Reviewing The Connectedness To Nature Of Selected Filipino Learners

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Abstract: This study attempted to find out the sense of connectedness to nature of selected Filipino learners. About 381 respondents from Year 4 to Year 12 coming from public central school, national high school, vocational school and a state university located in the central part of the Philippines took the Connectedness to Nature Scale. Computed weighted mean were compared across levels, ages and genders. Results were positive in the elementary and secondary level but disjointed for Year 11 and 12. A difference in the weighted mean was also recorded across genders.

Index Terms: connectedness to nature, Filipino learners, environmental education, environmental awareness.

1 Introduction

The large-scale effects of environmental degradation and destruction in the past few decades has resulted to an elevated call for environmental awareness for the different sectors of the society. It pushed to take steps and initiatives in preserving and protecting the environment. Moreover, it increased the call for a more serious and strategic integration of environmental education in various levels at schools. In the Philippines, a country that is one of the most vulnerable to the effect and impact of climate change due to its geographic location, the passing and approval of Republic Act Number 9512, also known as the National Environmental Awareness and Education Act of 2008, has strengthen the compulsory inclusion and institutionalization of environmental education across the basic and higher education sectors [1]. Moreover, it has directed other government institutions such as the Department of Environment and Natural Resources, Department of Tourism, Department of Agriculture and local government units among others to increase advocacy and take lead in implementing programs and projects related to environmental protection and preservation. Along the basic education sector, Department of Education Order Number 52 series 2011 has specifically provided the implementing guidelines and procedures to public and private elementary and secondary schools for the integration of environmental education in the basic education program [2].

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Meanwhile, in the tertiary education, Commission on Higher Education Memorandum Order Number 33 series 2009 has provided the implementing guidelines and procedures to all private and state universities and colleges for the integration of environmental education in the tertiary education curriculum particularly in the civic welfare training service component of the national service training program [3]. Along this line, there had been a number of environmental education programs that have been implemented, evaluated and undergoing evaluation to determine its effectiveness and draw a picture of how it affected and changed the behavior and perception of the students across different levels and races with respect to the environment and its various facets [4, 5, 6,7]. In the past few years, strategies to increase awareness and sense of protectiveness and connectedness to nature were developed and implemented [8, 9, 10, 11]. A number of factors were found and identified that significantly affect connectedness to nature. Kollmuss and Agyeman [12] considered grouping these factors into internal and external. Internal factors include motivation, knowledge, awareness, values, attitudes, emotions, locus control, responsibilities and priorities. External factors include institutional, economic and cultural. In addition, other factors such as personal beliefs and identity [13] and self-awareness [14] were also identified and named. Similarly, studies in the past were able to identify some effects that were found to correlate or related with connectedness to nature. The degree of connectedness to nature determines how an individual values the different aspects of the environment. This include enjoyment of nature, empathy for creatures, sense of oneness, and sense of responsibility [15]. In addition, sense of interconnectedness and pro-environmental behavior were determined by the degree of connectedness to nature [16]. Similarly, place attachment and conservation behavior [17] were also related to sense of connectedness to nature as well as perception of benefits from nature [18]. Moreover, environmental protection initiatives [19] and the degree and occurrence of teaching environmental issues [20] may also be related to connectedness to nature.

2 Objectives

This study attempted to explore the sense of connectedness to nature of selected Filipino learners in the hope of developing and implementing a strategic program on environmental awareness and integration of environmental education across levels in schools. This paper, specifically described and discussed how the sense of connectedness to nature among selected Filipino learners change with year level, gender and age.

3 METHODOLOGY

3.1 Design, Locale and Respondents

This study made use of the descriptive design of research. It surveyed 380 students from Year 4 - Year 12. Respondents from Year 4 to Year 6 were pupils enrolled in a public central school. Moreover, respondents from Year 7 and Year 8 were students from a national high school and respondents from Year 9 and Year 10 were students from a public vocational school. All these schools were under one of the divisions of the Department of Education located in the central part of the Philippines. Meanwhile, respondents for Year 11 and Year 12 were from one of the state universities in the same part of the country. These students were enrolled in a degree on Bachelor in Elementary Education in their first year and second year respectively. This is because the country did not have a compulsory Year 11 and Year 12 yet during the implementation of this study in school year 2015-2016. Table 1 shows the distribution of the respondents according to year level and age. Following the normal distribution, most respondents were aged between 10-18 years old, the same age as expected for Year 4 to Year 12. The number of respondents for every year level varied from 38-50.

Table 1

Distribution of respondents according to year level and age

Year Level	AGE														
	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total
4	6	31	4												40
5		7	28	3											38
6			7	30	4										41
7				15	24	3									42
8					10	24	2	2	1						39
9						5	27	5	2	1					40
10							4	34	2						40
11								17	19	6	1	1	4	2	50
12								1	13	24	8	1	3		50

On the other hand, Table 2 shows the distribution of respondents according to gender. Out of a total of 381 respondents, 70% were female while 30% were male. Almost the same pattern can be noticed across year levels.

Table 2

Distribution of respondents according to gender

Year Level	Male	Female	Total
4	19	22	41
5	13	25	38
6	17	24	41
7	18	24	42
8	7	32	39
9	14	26	40
10	9	31	40
11	11	39	50
12	6	44	50
Total	114	267	381

3.2 Instruments, Procedure, Data Analysis

The questionnaire used in this study was the Connectedness to Nature Scale (CNS) developed by Mayer and Frantz [20]. For Year 4 – Year 6, the short version of CNS (10-item) was used while for Year 7 – Year 12, the original version of CNS (14-item) was used. The groups included for every year level were purposively selected according to their availability since all classes in these schools are heterogeneous. The researchers coordinated with the science teachers of these classes and they were the ones who administered the test for about 20 minutes. After all data were gathered, responses were enumerated using Microsoft Excel. The computation for weighted mean was according to the suggestion of the questionnaire's author. In that since some items were negatively stated, responses of the respondents needed to be reversed before the final computation of weighted mean. Computed weighted means were compared across year levels, genders and ages. However, along age, a slightly different strategy was used since when all respondents were taken into consideration disregarding the year level, result appeared to be random. Nevertheless, when only the specific age group that is expected for every year level was considered, a trend and pattern was established.

4 RESULTS AND DISCUSSIONS

After thorough analysis made from the computed weighted means obtained from the respondents, a number of remarkable findings were noted from this study.

4.1 Connectedness to Nature across year levels

Table 3 was a summary of the computed weighted mean across levels. It was noted that an increasing weighted mean occurred from Year 4 to Year 10 and a decline from Year 11 and Year 12. This revealed that sense of connectedness to nature increased from Year 4 to Year 10.

Table 3
Weighted mean trend across levels

Year level	Weighted mean
4	4.53
5	4.58
6	4.61
7	4.81
8	4.86
9	4.92
10	5.03
11	4.82
12	4.48

This may be a proof that environmental awareness and integration of environmental education in the basic education program for public elementary schools, national high schools and vocational schools under the Department of Education was effective. In the case of Year 11 and 12, the decline in weighted mean was evident. However, it may not be necessary that environmental awareness program and integration of environmental education was not as effective, since, these respondents have random origin and background.

4.2 Connectedness to Nature across genders

On the other hand, upon comparing the computed weighted mean between genders, it was found that female showed greater weighted mean as compared to male as a whole. A mean difference of 0.10 was recorded upon taking into consideration all the respondents. The same pattern was observable for every year level as shown in Table 4. This revealed that females showed more sense of connectedness to nature as compared to males across levels.

Table 4
Weighted mean trend between genders

Year Level	Gender	
	Male	**Female**
4	4.46	4.57
5	4.50	4.61
6	4.52	4.63
7	4. 73	4.92
8	4.81	4.88
9	4.89	4.93
10	5.02	5.03
11	4.56	4.89
12	4. 46	4.61
Total	32.76	43.07
Average	4.68	4.78

4.3 Connectedness to Nature across ages

Meanwhile, Table 5 showed the computed weighted means according to year level and expected age. The result of the weighted means according to age appeared to be random when all the respondents were considered. However, a trend was found when only the respondents with the expected age of every year level were considered.

Table 5
Weighted mean trend across ages

Year Level	Age	Weighted mean
4	10	4.51
5	11	4.53
6	12	4.58
7	13	4.74
8	14	4.76
9	15	4.80
10	16	4.85
11	17	4.87
12	18	4.95

It was revealed that there was an increasing weighted mean with increasing age from 8 to 16 years old. In that, physical maturity may result to increasing sense of connectedness to nature.

5 Implications

Results and findings of this study imply that the implementation and integration of environmental education in the basic education program was effective. This is proven by the increasing weighted mean across levels from Year 4 to Year 10 and across ages from 10 to 18 years old which meant an increasing sense of connectedness to nature. The difference in the computed weighted mean between males and females across levels may imply that most activities and programs related to environmental awareness and integration of environmental education in schools were more effective and attractive for females but least to males. The decline in the computed weighted mean for Year 11 and Year 12 may imply that there is no continuity, lesser, or absence of strategic environmental awareness and integration of environmental education in the general education courses at the university level.

6 Recommendations

Although the result of environmental awareness and integration of environmental education is effective in the basic education program as revealed by the result of the Connectedness to Nature Scale (CNS), it maybe necessary to identify and document best practices and strategies to make it available for other schools. Moreover, it maybe necessary to identify more relevant and new effective strategies to increase environmental awareness and integration of environmental education for different levels and groups of students according to local school and community contexts. Similarly, it maybe necessary to review the integration of environmental education in the general education courses in the university to get a picture and therefore develop a strategy that ensures the spiral progression of environmental education in all levels. Moreover, new strategies maybe explored to increase the sense of connectedness to nature of male students in all school levels. Along the study, as the respondents of this study is very limited, it may be necessary to implement the same study to a bigger population in different contexts. Other methodology of determining sense of connectedness to nature that is more relevant to the Filipino context maybe explored, used and developed.

REFERENCES

[1] _____ "Republic Act Number 9512, An Act ,to promote Environmental Awareness through Environmental Education and for other purposes," Official Gazette, online available www.gov.ph, 2008.

[2] _____ "Department of Education Order Number 52 series 2011, Strengthening Environmental Education in Public and Private Schools," online available www.deped.gov.ph, 2011.

[3] _____ "Commission on Higher Education Memorandum Order Number 33 series 2009, Integration of Environmental Education in the Tertiary Education Curriculum particularly the Civic Welfare and Training Service component if the National Training Service Program," online available www.ched.gov.ph, 2009.

[4] Ernst, J. and Theimer, S. "Evaluating the effects of environmental education programming on connectedness to nature," Environmental Education Research, vol. 17, no. 5, pp. 577-589, 2011.

[5] Stern, M. J., Powell, R. B., and Hill, D. "Environmental Education Program evaluation in the new millennium: what do we measure and what have we learned?," Environmental Education Research, vol. 20, no. 5, pp. 581-611, 2014.

[6] Lieflander, A. K. "Effectiveness of environmental education on water: connectedness to nature, environmental attitudes and environmental knowledge," Environmental Education Research, vol. 21, no. 1, pp. 145-146, 2014.

[7] Sehlola, S. and Jita, L. C. (2010) A Case Study of the Integration of Environmental Education in the Primary School Curriculum, In S. Soomro (Ed) New Achievements in Technology Education and Development, 257-270

[8] Tam, K. P., Lee, S. L., and Chao, M. M. "Saving Mr. Nature: Anthromorphism enhances connectedness to and protectiveness toward nature," Journal of Experimental Social Psychology, vol. 49 no. 3, pp. 514-521, 2013.

[9] Lieflander, A. K., Frohlich, G., Bogner, F. X., and Schultz, W. "Promoting connectedness with nature through environmental education", Environmental Education Research, vol. 19, no. 3, pp. 370-384, 2012.

[10] Hungerford, H. R. and Volk, T. L. "Changing Learner Behavior Through Environmental Education," The Journal of Environmental Education, vol. 21, no. 3, pp. 8-21, 2013.

[11] Chawla, L. and Cushing, D. F. "Education for strategic environmental behavior," Environmental Education Research, vol. 13 no. 4, pp. 437-452, 2007.

[12] Kollmuss, A. and Agyeman, J. "Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?," Environmental Education Research, vol. 8, no. 3, pp. 239-260, 2010.

[13] Olivos, P. Aragones, J. I., and Amerigo, M. "The Connectedness to Nature Scale and its Relationship to Environmental Beliefs and Identity," International Journal of Hispanic Psychology, vol. 4, no. 1, pp. 5-19, 2011.

[14] Frantz, C., Mayer, F. S., and Norton, C., Rock, M. "There is no "I" in nature: The influence of self-awareness and connectedness to nature," Journal of Environmental Psychology, vol. 25, no. 4, pp. 427-436, 2005.

[15] Cheng, J. C. H. and Monroe, M. C. "Connection to Nature: Children's Affective Attitude toward Nature," Environment and Behavior, vol. 44, no. 1, pp. 31-49, 2010.

[16] Hoot, R. E. and Friedman, H. "Connectedness and Environmental Behavior: Sense of Interconnectedness and Pro-Environmental Behavior," International Journal of Transpersonal Studies, vol. 30, nos. 1-2, pp. 89-100, 2011.

[17] Gosling, E. and Williams, K. J. H. "Connectedness to nature, place attachment and conservation behavior: Testing connectedness theory among farmers," Journal of Environmental Psychology, vol. 30, no. 3, pp. 289-304, 2000.

[18] Mayer, F. S., Frantz, C. M., Bruehlman-Senecal, E., and Dolliver, K. "Why is nature beneficial? The role of connectedness to nature," Environment and Behavior, vol. 41, no. 5, pp. 607-643, 2008.

[19] Canlas, I. P. "Environmental Protection Initiatives of Selected Local Government Units in Eastern Visayas, Philippines" Sanghiran Multidisciplinary Journal, vol. 2, pp. 66-75, 2014.

[20] Canlas, I. P. "Reviewing the Patterns, Motivations and Barriers in the teaching of Climate Science among Elementary Classrooms," Sanghiran Multidisciplinary Journal, vol. 2, pp. 1-9, 2014.

[21] Mayer, F. S., Frantz, C. M. "The connectedness to nature scale: A measure of individuals' feeling in community with nature," Journal of Environmental Psychology, vol. 24, no.4, pp. 503-515, 2004.