

## **Science Interest and Environmental Awareness of the First Year Bachelor of Secondary Education (BSEd) Students of the University of Northern Philippines**

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### **ABSTRACT**

*This study determined the relationship between science interest and environmental awareness of the First Year BSEd students of the University of Northern Philippines. The science interest was measured along natural environment, conservation of nature, chemicals, and science-art. Environmental awareness, on the other hand, included concerns along forest ecosystem, freshwater ecosystem, pollution, energy resources, and environmental programs. This study utilized the descriptive method of research, both correlation and comparative. Questionnaires were used to gather data which were statistically treated using mean and Pearson product moment of correlation.*

*The findings of the study revealed that the respondents have a high level of science interest and a high level of awareness in environmental concerns and environmental programs. Their science interest is significantly correlated with environmental awareness and environmental programs. The t-test showed that the females have significantly higher science interest than the males. On the other hand, no significant difference existed in the level of environmental awareness between the females and males.*

**Keywords:** science interest, environmental awareness, Bachelor of Secondary Education students

## INTRODUCTION

In the modern world today, life has been profoundly influenced by scientific developments. Every aspect of the individual's life has been affected with the modern trends of Science. Science and technology has been obviously responsible for a host of conspicuous changes at all levels of modern civilization. Undeniably, man is continuously searching for knowledge. Scientists, experts, and teachers are looking for better output that could satisfy human urge for knowledge.

Science and Technology is one of the foundations in advance education for a productive life. It is a must, therefore, that individuals be equipped with scientific information to keep pace with the changes of time. In the search for better learning, educators or teachers have the responsibility to look into the betterment of their students; they should find ways and means to enhance the learning situation through improved strategies in teaching (Ulit, et al, 1995).

Individual differences among students are very common. Students differ in their intelligence, ability, attitudes, and interest. Interest is a motivating force which provokes one to attend to a person, a thing, or an activity. It is not an end in itself but, rather a most important means to that ultimate end of growth and development.

In the evolution, men are born and live naturally. Man is indeed a lover of nature. Domingo (1998) cited that students as human beings have been interested in ecology in practical sort of way since the beginning of history. In primitive society, the individual, in order to survive, needs to have definite knowledge about his environment, i.e., of the forces of nature and of plants and animals around him.

Today, it is evident that man has abused his environment. He now alters his environment not only to meet his basic needs for survival but more so to attain power and economical gain. Because of man's activities, the Department of Energy and Natural Resources (DENR) (2010) reports that natural resources are undergoing depletion and the environment is becoming less habitable. Students, young as they are, and as young scientists, must be taught to have natural concern for the environment and natural resources. Education should not neglect the inculcation of environmentalism and the practice of environment ethics.

Schools can contribute to environmental protection in at least two ways: first, by integrating environmental issues into the curriculum, and secondly, by instituting environmentally responsible practices on campus. It is here that

education plays a crucial role. It should be stressed that it is not the first or the second choice. Rather, the effective integration of environmental values in the student's education requires a holistic approach covering both the academic and non-academic aspects, which makes environmentally responsible behavior a way of life.

At University of Northern Philippines-College of Teacher Education, a share of environmental concern can be gleaned from the following accomplishments.

NSTP Students have undergone tree planting in different towns and barangays of the First District of Ilocos Sur through the NSTP Program. They placed trash cans in the streets within the selected barangays during their NSTP Programs. Students placed sign boards about the importance of cleanliness and beautification in their respective areas in the NSTP Programs. Students have undergone fieldtrips, camping and environmental tour as part of their science subject. Students are exposed to different action research and extension services related to the environment like coastal and river clean up in selected communities.

Despite these activities, the researcher observed a seemingly lukewarm attitude among the students. For this reason, she pursued this study to determine the level of science interest and the degree of environmental awareness of the BSEd First Year students of the College of Teacher Education of the University of Northern Philippines, Vigan City, Ilocos Sur. For the results, students are expected to become more involved and committed in the development and rehabilitation of the environment. For the administrators and faculty, results could provide them with baseline information necessary in the curriculum planning and implementation. For the environmental planners, this could serve as guide in the research of new ideas geared towards uplifting the environment.

This study determined the science interest and environmental awareness among the First Year BSEd Students of the College of Teacher Education (CTE), University of Northern Philippines during the School Year 2010-2011.

Specifically, this study determined the level of science interest of the Freshmen BSEd students of the UNP-CTE in terms of natural environment, conservation of nature, different chemicals, and Science-art interest; the level of environmental awareness of the freshmen BSEd students of UNP-CTE along environmental concerns which include forest ecosystem, freshwater ecosystem, pollution, and energy resources, and environmental programs like Clean and Green

Program, War on Waste, and School in a Garden; and the relationship between science interest and environmental awareness of the students.

Tubon (2000) in her study, "Science Interest and Environmental Awareness of the Students of Dinaratan National High School," revealed that the level of science interest of the high school respondents had a significant relationship both in the variables of environmental concerns and environmental programs. Likewise, there is a significant difference in science interest and awareness to environmental concern among the male and female students but there is no significant difference in the environmental programs.

As cited by Tugas (1994), a study on the science interest of pupils in Grades I, II, III in the Des Moises Public Schools, Des Moises, Iowa, shows that the boys and girls are equally interested in area of science. No significant difference between interest of boys and girls in each five areas of science was found out.

The youth of the country have shown extraordinary interest in science and technology. This is manifested in their increasing participation in science activities and projects. Their invention, research, or surveys are displayed in science fairs. Their awareness of science-related problems and issues are manifested as they join science quizzes. Their community involvement is shown in their work on the development of projects (Baleros,1982)

The Department of Environment and Natural Resources (DENR), is primarily responsible for sustainable development of the country's natural resources and ecosystem (Industry Environews, 1993). Aside from DENR, other departments like the Department of Education (DepEd) and the Department of Interior and Local Government (DILG), work together in implementing community awareness (Domingo,1999).

Lumibao (1996), claims that if all people are to preserve natural environment for ourselves and the generations to come, two things must be done: first, a stronger educational campaign must be launched to make people aware of the environmental problems; second, more ordinary citizens must join together and become involved in the political actions necessary to strengthen anti-pollution laws, increase the enforcement effort, and protect our natural resources.

A study conducted by Domingo (2007), concluded that students can actively participate in the protection and conservation of the environment by translating their high level of the environmental themes to better practices. Domingo also

revealed in her findings that there is a significant relationship that exist between environmental awareness and practices, which indicates that a good environmental awareness influences their practices

It can be deduced from these that there is still hope to save the Mother Earth from total destruction. There is still a chance to regain the lost paradise that seem to have been unscrupulously abused. What is needed is concerted effort to preserve and propagate the remaining lives of surviving creatures in great abundance. The will for the dynamic implementation of this urgent call lies in the strong and sustainable support of people thereby giving again Mother Earth a chance to care for our lives now and in the future.

Tubon's study (2000) is likewise similar to this study, as she suggested that learning science by "doing" should be started and adopted at the early stage of learning in order to learn science concepts not by memorization but by observation and experimentation. Environmental awareness should be integrated in all subjects of the curricula. Conceptualizing and monitoring environmental programs in schools should be done regularly in school. The present study will determine the level of science interest and environmental awareness among the students as reflective of the extent to which influence the learners.

## **METHODOLOGY**

This study utilized the descriptive method of research, both correlational and comparative. The respondents of this study were the 102 First Year BSEd Students of the University of Northern Philippines - College of Teacher Education during the School Year 2010-2011. There were more female (73) respondents than male (29). A questionnaire was used as primary instrument for collecting data, namely, science interest adopted from Tugas (1994) and Environmental Awareness questionnaire adopted from Domingo (1998). The researcher administered the survey questionnaire to the First Year BSEd students during the time of their classes with their respective teachers.

The weighted mean was used to describe the level of awareness of the First Year BSEd students towards the school campaign issue for environmental awareness, their level of science interest, and their level of environmental awareness and the Pearson Product-Moment of Correlation Coefficient was used to measure the relationship between the students' level of science interest and their level of environmental awareness.

## RESULTS AND DISCUSSION

### Level of Science Interest of the First Year BSEd Students at UNP-CTE

Table 1 shows that there is a high level of science interest in all of the indicators among the First Year BSEd students.

Table 1. Level of science interest of the male and female first year BSEd students.

Items	Male		Female		Overall	
	7	Level	5	Level	X	Level
1. Natural Environment	3.91	H	4.15	H	4.03	H
2. Conservation of Nature	4.00	H	4.27	VH	4.13	H
3 Different Chemicals	3.72	H	4.03	H	3.88	H
4. Science-Art	3.79	H	4.03	H	3.91	H
As a Whole	3.85	H	4.12	H	3.98	H

Norm.

- 4.21 – 5.00 = Very high
- 3.41 – 4.20 = High
- 2.61 – 3.40 = Average
- 1.81 – 2.60 = Low
- 1.00 – 1.80 = Very Low

As seen in Table 1, male respondents have a high level of interest in all of the indicators and as a whole (5=3.85) while the female students obtained a very high level of interest only in the conservation of nature (5=4.00), and high level in the rest of the indicators and as a whole (5=4.12). Interest in the conservation of nature garnered the highest mean rating to both male and female respondents due to the fact that students are engaged in the different activities on the preservation and conservation of living things as part of learning classroom process. The respondents have high overall level of science interest as evinced by the overall mean of 3.98. Parallel to the finding of Tugas (1994), this study found no significant difference between the level of science interest of boys and those of the girls in each five indicators.

### Level of Environmental Awareness among the First Year BSEd Students of UNP-CTE

Considering the overall level of awareness on environmental concerns of respondents, both male and female respondents obtained high level (←3.84 and 4.14, respectively) as shown in Table 2.

Table 2. Level of Awareness of environmental concerns of male and female student–respondents.

Variables	Male		Female		Overall	
	$\bar{X}$	Level	$\bar{X}$	Level	$\bar{X}$	Level
Forest Ecosystem	3.75	H	4.08	H	3.92	H
Freshwater Ecosystem	4.00	H	4.38	VH	4.19	H
Pollution	3.74	H	4.21	VH	3.99	H
Energy Resources	3.89	H	4.00	H	3.95	H
As a Whole	3.84	H	4.14	H	3.99	H

Norms:

- 4.21–5.00 = Very High
- 3.41–4.20 = High
- 2.61–3.40 = Moderate
- 1.81–2.60 = Low
- 1.00–1.80 = Very Low

Male respondents have a high level of awareness of environmental concerns on all the variables and as a whole ( $=3.84$ ). Female respondents have a very high level of awareness of environmental concerns on freshwater ecosystem ( $=4.38$ ) and pollution ( $=4.20$ ) and high level on the other indicators and as a whole ( $X=4.14$ ). Female respondents perceive that the freshwater ecosystem faces a serious degradation due to pollution. Overall, a high level ( $=3.99\%$ ) of awareness of environmental concerns of the respondents is also shown in Table 2. Freshwater ecosystem garnered the highest mean rating of 4.19. This is expected due to the fact that freshwater is more accessible to the respondents than the other indicators.

### Environmental Programs

Table 3 shows that the overall level of awareness of the environmental programs among the male and female respondents is high as attested by the means of 3.07 and 4.09, respectively.

Table 3. Level of awareness of the environmental programs of male and female respondents.

Variables	Male		Female		Overall	
	X	Level	X	Level	X	Level
Clean and green	4.12	H	4.18	H	4.15	H
War on Waste	3.90	H	4.00	H	3.95	H
School in a Garden	3.88	H	4.09	H	3.99	H
Asa Whole	3.07	H	4.09	H	4.03	H

Norms: 4.21 – 5.00 = Very High  
 3.41 – 4.20 = High  
 2.61 – 3.40 = Average  
 1.81 – 2.60 = Low  
 1.00 – 1.80 = Very Low

Both groups showed high level of awareness of the environmental programs. Clean and Green has the highest overall mean rating (4.15) among the indicators for both male and female. The reason might be due to the exposure of the students in the Clean and Green program as one of the activities in the NSTP classes during Saturdays. It is further revealed that the overall level of awareness of the environmental programs of the respondents was high as shown by the overall mean rating of 4.03.

### Relationship Between Science Interest and Environmental Awareness among the First Year BSEd Students

Table 4 exhibits the intercorrelation matrix of student-respondents' awareness of environmental concerns and science interest. It shows their significant relationship as supported by the overall correlation coefficient of .7505. It further reveals that the overall environmental awareness of the students is significantly correlated with science interest.

Table 4. Intercorrelation matrix between the science interests and the awareness of environmental concerns of the first year BSEd students.

Science Interest	Forest Ecosystem	Fresh-water Ecosystem	Pollution	Energy Resources	Overall
	<i>ry</i>	<i>rx</i>	<i>ny</i>	<i>rx</i>	<i>ny</i>
the natural environment	.7515 ..	.6942	.7055 °°	.6929 °	.7111 °
the Conservation of nature	.7858 °°	.7479 +	.7197	.6589 ..	.7279 - +
the Different Chemicals	.8313 °°	.7692	.7281 °°	.7095 °	.7595 •
Science-art interest	.8671 °	.8127 °	.7826 °	.7514 °°	.8535 ••
Asa whole	.8090 °°	.7558 °	.7340 °°	.7032 °°	.7505 ••

Legend: " " = highly significant at 0.01 prob. Level



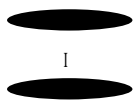
It can be observed from the table that the overall relationship of environmental awareness in terms of the forest ecosystem of the student-respondents is highly significant with the science interest. This result supports the study of Domingo (2007), where she concluded that students can actively participate in the protection and conservation of the environment by translating their high level of environmental themes to better practices. Domingo also revealed in her findings that there is a significant relationship that exists between environmental awareness and practice, which indicates that a good environmental awareness influences the practices of the respondents.

**Correlation Between the Students' Science Interest and the Awareness of Environmental Programs**

Table 5 presents the intercorrelation matrix of the student-respondents' awareness of the environmental programs and their science interest. It is revealed in the table that the overall science interest of the student-respondents yielded a highly significant relationship to their overall awareness of the environmental programs manifested by the correlation coefficient of .7270.

The table further reveals that the overall science interest is significantly related to the following components of environmental programs: clean and green, war on waste, and School in a Garden.

Table 5. Intercorrelation matrix between the awareness of environmental programs and the science interest of the first year BSEd students

 I g	the Natural Environ- ment	Conser- vation of Nature	the Different Chemicals	Science- art Interest	Overall
	rx <sub>y</sub>	rx <sub>y</sub>	rx <sub>y</sub>	rx <sub>y</sub>	rx <sub>y</sub>
Clean and Green	<b>.7043</b>	<b>.6826</b>	<b>.6703</b>	.5993	<b>.6641</b>
War on Waste	<b>.8346</b>	<b>.8148</b>	<b>.7702</b>	.6910	<b>.7777</b>
School in a Garden	<b>.7894</b>	<b>.7952</b>	<b>.7178</b>	.6547	<b>.7393</b>
Asa whole	<b>.7761</b>	<b>.7642</b>	<b>.7194</b>	.6483	<b>.7270</b>

Legend: \*\* = highly significant

As regards the interest in conservation of nature of the student-respondents, the results show a highly significant relationship to the overall awareness of the environmental program as manifested by the correlation coefficient of .7642.

Interest in the conservation of nature is significantly related to clean and green, war on waste, and school in garden programs.

Interest in the different chemicals has a highly significant relationship to the overall awareness on the environmental program as manifested by the correlation coefficient of .7194. Results further reveal that interest in the different chemicals is significantly related to clean and green, war on waste, and school in a garden. This result is backed up the study of Tubon (2000) which revealed that the level of science interest of the high school respondents had a significant relationship both in the variables of environmental concerns and environmental programs.

## CONCLUSIONS

The levels of science interest and environmental awareness of the different environmental concerns and programs of the student-respondents was high. Based on the findings, the students' science interest is the forerunner of their environmental awareness.

## RECOMMENDATIONS

Since the level of science interest of the students was noted only as high and did not reach the highest level, there is a need for science teachers to attend seminar workshops/ trainings in order to adopt better methods in teaching science.

Science professors/ instructors should integrate environmental awareness and programs in their science lessons to develop the social concerns of students along the environmental issues and problems. Field trips in the forest and shores and taking care of plants and animals are recommended activities to be conducted.

It is also recommended that students' science interest and environmental awareness be correlated to Performance Based Assessment in science subjects.

Further, teacher training on environmental education should be undertaken through short courses such as seminars and workshops on varying themes that include also the social aspects of environmental education.

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