International Research Journal of Education and Technology
ISSN 2581-7795

Secondary School Teachers' Environmental Ethics Awareness

***Corresponding author**:
***Maricar H. Sison,Ph.D.**
College of Education
Nueva Ecija University of Science and Technology
Cabanatuan City 3100
Philippines
maricarh2001@gmail.com

Keywords: awareness, environmental ethics and teachers

ABSTRACT

This study aimed to determine the awareness levels of environmental ethics of Secondary Schools Teachers at selected Public schools in Nueva Ecija. Descriptive method was utilized using the "Environmental Ethics Awareness scale" developed by Ozer and Keles (2016). In determining the profiles of demographic variables (age, educational attainment ,trainings and seminars attended., major field of specialization) and Environmental ethics awareness, Frequencies-Percentage was used. Descriptive statistics was also utilized to describe and determine the respondents in terms of their level of environmental ethics awareness. One-Way Analysis of Variance (ANOVA) and T-test were used in determining the significant difference between demographic profile and environmental ethics. Findings revealed that educational attainment affected the level of environmental ethics awareness among the respondents. Teachers differ in their environmental ethics across educational attainment.

Introduction

Environmental ethics is critical for everyone who lives on the planet, including the wealthy, the poor, the religious, the elderly, and the young. Environmental ethics stresses not only human responsibility for one another, but also human responsibility for other species and also entire ecosystems in the natural environment(Baker et al., 2019).That is why Science education plays an important role in developing an understanding of the scientific principles that underpin environmental issues and environmental ethics. Science education in general is a prerequisite for environmental literacy and to promote young's people competencies for critically analyzing and reflecting the environmental awareness.

The Environmental Awareness and Education Act of 2008 (Republic Act No. 9512) was enacted on December 12, 2008, in compliance with the state's policy of protecting and advancing the people's right to a balanced and sustainable ecology, and in recognition of the crucial role of the youth and education sector in nation building. Both public and private schools, including barangay daycare, pre-school, non-formal technical vocational, professional, indigenous learning, and out-of-school youth courses or programs, are now mandated to incorporate environmental education into their curricula on all levels.(officialgazette.gov.ph, 2008)

Environmental education deals with a wide range of environmental experiences, methods and processes. For this, teaching environmental subject should not be considered an easy task.It should not cover pure ecology education but it should also cover citizenship responsibilities and the problems that are sourced from interdisciplinary subjects.

Recent natural disasters such as flooding, wildfires, and landslides have raised the importance of environmental ethics in the public consciousness, prompting ethical issues to become part of the educational agenda in many countries. Natural disasters, resource scarcity, and climate change have all sparked a rethinking of the effects of human behavior.(Baker et al., 2019)

Teachers, on the other hand, may choose to facilitate environmental ethics discussions in their classes, incorporating the subject even if it is not specifically discussed in the curriculum. Teachers must enable students to acquire the cognitive knowledge, affective or appreciation of what is right, noble, and beautiful, and the psychomotor skills they need to make their lives worthy in this regard.

According to Ozer and Kelles (2016) teachers must remind their students of their environmental responsibility and raise awareness .In order to achieve this level of consciousness, teachers must become even more knowledgeable than students (Keles, Uzun, & Vamaci Uzun, 2010).They should show knowledge of ethical approaches to environmental issues. They should be exposed to many innovations to become globally competitive (Sison, 2012).

There has been no study conducted on teachers environmental ethics awareness at Public Secondary Schools in Nueva Ecija ever since.Realizing the importance of environmental ethics awareness of teachers in imparting and teaching environmental ethics to their students can be considered as a kind of response to environmental crises. Hence,It is deemed necessary to conduct the present study in order to formally determine the Environmental Ethics Awareness of teachers at selected Public Secondary schools in Nueva Ecija so that The findings of the study will served as basis for policy programs and intervention for further development and/or improvement of the curriculum and instructions in the secondary level of education .

The objectives of the present research is to determine teachers' awareness levels of environmental ethics .Specifically it seeks to determine the following objectives:

1. determine the demographic profile of the respondents in terms of :

gender

educational attainment

1.3.training and seminars attended

1.4 Major field of Specialization

2. determine the environmental ethics awareness of of teachers

3. determine if there is a significant relationships between teachers' demographic profile and environmental ethics awareness .

Hypotheses

The following hypotheses were tested**:**

1There is no significant difference in teachers environmental ethics awareness across gender .

2.There is no significant difference in teachers environmental ethics awareness across educational attainment.

Methodology

A descriptive research design was used to determine the level of awareness in the Environmental Ethics of teachers at selected Public Secondary schools .Descriptive Research focuses on the present situation and provides facts on which scientific judgment may be based. It is valuable in providing essential knowledge about the nature of objects and persons and for closer observation into the practices, behavior, methods, and procedures (Calmorin,2016).

Purposive Sampling will be used in this study.According to Calmorin (2016), Purposive sampling is a non-scientific sampling of selecting the individuals' samples according to the purposes of the researcher as his controls. An individual is chosen as part of a sample due to good evidence that he is a representative of the total population. There were seventy (70) teachers of selected Public Secondary schools in Nueva Ecija voluntarily participated in the study .

The survey questionnaire consists of two major parts. The first part comprised questions regarding socio-demographic status(Age, Gender, Educational Attainment, length of service, major field of specialization, subject matter taught in the last five years, and the number of training attended). The second part is Environmental Ethics Awareness scale developed by Ozer and Keles(2016). The scale consists of 23 questions with a 5-point Likert scale.The gathering of data were done using online Google form as the questionnaire and were sent using the respondent's email or through FB messenger.

The data from the Google Form were entered in Microsoft Excel and were analyzed using IBM SPSS Statistical program. For the evaluation, the researcher used an independent t-test and variance analysis (ANOVA). Percentage, frequency, average, and standard deviation values were also used.

Results and Discussions:

1. Demographic profile

Table 1.1 Respondents Demographic profile in terms of Sex

Sex	F	%
Male	14	20%
Female	56	80%
total	70	100%

Table 1 .1 revealed that majority of the respondents are female (f=58) with 80 percent as compared to male respondents with only (f=14) 20 percent.This implies that there are more female than male teachers in selected Secondary schools of Nueva Ecija particularly in the public secondary schools.

Denessen et al (2015) supports the prior findings. Investing in the empowerment of female teachers in their teaching of science and technology-related subjects is beneficial for teacher education and teacher recruitment.

Table 1.2 . Frequency of the Respondents according to Highest Educational attainment

Educational Attainment	F	%
undergraduate degree	5	7.0
masters degree	11	15.5
doctorate degree	3	4.2
units earned in Masters degree	47	67.14
units earned in doctoral	4	5.6
Total	70	100

Table1.2 shows the Frequency of the respondents according to highest educational attainment. Majority of the respondents earned units with MA equivalents with 67.14 %.On the other hand, findings also revealed that 4.2% or 3 respondents earned their doctoral degree.The above findings were supported by the study of Fehintola (2016)that teachers academic qualification affect student performance.Furthermore, A study conducted by Lee (2018)revealed that students who had been taught by a succession of high-performing and qualified teachers tend to have a positive relationship with students' short- and long-term educational success.

Table 1.3.Trainings and seminars attended in the last three years

Trainings/seminars attended	F	%
none	53	75.714%
One training/seminar	13	18.571%
Two trainings/Seminars	2	2.857%
Three and above trainings/ seminars	1	1.428%
total	70	100%

As shown in Figure 1, Majority of the respondents (f=53) have no training and seminar in environmental education .Only one respondent had attended three seminars and training ; two respondents attended two seminars and thirteen respondents have only one training and seminar attended for the last three years. This implies that majority of the teachers in public secondary schools have insufficient training and seminar on environmental education.

This finding confirms Ewetan (2015) who found that there is a link between teachers‟ development programme, teachers‟ teaching experience and students‟ academic performance as over 90% of the respondents strongly agree/agree that teachers‟ development programme such as seminars and workshops will improve teachers‟ teaching experience, and ultimately students‟ academic performance.

Table 1.4 Field of Specialization

Specialization	F	%
General Science	21	29.6
Chemistry	14	19.7

Physics	4	5.6
Biology	17	23.9
Mathematics	11	15.7
others	4	5.7
Total	70	100.0

Table 1.4 shows the field of specialization of the respondents from the public secondary schools in Nueva Ecija. It shows that majority of the teachers are General Science major (f=21) ,.followed by Biology major (f=17) with 23.9%, , Chemistry major (f=14) with 19.7%, Mathematics major (f-11) 15,7 % and the least was Physics Major (f=4).

The findings were supported by the study conducted by Barret (2005). He revealed that it is becoming more popular for educator to integrate the subjects of Math, science and technology with different aspects of the humanities in order to help students gain a better understanding of these subjects and effectively apply the concepts in real world situations.

2. Teachers' Environmental Ethics

Table 2.1. Awareness on Environmental Ethics in terms of Gender

Gender	Frequency	Percentage	Average	Description
Female	56	80.73%	4.43	Highly aware
Male	14	19.27%	4.14	aware
Total	70	100		

Table 2.1 shows the environmental awareness of teachers in terms of gender. It can be noted that out of 70 respondents, The female teachers got an average of 4.43 in their level of environmental ethics . This clearly indicates that female respondents were highly aware of the environmental ethics. On the other hand, the male were aware of environmental ethics with an average mean of 4.14 . This finding implied that gender influenced the level of environmental ethics.among secondary school teachers.

Table 2.1. Awareness on Environmental Ethics in terms of educational attainment

Educational Attainment	F	%	M	VI
Undergraduate degree	5	7.14	4..47	Highly aware
Masters' degree	11	15.71	4.35	Highly aware
Doctorate degree	5	7.14	4.60	Highly aware
Units earned in MA/MS	45	64.28	4.50	Highly aware
Unit earned in Doctoral	4	5.71	4.43	Highly aware
Total	70	100.0		

Table 2.1 shows the awareness of environmental ethics of respondents in terms of educational attainment. It can also be gleaned from the table that teachers with educational attainment of Doctoral degree got the highest mean score of 4.60 that can be described as "highly aware " in their environmental ethics . It is followed by teachers with units earned in MA/MS with average of 4.50 in level of environmental ethics.All teachers got an average that can be described as" highly aware "in their environmental ethics.This implies that majority of teachers were highly aware of the environment ethics .

3. Relationship between Demographic Predictors and Awareness of Environmental Ethics

Table 3.1 .T-Test results for Gender and Environmental Ethics

Source	SS	*df*	*MS*	t	p
Between-treatments	13.97	13	1.07	t value = -1.62	p-value = .054
Within-treatments	15.59	56	0.28		
Total	29.56	70			

The *f* -ratio is -0.76673.The *p*-value is .549284.The result is not significant at *p* <.05.No significant difference were observed among the respondents in their environmental ethics awareness in terms of Gender . Findings imply that both male and female teachers equally manifest environmental ethics .

International Research Journal of Education and Technology
ISSN 2581-7795

The Hypothesis that there is no significant difference in teachers environmental ethics awareness across gender was ,thus, accepted.

Table 3.2 .Analysis of Variance for Educational Attainment and Environmental Ethics

Source	SS	*df*	*MS*	f	p
Between-treatments	3.6748	4	0.9187	*F* = 2.73926	p- value = .03585
Within treatments	22.1351	66	0.3354		
Total	25.8098	70			

The f-value is 2.73926. The p-value is .035852. The result is significant at p < .05.Finding revealed that educational attainment affected the level of environmental ethics awareness among the respondents. Teachers differ in their environmental ethics across educational attainment.

The findings of the study was supported by Campbell et al (2009); Krnel and Naglic (2009) and Andrada (2008) that understanding the different issues on environment essentially made open to new ideas and values, thus ,acquiring scientific skills, attitudes and values. Increased knowledge thereby gave positive outlook on environmental attitudes.

The Hypothesis that there is no significant difference in teachers environmental ethics awareness across educational attainment was ,thus, rejected.

Conclusion and Recommendation

The majority of the respondents are females teaching in secondary public schools with general Science as their major filed of specialization; Majority of the respondents earned units with MA equivalents.However,majority of them lack training and seminars on environmental education. When it comes to respondents' level of environmental ethics, both male and female teachers equally manifest environmental ethics.

The school administrator should implement intervention programs such as training, workshops, and seminars to maintain teachers' professional competence and quality teaching standards. To be globally competitive, secondary school teachers, both public and private, should be exposed to many innovations and changes in environmental education.

References

1. Andrada, Lolita .(2008). Effective Alternate Secondary Education, Department of Education

2. Baker, M. M., Grundy, M., Junmookda, K. D., Macer, D. R., Manzanero, L. I. O., Reyes, D. P. T., ... & Waller, A. R. (2019). Environmental ethics education. Eubios Ethics Institute: Christchurch, New Zealand.

3. Barrett, S. (2005). Understanding the Importance of Environmental Education: An Examination of I Love A Clean San Diego, a Local Environmental Nonprofit. ESYS 190B Senior Project June, 2.

4. Calmorin, Laurentina P.(2016). Research and Thesis Writing with Statistics Computer application .RexBook Store .Manila.

5. Campbell, Todd,Medina-Jerez, W.,Erdogan, Ibrahim., & Zhang, Danhui. (2010).Exploring Science Teachers' attitudes and Knowledge about Environmental Education in Three international Teaching Communities.International Journal of Environmental & ScienceEducation. Vol.5, No.1. January 2010, 3-29.

6..Denessen, Eddie.Vos, Nienke.Hasselman and FredLouws,Monika.(2015).The Relationship between Primary School Teacher and Student Attitudes towards Science and Technology. Education Research International.Retrived fromhttps://doi.org/10.1155/2015/534690

7.Ewetan,OlabanjiOlukayode(2015).Teachers' Teaching Experience and Academic Performance in Mathematics and English Language in Public Secondary Schools in Ogun State, Nigeria.International Journal of Humanities Social Sciences and Education (IJHSSE) Volume 2, Issue 2, February 2015, PP 123-134

8.Fehintola, J. (2014). Teachers' Characteristics as Correlates of Students' Academic Performance among Secondary School Students in Saki-west Local Government Area of Oyo State. Journal of Educational and Social Research, 4(6), 459. Retrieved from https://www.richtmann.org/journal/index.php/jesr/article/view/ 4114

9..Karakaya, Ferhat & Yilmaz, Mehmet.(2017).Environmental Ethics Awareness of Teachers, International Electronic Journal of Environmental Education, 7(2) , 105-115

10. Keles, Ö., & Özer, N. (2016). Determination of pre-service science teachers' level of awareness of environmental ethics in relation to different variables. International Journal of Environmental and Science Education, 11(14), 7286-7297

11. Keleş, Ö., Uzun, N. & Varnacı Uzun, F. (2010). Environmental awareness of teacher candidates,change of environmental attitudes, thoughts and behaviors related to nature education project and evaluation of its permanence. Electronic Journal of Social Sciences, 9 (32), 384-401

12. Krnel, D., & Naglic, S. (2009). Environmental literacy comparison between eco-schools and ordinary schools in Slovenia. Science Education International, 20, 5-24.

13. Lee, Se Woong,(2018).Pulling back the curtain: Revealing the cumulative importance of high-performing, highly qualified teachers on students' educational outcome.Educational Evaluation and Policy Analysis. 40{3},
359--381

14. Sison, Maricar H. (2012). Experienced Teachers' Understanding of Environmental Issues: A Formative Evaluation. RURBAN. 2013. NEUST. Cabanatuan City.

15. Zounhia, K., Hatziharistos, D., & Emmanouel, K. (2004). Teaching concerns of greek physical education student teachers. Studies in Physical Culture and Tourism, 11(2), 73-8

16. https://eubios.info/yahoo_site_admin/assets/docs/EnvironmentEthicsEducationsmall.187122256.pdf

17. http://wgbis.ces.iisc.ernet.in/energy/lake2006/programme/programme/proceedings/pro_teachers/pdf/M.A.%20KHAN.pdf

18. https://www.sciencedirect.com/topics/earth-and-planetary-sciences/environmental-ethics
https://www.officialgazette.gov.ph/2008/12/12/republic-act-no-9512/