

## **ENVIRONMENTAL AWARENESS AMONG SELECT GRADUATING COLLEGE STUDENTS IN REGION IVA**

Enrico C. Garcia and Beverly Luansing

Lyceum of the Philippines University-Laguna

### **ABSTRACT**

*The purpose of the study was to determine the environmental awareness of the selected graduating students in Region IVA and to measure correlation between demographic profile and respondents' environmental awareness. The study used the descriptive-correlation design. Respondents were the graduating students from several tertiary schools in Region IVA. Results shows female respondents (72%) obtained high level environmental awareness compared to male respondents (54%). Most respondents, regardless of their courses, had high level environmental awareness. There were seven (10.77%) respondents from the rural area who had low level of environmental awareness. Gender with a correlation coefficient of .216 and resident with a correlation coefficient of .180 were significantly correlated to the level of environmental awareness. It was recommended that the school provide environmental education exposure for male students to reduce gender gap issue and help the remote community by giving them environmental education program.*

**Keywords:** *environmental awareness, environmental knowledge, environmental attitude,*

### **INTRODUCTION**

The tremendously increasing Earth's carbon dioxide levels are now crossing a really scary threshold and scientist identified it as a permanent problem facing our generation today (Raman, 2016). Ecosystem itself should be capable of taking good care of the balance of nature, until the human civilization destroy its natural balancing capacity. Several species of plants and animals were now extinct and the increasing number of endangered species are contiously reported (Astalin, 2011). In the Philippines, two of the famous endemic species, the monkey-eating eagle and the tarsier, were now facing a great threat of extinction. However, several countries, including the Philippines were indicated their strong policy on species conservations and

recovery. Policy on environmental protection were emphasized as identified that among the factors of extinction, environmental pollution and deforestation were the major contributors in destroying the natural life cycle of any species live in a certain ecosystem (Sivamoorthy, Nalini, & Kumar, 2010). Moreover, increasing number of population can also increase the volume of solid wastes generated by the society. Solid wastes management can be a great key to address the problem of pollution due to uncontrollable waste disposal (Ullah, Hasan, & Uddin, n.d.). Energy crisis on the other hand, will be a great threat to the economy that human mostly rely on. However, a scientific solution of using renewable energy source will give a great benefits for both human and the environment (Roberta & Brien, 2007)

Environmental awareness can be defined as the understanding and appreciative of theories and realities related to the environment and significances of various environmental problems like pollution, deforestation, over population, energy crisis and alike. Environmental awareness can support social groups and individuals to attain awareness and understanding to environmental problems. Environmental awareness maybe improve through recognizing, investigating, and accepting the needs and problems encountered in life. Supporting and appreciating by means of the environment to improve personal and social life will also a great consideration of environmental awareness. In addition, environmental awareness can improve aesthetic sense of individual in nature to appreciate its beauty. (Panth, Verma, & Gupta, 2015). Another definition sited by (Panth et al., 2015) that environmental awareness can be understood through environmental education which has been viewed as an important way to educate students about environmental issues and concerns, thus, several studies on environmental education were focus their subjects on students' environmental awareness and attitude.

Educating our students on environmental awareness may be a great help for them to disciminate information on how to practice environmental sustainability and conservation. Integration of environmental education in the curriculum of all school levels encourage inordinate influence in the knowledge, skills and attitude of students towards environmental protection (Raman, 2016). Moreover, the serious determinations in the study of environmental education are now the priorities of most universities in the west (Mead, 2013). In the Philippines, the autonomous tertiary education institution, led by the University of the Philippines promotes environmental sustainability and management courses and encouraging students to continue their post-graduate education. Mostly, the engineering curriculum includes environmental education through environmental engineering while other courses offers ecology, environmental science. (Opert & Solot, n.d.) In Thailand, the effective efforts of including environmental education in the

curriculum of all school levels increase the environmental awareness of the graduates.

The major focus of this study was to find out the level of environmental awareness of the graduating students in CALABARZON. This effort will help the higher education officials to make some valid revision of the standard curriculum related to the discipline of environmental education. (Joon & Kumar, 2009) Emphasized the important role of quality environmental education courses in the curriculum of higher education curricula. In addition, (Bhatia, 2013) cited that environmental awareness can be learn in an institution or society where environmental sustainability were practice. Some examples, were solid wastes management, energy conservation, reforestation, family planning methods and related environmental management practices.

### **Objectives of the Study**

The study aimed to determine the environmental awareness of the graduating students in CALABARZON and to measure correlation between demographic profile and respondents' environmental awareness.

## **METHODOLOGY**

The study was a descriptive-correlation design. Respondents were the graduating students from several tertiary schools in CALABARZON. G-power software and stratified random sampling technique were used. Frequency, percentages and cross tabulation were used to determine the demographic profile of the respondents. Pearson correlation analysis were used in measuring correlation between demographic profile and environmental awareness of the respondents.

## **RESULTS AND DISCUSSION**

### **The Environmental Awareness Level among Graduating College Students in CALABARZON**

#### **A. Respondents' Gender and Environmental Awareness**

Results shows that a greater number of female (72%) has a high level environmental awareness compared to male respondents (54%). Only two (3.28%) female had low level of environmental awareness while male

respondents recorded 5 or 8.48%. 22 male respondents were identified as having moderate environmental awareness level, which was beyond compared to female respondents which only have 15

**Table 1. Cross Tabulation between Gender and Environmental Awareness**

Code	Gender	Environmental Awareness Level			Total
		Low	Moderate	High	
1	Male	5 (8.48%)	22 (37.28)	32 (54.24%)	59 (100%)
2	Female	2 (3.28%)	15 (24.60%)	44 (72.13%)	61 (100%)
	Total	7 (5.83%)	37 (30.84%)	76 (63.33%)	120 (100%)

A comparative study in gender gap and environmental attitudes shows that female are more likely to cooperate in the environmental practices and management. The role of environmental education will be a great help to improve the environmental awareness among men (Jackson, 2013). Moreover, studies frequently find strong gender gap in environmental awareness and the great interest in environmentalism were among female. Similarly, the data presented reveal that female obtained the greater number with high level environmental awareness compared to male. The study can conclusively suggest that the environmental education can be minimizes the effect of gender on environmental awareness (Shivakumara, Mane, Diksha, & Nagaraj, 2015).

#### B. Respondents' Courses and Environmental Awareness

**Table 2. Cross Tabulation between Courses and Environmental Awareness**

Code	Course	Environmental Awareness Level			Total
		Low	Moderate	High	
1	Engineering and IT	3 (10.71%)	7 (25.00%)	18 (64.29%)	28 (100%)
2	Business and HRM	1 (2.13%)	14 (29.78%)	32 (68.09%)	47 (100%)
3	Education	2 (7.41%)	7 (25.93%)	18 (66.67%)	27 (100%)
4	Medical Allied	1 (5.28%)	9 (50%)	8 (44.45%)	18 (100%)
	Total	7 (5.83%)	37 (30.84%)	76 (63.33%)	120 (100%)

Majority of the respondents in relation to their courses obtained high level of environmental awareness. In contrast, high level environmental awareness characteristics has been considered dependent on the environmental education included in the curriculum of each courses (Özgürler & Cansaran, 2014). Most studies shows that environmental awareness can be teach through enviromental education. Missing the concept of environmentalism in schools will result in producing graduates with low level environmental awareness (Kaur, 2016). However, a person who lives in a society that practices environmental consciousness will be greatly characterized as a person with high level environmental awareness. Ideally environmental education can be establish everywhere and learning will be easier as the cooperation of the educational institution will be accomplished (Gindo, n.d.). Education practitioner, on the other hand, must pose high level environmental awareness as they impart knowledge and experiences to their students. Program & Curriculum (2012) emphasized the need for trainings of the teachers in secondary school towards environmentalism to hone their expertice in handling environmental education program.

### C. Respondents' Residents and Environmental Awareness

**Table 3. Cross Tabulation between Residents and Environmental Awareness**

Code	Resident	Environmental Awareness Level			Total
		Low	Moderate	High	
1	Rural	7 (10.77%)	18 (27.69%)	40 (61.54%)	65 (100%)
2	Urban	0	19 (34.55%)	36 (65.45%)	55 (100%)
	Total	7 (5.83%)	37 (30.84%)	76 (63.33%)	120 (100%)

Table 3 presents the cross tabulation of respondents' resident and environmental awareness. Study shows that there were still a presence of students with low level environmental awareness (10.77%), particularly those who live in the rural areas. Despite of the completion of their curriculum, it seems that 7 of the respondents still needs to improve their environmental awareness. Improvement of the curriculum leads to break the some practices in the rural areas that violates environmental law. Existent of some of this practices such as burning of yarn wastes, dumping of solid wastes in the canals during rainy days, using of soap and detergents in the rivers and the like find them difficult to control because such actions were already included on their culture (Sengupta, 2010). However, the results presented contradicts with the study of (Schlegelmilch, Bohlen, & Diamantopoulos, 1996) that majority of the rural area respondents were identified as individuals with high

level environmental awareness. It seems that culture plays an important role in honing the knowledge and attitude of a person towards environmentalism.

### **Correlation Analysis**

Table 4. Correlation between Respondents' Demographic Profile and Environmental Awareness

Demographic Profile	Correlation Coefficient r	p-value	Interpretation
Gender	.216	.180	Significant
Course	-.033	.718	Not Significant
Resident	.180	.050	Significant

Correlation analysis reveals that gender and resident of respondents were significantly correlated with their environmental awareness. Female respondents were more likely to participate in the environmental sustainability and protection practices than men. Gender gap were still in consideration in the area of CALABARZON in relation to environmentalism. (Anwar, 2014) Setting of annual correlation analyses in monitoring the effectivity of gender environmental awareness will be an effective methods to eradicate gender gap issues towards environmental attitude. On the hand, several results in relation to gender were dependent on some factors such as geographical differences, education, income, and religion. Correlation of gender towards environmentalism together with the factors mentioned give another view of gender gap issues pertaining to environmental awareness (Borah & Neog, 2014).

Urban and rural classification of residents were commonly used in measuring differences of cultural exposure and practices towards the environment of every individuals. The study measured a great significance (p-value of .050) between resident and environmental awareness. Urban residents listed out in the low level environmental awareness indicator while some rural residents (10.77%) were still practiced some irregularities pose by culture in relation to environmental policy. Difficulty of imposing environmental law in the remote region were observed nowadays. To control this problem the government must provide additional environmental education program for remote communities (Kaur, 2016).

The respondents of the study were graduating students of engineering, information technology, business, hotel and restaurant management, education and nursing. The data presented in Table 4 shows no significant correlation between their respective courses and environmental attitude. Most of the respondents, in regards of their courses were belong to

high level environmental awareness. However, upon reviewing the curriculum, only engineering and hotel and restaurant management had environmental education in their curriculum, specifically environmental engineering and environmental science. In the population sample of the study courses related to environmental education were not significant in predicting the levels of environmental awareness. (Lavega, 2004) Similar study found out that there was no correlation between the exposure and non exposure of participants in the environmental education seminar and their environmental attitude.

### **CONCLUSION AND RECOMMENDATION**

Female respondents (72%) obtained high level environmental awareness compared to male respondents (54%). Most respondents, regardless of their courses were belong to high level environmental awareness scale. There were seven (10.77%) respondents from the rural area who still belong to low level environmental awareness scale. Gender with a correlation coefficient of .216 and Resident with a correlation coefficient of .180 were significantly correlated to the level of environmental awareness. It was recommended that the school provide environmental education exposure for male students to reduce gender gap issue and help the remote community by providing them environmental education program.

### **REFERENCES**

- Ã, I. M. S. (2012). Sustainable tourism development in the Red Sea of Egypt threats and opportunities, 13(2005), 83–87.  
<http://doi.org/10.1016/j.jclepro.2003.12.012>
- Academy, R. S. (2016). Legal Requirements and Wastewater Discharges to Polish Water Bodies , 1945-2, 36(2), 220–228.
- Adeyemo, O. K., Adedokun, O. A., Yusuf, R. K., & Adeleye, E. A. (2008). SEASONAL CHANGES IN PHYSICO-CHEMICAL PARAMETERS AND NUTRIENT LOAD OF RIVER SEDIMENTS IN IBADAN CITY , NIGERIA, 10(3), 326–336.
- Anwar, E. (2014). A Comparative Study of Environmental Awareness and Scientific Attitude of Under Graduate Students Suneet Tiwari, (2277), 8–10.
- Astalin, P. K. (2011). A STUDY OF ENVIRONMENTAL AWARENESS AMONG HIGHER SECONDARY STUDENTS AND SOME

EDUCATIONAL FACTORS AFFECTING IT, 1(7).

- Author: State-Society Synergy: Government and Social Capital in Development Edited by Peter Evans. (1997).*
- Badar, B., Romshoo, S. A., & Khan, M. A. (2013). Integrating biophysical and socioeconomic information for prioritizing watersheds in a Kashmir Himalayan lake: a remote sensing and GIS approach. <http://doi.org/10.1007/s10661-012-3035-9>
- Bhatia, G. (2013). " A Study of Environmental Awareness among Post - Graduate Students of Distt Yamuna Nagar , Haryana ," *11(5)*, 43–46.
- Borah, S., & Neog, S. (2014). A Study on Awareness of Post Graduate Students of Dibrugarh University Regarding Education for Sustainable Development, *3(7)*, 2012–2014.
- Brazil, B., Costódio, A. P. F. S., Kuroshima, K. N., Barreiros, M. A. B., Cost, P. F. S., & Barreirosf, A. (2016). Correlation Between Total Bacteria and Inorganic Nutrients in Water of Camboriú River Stable URL : <http://www.jstor.org/stable/25742979> Linked references are available on JSTOR for this article : River and Beach ( Brazil ) Correlation Between Total Bacter, (39).
- Bureau, E. M. (n.d.). THE PHILIPPINE CLEAN WATER ACT AND WATER QUALITY MANAGEMENT.
- Cabading, V. T. (n.d.). Water Quality Management in the Philippines Vilma T. Cabading, 2004.
- Chaoui, W., Attoui, B., Benhamza, M., Bouchami, T., & Alimi, L. (2015). Water quality of the plain of El-Hadjar wilaya of Annaba ( Northeast Algeria ). *Energy Procedia*, *74*, 1174–1181. <http://doi.org/10.1016/j.egypro.2015.07.760>
- Chong, Z., Wei, Y., & Zhifeng, Y. (2010). Environmental flows management strategies based on the spatial distribution of water quality , a case study of Baiyangdian Lake , a shallow freshwater lake in China, *2(5)*, 896–905. <http://doi.org/10.1016/j.proenv.2010.10.101>
- Davenport, J., & Davenport, J. L. (2006). The impact of tourism and personal leisure transport on coastal environments: A review, *67*, 280–292. <http://doi.org/10.1016/j.ecss.2005.11.026>
- Environment, B., & Series, H. S. (n.d.). *Philippine Regulations on Sanitation and Wastewater Systems* (Vol. 2).
- Evans, P. (n.d.). GOVERNMENT ACTION , SOCIAL CAPITAL AND DEVELOPMENT : REVIEWING THE EVIDENCE ON SYNERGY, 178–209.
- Gheskiere, T., Vincx, M., Marcin, J., Scapini, F., & Degraer, S. (2005). Meiofauna as descriptor of tourism-induced changes at sandy beaches, *60*, 245–265. <http://doi.org/10.1016/j.marenvres.2004.10.006>
- Gindo, T. B. (n.d.). STUDENTS ' INITIATIVES TO CONSERVE AND RAISE



ENVIRONMENTAL AWARENESS IN THE LOCAL COMMUNITIES OF  
MAZIMBU WARD ; MOROGORO , TANZANIA.

- Haley, U. C. V, Haley, G. T., & Haley, G. T. (1997). When the tourists flew in : strategic implications of foreign direct investment in Vietnam ' s tourism industry, 595–604.
- Hallare, A. V, Factor, P. A., Santos, E. K., & Hollert, H. (2009). Assessing the Impact of Fish Cage Culture on Taal Lake ( Philippines ) Water and Sediment Quality Using the Zebrafish Embryo Assay, 138(June), 91–104.
- Jackson, L. (2013). Cultivating the Environmental Awareness of Third Graders through Inquiry Based Ecopedagogy : Impact on Students ' Achievement and Attitudes.
- Joon, V., & Kumar, K. (2009). An Assessment of Environmental Consciousness Level of University Students of Hisar City, 28(2), 149–151.
- Kaur, M. (2016). Study of environmental awareness among post graduate students of Punjab University , Chandigarh, 79–81.
- Kazi, T. G., Arain, M. B., Jamali, M. K., Jalbani, N., Afridi, H. I., Sarfraz, R. A., ... Shah, A. Q. (2009). Assessment of water quality of polluted lake using multivariate statistical techniques: a case study. *Ecotoxicology and Environmental Safety*, 72(2), 301–9.  
<http://doi.org/10.1016/j.ecoenv.2008.02.024>
- Lake, T., & Martinez, F. B. (2011). MONITORING AND EVALUATION OF THE WATER QUALITY OF, 1(1), 229–236.
- Lavega, E. L. D. E. (2004). AWARENESS , KNOWLEDGE , AND ATTITUDE ABOUT ENVIRONMENTAL EDUCATION: RESPONSES FROM ENVIRONMENTAL SPECIALISTS , HIGH SCHOOL INSTRUCTORS , .
- Mead, E. M. (2013). Promoting Lasting Ecological Citizenship Among College Students.
- Opart, P., & Solot, S. G. H. (n.d.). Environmental Consciousness in Thailand : Contesting Maps of Eco-Conscious Minds, 59–75.
- Özgürler, S., & Cansaran, A. (2014). Graduate Students , Study Of Environmental Literacy and Sustainable Development, 4(2), 71–83.
- Panth, M. K., Verma, P., & Gupta, M. (2015). The Role of Attitude in Environmental Awareness of Under Graduate Students, 2(7), 55–62.
- Papa, R. D. S., Pagulayan, R. C., & Pagulayan, A. E. J. (2009). Zooplanktivory in the Endemic Freshwater Sardine, 47(5), 535–543.
- Parashar, C., Dixit, S., & Shrivastava, R. (2006). Seasonal Variations in Physico-chemical Characteristics in Upper Lake of Bhopal Introduction :, 20(2), 297–302.
- PRIME - M4 Page 1 of 11. (1990), (34), 1–11.
- Program, T. H. E., & Curriculum, O. F. (2012). Environmental awareness and

- concerns of pre-service teachers in a private non-profit university a master's thesis, (May).
- Raman, R. A. (2016). Attitudes and Behavior of Ajman University of Science and Technology Students Towards the Environment, 4(1).
- Roberta, S., & Brien, M. O. (2007). Indications of environmental literacy : using a new survey instrument to measure awareness , knowledge , and attitudes of university-aged students.
- Sallam, G. A. H., & Elsayed, E. A. (2015). Estimating relations between temperature , relative humidity as independed variables and selected water quality parameters in Lake Manzala , Egypt. *A/N SHAMS ENGINEERING JOURNAL*. <http://doi.org/10.1016/j.asej.2015.10.002>
- Schernewski, G., Fischer, E., Huttula, T., & Jost, G. (2016). Simulation tools to support bathing water quality management : Escherichia coli bacteria in a Baltic lagoon Linked references are available on JSTOR for this article : Simulation tools to support bathing water quality management : Escherichia coli bacteri, 16(4), 473–488. <http://doi.org/10.1007/s>
- Schlegelmilch, B. B., Bohlen, G. M., & Diamantopoulos, A. (1996). The link between green purchasing decisions and measures of environmental consciousness, 30(5), 35–55.
- Sengupta, M. (2010). Environmental Awareness and Environment Related Behaviour of Twelfth Grade Students in Kolkata : Effects of Stream and Gender, 5(January), 1–8.
- Shivakumara, K., Mane, S. R., Diksha, J., & Nagaraj, O. (2015). Effect of Gender on Environmental Awareness of Post-graduate Students, 8(July 2012), 25–33. <http://doi.org/10.9734/BJESBS/2015/16206>
- Singare, P. U., Lokhande, R. S., & Naik, K. U. (2010). A case study of some lakes located at and around Thane City of Maharashtra , India , with special reference to physico-chemical properties and heavy metal content of lake water, 11(1), 90–107.
- Sivamoorthy, M., Nalini, R., & Kumar, C. S. (2010). Environmental Awareness and Practices among College Students, 2(8), 11–15.
- Theresa, M. (2015). Assessment of local government ' s implementation of open access policy in Taal Lake , Philippines: Effects on lake conservation and management .
- Thirupathaiyah, M., Samatha, C., & Sammaiah, C. (2012). Analysis of water quality using physico-chemical parameters in lower manair reservoir of Karimnagar district , Andhra Pradesh, 3(1), 172–180. <http://doi.org/10.6088/ijes.2012030131017>
- Ullah, M. O., Hasan, A., & Uddin, T. (n.d.). ENVIRONMENTAL AWARENESS AND DISASTER FACTORS, 34–42.