011).

As per researcher's observation, students do not have the idea of disposing garbage properly. They prefer to throw it anywhere and do not care to where it scatter. This could be the problem because it was then the practiced at home. They dumped their garbage in the river or in the swamps or lakes. At the same time they were enjoying taking bath and doing their laundry activities without knowing the consequences. Thus, it is the purpose of this study to determine the level of environmental awareness and attitudes of students through the environmental education program created to help and save the environment.

2. FRAMEWORK OF THE STUDY

The study is anchored on the model of ecological education of Klimore and Ukolou (1994) and the theory of constructivism by Piaget (1980). The model of ecological education of Klimore and Ukolou stated that the system of ecological education consists of four components: cognitive, normative, values and action. The cognitive element assesses fundamental knowledge about the interaction of people and the environment, basic understanding of the aims and goals of nature secretion process, and global environmental problems and ways of solving them. The normative element presupposes the ethical, aesthetical and ecological norms of the usage of the environment and the behavior patterns for individuals, groups and society in the environment. As to the values, it includes the ability to manage human activities within the environment and to foresee the possible changes in the environment as the result of these activities at different levels. The action element assumes the activities and methods directed toward the development of cognitive, practical and behavioral ecological skills, an ability to evaluate the situation, choosing of solution, and the development of personal features of students. These elements of environmental education need individual peculiarities and personal experiences to develop a sufficient level of knowledge, skills and values which will form environmental ethics and awareness. This awareness will lead students to be open to certain action and tendency to conserve or protect the environment in their own way.

Moreover, Piaget's theory of constructivism stated that students create their own knowledge. Information drawn from environment is being cognitively processed so it can be converted into concrete learning. In this process the students try to use their own cognitive domains to form their own knowledge and awareness. In environmental awareness aspects students are to be aware of the balance of nature, pollution, stewardship, finiteness of resources, interdependence, diversity and stability. From this awareness students construct their own knowledge and understanding that could lead them to actions that are guided by attitude. From these theories, the importance of education to solve the environmental issues is very inherent and the target individuals are the students in schools, being the future stewards of the earth. Students should be aware about the ecology which could lead them to form certain values that could generate actions to protect, maintain and preserve the natural conditions of the ecology and its components (Klimore and Ukolou, 1994). Students should also form their own knowledge, understanding and attitude through their experiences which could happen in or out of the classroom (Piaget, 1980). The knowledge, understanding and formed attitude of students drawn from their experiences make them engage in actions and activities that advocates and stewards of ecology to benefit mother earth (Ajzen, 1985). Since the students are the steward of the mother earth, they should be equipped with the knowledge and skills and wrap with values in taking care of the environment. It is in this light that the study will focus on students' level of environmental awareness and attitude.

2.1. Conceptual Framework

An educated public can be one of the most powerful weapons in the world's battle against harm to the environment. The ways that the public can assist in enforcement efforts are as numerous as the potential approaches for increasing public awareness (Environmental Awareness Natural Institutions, 2013). High awareness on environmental problems depend on how the students are educated but argued not an assurance to increase pro-environmental attitude. This must be critical for promoting environmental protection and conservation (Nagra, 2010; Nagra & Kaur, 2013) and improving the capacity of students to positive environmental management (Littledyke, 2008) necessary for the development of knowledge, understanding, awareness, skills, attitudes, values, and commitment in the attainment of a better quality of environment and higher quality of life (Sola, 2014).

Figure 1 illustrates the students' demographic profile and their environmental awareness and attitudes. Environmental activities are essential for the students to be engaged such as interactive classroom session; hands-on activities; field exposure; service learning; small projects; and practical application. These activities will help the students to realize the importance of conserving and preserving the environment (Maharaj-Sharma, 2010). This will also enhance their knowledge about the environment, to become more aware of the environment and its problems, and would enable them to display a responsible environmental attitude. To better understand environmental attitudes, the students' level of knowledge concerning the severity of environmental problems, their reaction to and their interactions with nature must be ascertained by assessing environmental awareness (Ziadat 2010). From the results, an environmental education program was developed and proposed to educate students on environmental issues and problems, make solutions and responsible in protecting the mother nature. If students do not conserve and protect the environment, they will destroy themselves and the society as well (Huckle 1991).

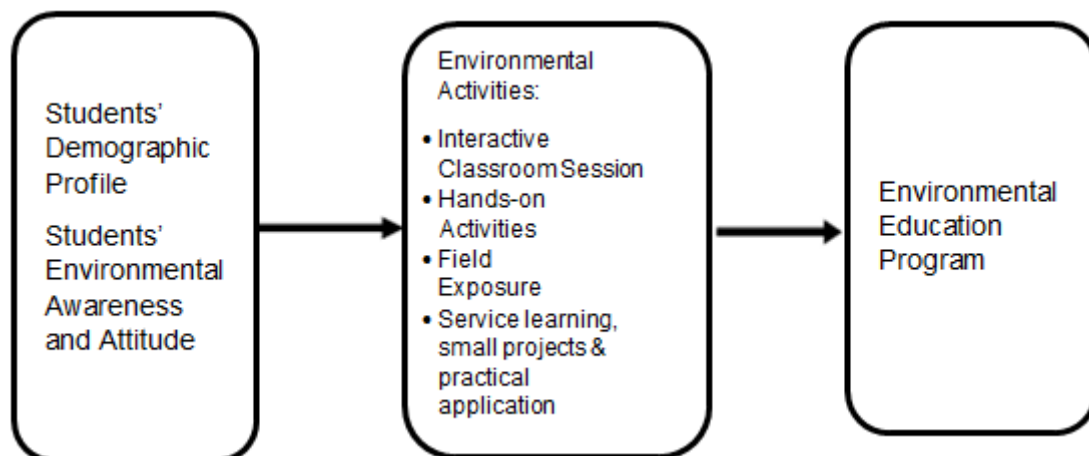


Figure 1: Schema of the Study Showing the Interplay of Variables

2.2. Purpose of the Study

The purpose of the study is to determine the level of environmental awareness and attitude of the Grade VI students. This is based on the assumption that they will be more aware and develop a positive attitude on the environment through the environmental education program created.

2.3. Research Questions

The study will sought to answer the following questions:

- How are the students characterized in terms of their age; sex; parent education; and family income?
- What is the level of environmental awareness and attitude of Grade VI students in Matungao District?
- Is there a significant difference in the students' awareness and attitudes when grouped according to their profile?
- What environmental education program can be designed to improve the awareness, attitude and behaviour of students in Matungao District, Division of Lanao del Norte?

3. METHODOLOGY

3.1. Research Design

The study employed descriptive-correlational research design to describe the characteristics of the students and the relationship of their environmental awareness and attitude. Yamin (2009:63) stated that Correlation design is quantitative research in which investigators measure the degree of relation between two or more variables using the statistical procedure of correlation analysis. This degree of association, expressed as a number, indicates whether the two variables are related or whether one can predict another.

3.2. Research Locale

The study was conducted in the Division of Lanao del Norte specifically in Matungao District during the school year 2018-2019. Matungao District is composed of the following schools: Bangco Elementary School, Batal Elementary School, Batangan Elementary School, Cadayonan Elementary School, Matampay Elementary School, Pasayanon Elementary School, Pangi Elementary School, Pendulonan Elementary School and Sultan Macalpang D. Permites Central School.

Matungao District is an interior district in the upper portion of Linamon Municipality. The hinterland barangays of the District are populated by Maranaos. In Puntod and Matampay barangays were inhabited by 95% Christians while Poblacion, Matungao has 20% Christians. The roads from Linamon to Matungao were concreted but some barangays in the upper part of Matungao is unpassable especially during rainy season.

3.3. Participants of the Study

There were 200 Grade VI students participated in this study. The students were selected in a systematic random sampling procedure and ratio proportion was used in determining the number of respondents per school.

3.4. Instrumentation

The study used the survey questionnaires adapted from Napere (2009); Thompson and Hoffman (2002). These consisted of two parts: Part I on students' environmental awareness that includes the different dimensions such as balance of nature, pollution, stewardship, finiteness or resources, change, interdependence and diversity and stability. There were 30 statements unevenly distributed on the seven dimensions. Respondents selected from the coded numbers for their answers rated on a Likert-scale where 5-very much aware, 4-much aware, 3-moderately aware, 2-slightly aware, 1-very slightly aware. Part 2 on environmental attitude that consisted of nine (9) statements with Likert-scale: 5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly disagree.

3.5. Reliability and Validity

According to Ary, (1985:213) research is always dependent upon measurement and every measuring instrument should passes validity and reliability. The instruments used have been adapted of Napere (2009); Thompson and Hoffman (2002) study. There were modifications made by the researcher and validated to make it simple and clear for the students. Before using these test, a try out to 30 students who are not included in the study was done.

3.6. Data Gathering Procedure

The researcher secured permission from the District Supervisor through a request letter to conduct the study at Matungao District. After approval, school principal and classroom teachers were informed about the intention of the study. The researcher personally facilitated the conduct of the study. General instruction was explained to the students and guided in the flow of answering the questionnaire. After the respondents answered the questionnaire, it was retrieved and analyzed. The data were analyzed using the descriptive statistics as frequency count, percentage, weighted mean and standard deviation. This was used to analyze the profile of the respondents and in determining the students' environmental awareness and attitude. Pearson Correlation was employed to determine the relationship of the variables. The ANOVA Test was also performed to determine the differences of students' awareness and attitudes when grouped according to their profile.

3.7. Statistical Treatment

The data were analyzed using the descriptive statistics as frequency count, percentage, weighted mean and standard deviation. This was used to analyze the profile of the respondents and in determining the students' environmental awareness, behavior and attitude. Pearson Correlation was employed to determine the relationship of the variables. The ANOVA Test was also performed to determine the differences of students' awareness and attitudes when grouped as to their profile.

4. RESULTS AND DISCUSSION

4.1. Problem 1 How are the students characterized in terms of their age; sex; parent education; and family income?

In Table 1 the frequency and percentage of students according to age, sex, parents' educational attainment and family income were shown. With regards to age, 11 years old were the largest group with 68.0% of the sample. The other age ranges provided the following percentages: 12 years old, 27.0% and for those of 13 years old 5.0%. There was a slightly higher ratio of males to females with 102 males (51.0%) and 98 females (49.0%). With respect to education level, 23.0% of the respondents were high school graduate while 22.0% were high school level. The rest of the sample indicated they achieved college level education (16.5%), elementary level (14.0%), college graduate (12.5%), and elementary graduate (12.0%). As to family income, majority belonged to salary range of 10, 000 pesos and below (80.5); 10001-19, 999 (12.0%); and 20, 000 above (7.5%).

According to Alten (2014), parents with basic education can be of great help in sharing information about the environment and enhancing positive environmental attitude of their children. It can also increase students' environmental awareness and active participation to environmental activities. It was noted that better educated people are more likely than those with less education to act in environmentally helpful ways.

Table 1: Percentage distribution of students' age, sex, parents' educational attainment and family income.

	Frequency	Percent
Age		
11	136	68.0
12	54	27.0
13	10	5.0
Sex		
Male	102	51.0
Female	98	49.0
Parents' Educational Attainment		
College Graduate	25	12.5
College Level	33	16.5
High School Graduate	46	23.0
High School Level	44	22.0
Elementary Graduate	24	12.0
Elementary level	28	14.0

Family Income		
20,000 and above	15	7.5
10,001-19,999	24	12.0
10,000 and below	161	80.5

4.2. Problem 2 What is the level of environmental awareness and attitude of Grade VI students in Matungao District?

It can be gleaned in Table 2, the environmental awareness and attitude of the students. Generally, the respondents were much aware on the indicators for environmental awareness. Knowledge on the issue is the only thing that determines environmental awareness of individuals and that awareness guarantee motivation on students to develop positive attitude (Saful Hadi, 2010). Therefore, environmental awareness should be deeply rooted in the education system at all levels of school education (Khan, 2013) especially more focus attention to elementary students (Cetin & Nisanci, 2010) in order to protect and conserve the environment (Sundaravalli, 2012). This suggests teachers who are active and potential change agents to properly guide students to be aware on the environment so they can outline and perform pro-active mitigation measures whenever possible calamities or risks occur in the locality.

Moreover, among the environmental awareness indicators, Diversity and Stability had the highest mean of 4.16. This means that students were much aware on preserving natural resources and the value in perfecting and perpetuating endangered species. They believe that a sustainable society is the one that satisfies its needs without putting at risk the prospects of the nature. Thus, wise utilization of natural resources will provide prosperity throughout generations. Many students from both localities held strong views about conserving/preserving the environment for future generations. Students were generally well aware of and highly responsive to environmental causes, with clear indications that they had either taken action or were prepared to take action on behalf of the environment (Maharaj-Sharma, R. 2007). For the rest of environmental awareness indicators such as Interdependence and Finiteness of Resources (4.14), balance of nature (4.13); pollution (4.11); change (4.07); and stewardship (4.03); students were much aware that living things cannot live without the environment and thus resources are affected by population size, land and resource management. Shiva Kumar and Patil (2007), stated that students were generally passionate about the environment and were prepared to take action against environmentally unfriendly activities and practices. Madsen (1996) explained that environmental awareness, knowledge, and commitment, are necessary to achieve environmental protection and restoration. Thus students must have environmental awareness and committed to initiate action based upon knowledge and understanding on the environment.

While on the environmental attitudes, students agree on the statements concerning environmental issues with a mean of 3.90. This means that they should not waste time to protect and save remote wilderness or natural areas for plants and humans. They should spend time working to help the environment even during their free time. Thus, the government should pass laws to make recycling mandatory so that everyone is forced to recycle. Moreover, they have agree that there is no point in getting involved in environmental issues since governments and industries have the responsibilities to resolve environmental problems.

Table 2: Environmental awareness and attitude of grade VI pupils

	Mean	Standard Deviation	Description
Environmental Awareness	4.11	0.654	Much Aware
Balance of Nature	4.13	0.655	Much Aware
Pollution	4.11	0.672	Much Aware
Stewardship	4.03	0.622	Much Aware
Finiteness of Resources	4.14	0.650	Much Aware
Change	4.07	0.640	Much Aware
Interdependence	4.14	0.694	Much Aware
Diversity and Stability	4.16	0.645	Much Aware
Environmental Attitudes	3.90	0.600	Agree

4.3. Is there a significant difference in the students' awareness and attitudes when grouped according to their profile?

Table 3 shows that environmental awareness and environmental attitudes of the students were significantly related. This means that their increasing environmental awareness will imply more positive environmental attitudes. Hence, the more knowledgeable they are, the better will be their attitudes. This implies that awareness about environmental issues tends pupils to have pro-environmental preferences. Environmental knowledge and attitude is critical to solve environmental problems (Rosta, et al. 2011).

Table 3: Significant difference of students' environmental awareness and attitudes

	Correlation Coefficient, r	P-value	Interpretation
Awareness Attitudes	0.623	0.000*	Significant

*significant at the 0.05 level of significance

In Table 4 shows that when students are grouped according to 'age' and 'sex', there is no significant difference in their environmental awareness. This means that students' profile in terms of age and sex had nothing to do with their environmental awareness. In contrary of Agunbode and Arnold (2016) findings that younger individuals were not aware on environmental issues and male was more aware about the environment than female.

Table 4: Significant difference of students' awareness according to their profile

Age	Sum of Squares	df	Mean Square	F	p-value
Between Groups	0.788	2	0.394	1.767	0.174
Within Groups	43.931	197	0.223		
Total	44.719	199			

Sex	Mean	Standard Deviation	t-value	p-value
Male	4.14	0.446	0.760	0.448
Female	4.08	0.502		

Educational Attainment	Sum of squares	df	Mean Square	F	p-value
Between Groups	9.918	5	1.984	11.0570	0.000*
Within Groups	34.801	194	0.179		
Total	44.719	199			

*Significant at 0.05 level of significance

Family Income	Sum of squares	Df	Mean Squares	F	p-value
Between Groups	2.365	2	1.183	5.501	0.005*
Within Groups	42.353	197	0.215		
Total	44.719	199			

*significant at the 0.05 level of significance

On the other hand, students' awareness is significantly different when they are grouped according to 'educational attainment' and 'family income'. This means that their parents' educational attainment and their family income are significant factors of their environmental awareness. Agunbode and Arnold (2016) profess that as source of income, occupation and education in the family mark effect on environmental attitude. With regards to education, the results indicated that those who have a secondary school or university education were more environmentally aware than other education levels (Sabah Ahmed Abdul-Wahab a & Jamil Abdo, 2010).

It can be gleaned in Table 5, the students' attitudes according to their profile. When grouped according to 'age', 'sex', and 'family income', there is no significant difference in their environmental attitudes. Either the students are young or old, male or female and even status in life it cannot influence their attitudes towards the environment. However, associations between these demographic variables were not conclusive (Goksen et al. 2001). There are studies concluded that age and sex affects environmental attitudes. In the study of Diamond and Orenstein (1990), women were more concerned about the environment than men. Other study reiterated that young individuals were not concerned in their environment than older ones.

However, the educational attainment of parents has a significant difference in the attitudes of the students. This means that the parents' educational attainment is a significant factor of their environmental attitudes. This finding supported by Altea (2014) that education of parents are pivotal in the positive beliefs of their children about the environment.

Table 5: Significant difference of students' attitudes according to their profile

Age	Sum of Squares	Df	Mean Square	F	p-value
Between Groups	1.269	2	0.635	1.775	0.172
Within groups	70.429	197	0.358		
Total	71.698	199			

Sex	Mean	Standard Deviation	t-value	p-value
Male	3.87	0.580	-0.838	0.403
Female	3.84	0.621		

Educational Attainment	Sum of Squares	Df	Mean Square	F	p-value
Between Groups	5.718	5	1.036	3.020	0.012*
Within Groups	66.521	194	0.343		
Total	71.698	199			

*significance at the 0.05 level of significance

Family Income	Sum of Squares	Df	Mean Square	F	p-value
Between Groups	0.947	2	0.473	1.318	0.270
Within Groups	70.751	197	0.359		
Total	71.698	199			

5. CONCLUSION

From the findings, the following conclusions are drawn on students' environmental awareness and attitude levels. Students were much aware of all the indicators for environmental awareness. This means that they were generally passionate about the environment and prepared to take action against environmentally unfriendly activities and practices. From their awareness turned into knowledge and commitment to help protect the environment. Thus, the students are committed to initiate action based upon knowledge and understanding on environmental problems and issues.

However on environmental attitudes, students agree that their attitude greatly influences how they responded the call to help the environment. They know how to use time wisely and even the utilization of vacant/free times in protecting and saving resources in the environment. To help in the implementation of garbage segregation and encourage everyone to engage in recycle activities. By then, positive attitude will be developed in taking care of the environment and motivated to resolve environmental problems.

Students' environmental awareness and environmental attitudes were significantly related. This means that their increasing environmental awareness will imply more positive environmental attitudes. Hence, the more they are aware; the better will be their attitudes. This implies that awareness about environmental issues tends pupils to have pro-environmental preferences.

6. RECOMMENDATIONS

Based on the findings and conclusions the following recommendations are made:

1. Administrators, principals, and school heads should disseminate and spearhead the use of the environmental education program for improving students' awareness and attitudes of the environment.
2. Teachers should evaluate the effect of the environmental education program to the level of students and parents awareness and attitudes towards the environment.
3. Vigorous encouragement for the students, parents and stakeholders to be more responsive on the current environmental issues in a wider perspective.
4. The education sector and other stakeholders in the locality should improve the elementary science pedagogical aspects which highlight the importance of the outcome-based education focusing on the environment.
5. Greater promotion of environmental awareness on factors or variables that contribute significant variation of knowledge among the students as well as the sound intervention of notable risks that increases positive attitude

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