

ASSOCIATION BETWEEN EDUCATIONAL ATTAINMENT AND FILIPINOS' VALUES, ATTITUDES AND ACTIONS TOWARDS THE ENVIRONMENT

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ABSTRACT

This paper examines the association between the educational attainment of Filipinos and their values, attitudes and actions towards the environment using the World Values Survey (WVS) data for the Philippines in 1996, 2001 and 2012. The three approaches to environment education as discussed in the dissertation paper of Chi (2015) were used as the theoretical framework for this paper. These approaches are: education about the environment, education in the environment and education for the environment. Through appropriate tests of independence, like Chi-square Gamma, and Kruskal-Wallis, data revealed that Filipinos' educational attainment significantly influenced their values, attitudes and actions towards the environment. Specifically, those with higher education expressed more positive values and attitude towards the environment than those with lower education. The same was found true in taking actions for the environment. Ideally, all Filipinos must care for the environment, regardless of education. The findings that is opposite to this scenario calls for the need to revisit Environmental Education in the Philippines. Transitioning from education about the environment to education for the environment is suggested. Further, subjects like social studies must strengthen citizenship education by incorporating lessons on the environment, especially on participation and taking actions.

I. INTRODUCTION

The Philippines is a country in Southeast Asia bounded by the Pacific Ocean to the east, the West Philippine Sea to the west and the Pacific Ocean to the east (Catedral, 2016). An archipelago considered to have one of the longest coastlines in the world, the Philippines consists of 7,100 islands that are grouped into three main islands to represent the country, namely Luzon, Visayas and Mindanao (Gultiano, S., Balbarino E., Saz E., Urich P., 2003). While very rich in natural resources, the country is constantly threatened by disasters like typhoons, earthquakes, volcanic eruptions and even tsunamis. According to the recent study of the United Nations Office for Disaster Risk Reduction (UNUSDR) and the Center on Epidemiology of Disasters (CRED), the Philippines is considered the fourth most disaster-prone country in the world having a total of 274 natural calamities that afflicted 130 billion people from 1995 to 2015 (Santos, 2016). For this reason, efforts to mitigate the effects of disasters were implemented by the Philippine government. For example, the Philippine Disaster Risk Reduction and Management (PDRRM) Act was passed into law in 2010, which affords all disaster-related policy development and actions implementation. This law mandated the mainstreaming of disaster risk reduction and climate change in the development processes of the country like

policy formulation, socio-economic development planning, budgeting, and governance specifically in the areas of environment, water, energy, health, education, poverty reduction, land-use and urban planning, public infrastructure and housing. On mainstreaming to education, the law articulated the integration of disaster risk reduction education into the school curricula.

It was not only recently that issues related to the environment had been seriously tackled and mainstreamed in Philippine education. As the link between environmental awareness and education was considered as an important strategy to reduce poverty in the country, Environmental Education (EE) in the Philippines has existed since the early 1970s (Antonio, E., Bass, S., and Gasgonia, D., 2012). In this period, environmental education also started to be taught in schools, and some universities even organized environment programs like the Public Education and Awareness Campaign for the Environment of Miriam College, which became the precursor to its Environmental Studies Institute (Antonio, *et al.*, 2012). In 1995, the Philippine Association of Tertiary Level Educational Institutions in Environmental Protection and Management (PATLEPAM) was founded to promote EE and management through curriculum development, information exchange, collaborative programs on instructions, capacity building, and research and

development (Antonio, *et al.*, 2012). The tri-focal branches of the public education system in the country also took their share in EE. Antonio *et al.* (2012) documented that for the basic education, the Department of Education (DepEd), enhanced its curricula to integrate environmental concepts in science and health, geography, history and civics, values education, technology and livelihood education, music, arts and physical education. For higher education, the Commission on Higher Education (CHED) provided funding for research on environmental awareness, protection and study. For the technical and vocational education and training sector, the Technical Education Skills Development Authority (TESDA), infused EE in lectures by incorporating topics like climate change and solid waste management.

The EE experience of the Philippines of more than five decades may be considered extensive and matured. However, this seems not to be the case as the EE is still beset with challenges. As identified by Antonio, *et al.* (2012), these challenges rest mainly on the complexities of the issues and the scale of the population that programs intend to reach, which are 42, 000 *barangays* (village), 41, 000 elementary schools and over 1, 600 colleges and universities in the country. Moreover, inadequate capability for EE curricular integration, insufficient supporting data, and shortage in qualified teachers for environmental and sustainable education (ESDE), lack of fund, and non-coordination are the persisting problems of EE in the country.

In response to these challenges, the Republic Act (RA) No. 9512, otherwise known as the Act to Promote Environmental Awareness through Environmental Education and for other purposes, was enacted into law in 2008 that provided for the right of people to a balanced and healthful ecology. This policy aimed to “promote national awareness on the role of natural resources in economic growth and the importance of environmental conservation and ecological balance towards sustained national development (Sec 2, RA 9512).”

While this law paved the way for strengthened institutional mainstreaming, coordination and synergy of actions on EE, this law failed to provide definite budget or source of fund (Antonio, *et al.*, 2012). Nevertheless, landmark programs were created and implemented such as the formation of the Inter-Agency Steering Committee on Environmental Action Plan, and more importantly the National Environmental Education Action

Plan for Sustainable Development for 2009 to 2014, which was the Road Map of R.A. 9512, led to more concrete actions like producing more resource materials for EE, capacity building of teachers and trainers, curriculum development, network building and information campaign through multi- and alternative media, and fund raising and mobilization for EE education programs. Such efforts were effective in raising risen awareness and changing the values, attitudes and behaviors of Filipinos towards environment. According to Antonio *et al.* (2012) improvement in environmental awareness and actions were already observable in the form wider media coverage for environmental matters, increased institutional and governmental events related to the environment, heightened volunteerism, and resolved flooding problems especially in Metro Manila areas.

Despite such macro achievements, impacts on individual values, attitudes and behaviors of these policies are still unknown. Whether these policies and programs on EE translated to individual decisions and actions concerning the environment is important to know to truly gauge the success of such environmental policies and programs. This is what this paper aims to achieve. Using the Philippine data for 1996, 2001, and 2012 World Values Surveys (WVS), this paper attempts to examine the values, attitudes and behaviors of Filipinos towards the environment based on their educational attainment. Given the several laws enacted and programs implemented on EE across year levels over the years, and the positive improvement on the awareness of Filipinos on the environment, it is hypothesized that Filipino citizens will have the same positive values, attitudes and behaviors towards the environment regardless of educational attainment

II. THEORETICAL FRAMEWORK

The International Union for the Conservation of Nature and Natural Resources defined environmental education (EE) as “*the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man (sic), his culture and his biophysical surroundings. It also entails practice in decision-making and self-formulation of a code of behavior about issues concerning environmental quality*” (Barraza, Duque-Aristizábal and Rebolledo 2003, p. 347 cited in Chi, 2015). Lucas (1972), Fein (1989) and Robottom and Hart (1993), as mentioned in Chi (2015) categorized the evolution of EE over the

last two decades to three concepts or approaches, namely, education about the environment; education in the environment; and education for the environment. Education in the environment is the educational techniques in EE, while the education about and for the environment refer to a set of educational objectives. Education about the environment is about providing environment-related information. Considered to be on the cognitive level in the Bloom's taxonomy, this type of EE should produce knowledgeable individuals wherein knowledge will result in environmental awareness, and will cause the development of 'responsible individual and societal environmental behavior' (Howe & Disinger, 1991, p. 5). Education in the environment is a practical approach to EE where activities happen in the physical environment outside classrooms. This intends to cultivate environmental values that may or may not be reflected in environmentally possible actions through their lives with the purpose of promoting a harmonious human-environmental relationship (Fein, 1993; Robottom & Hart, 1993).

These two types of EE dominated from 1980s to 2000s, but it was found to be unsuccessful in addressing environmental issues. Hence, a new approach to EE, the education for the environment, was introduced. Education for the environment aims to preserve the environment and improve the quality of human life through specific actions and developing environmental attitudes and skills that will result to predisposition to act in order to solve environmental issues. All students, teachers, researchers and authorities are expected to be part of the education and research process and plan and collaboratively active in addressing environmental issues (Robottom & Hart, 1993). Moreover, it should not be taught in specific subjects but integrated with an interdisciplinary, collaborative and educative process. The EE for the environment, an educational theory, is arguably based on a critical theory and participatory paradigm for it promotes a critical analysis of an environment issue to participate in addressing and solving environmental conditions and have quality human life (Chi, 2015). The author also argued group work is necessary in producing knowledge in education for the environment. Further, science literacy, responsibility, competencies, and citizenship were important concepts in education for the environment. Science literacy produce skills to address and solve environmental issues,

responsibility is the value part, competencies as the enabling mechanism to act on the problem and citizenship provides the feel of membership in the group that is addressing the issue (Chi, 2015).

The typologies of EE as described above serve as the theoretical frame for this paper. Using data from the World Values Survey (WVS) for this Philippines, this paper attempts to inquire on the kind of EE that has been implemented in the Philippines as reflected in the values, attitudes and actions of Filipino respondents. If EE in the Philippines were implemented effectively, Filipinos will have positive values, attitudes and actions towards the environment regardless of educational attainment. Stated differently, whether they finished elementary school, high school or college, Filipino people should be able to care for the environment given that EE is integrated of all levels of Philippine education. Hence, the null hypothesis of this paper assumes the ideal scenario that educational attainment does not affect the values, attitudes and actions of Filipinos. However, the kind of EE delivered in schools, which are education about, in, and for the environment, would render education as a factor in affecting the values, attitudes and actions of individuals on environmental issues. Education about and, at best, in the environment may have been the approach in the elementary and high school, while education for the environment that allowed for more critical analysis of environmental issues may have been the approach in college. If such is the case, the alternative hypothesis of this paper may emerge as true. This alternative directional hypothesis states that Filipinos with higher educational attainment have significantly more favorable values and attitudes towards the environment than those with lower education.

III. DATA AND METHODOLOGY

This paper used cross sectional data from the World Values Surveys (WVS). These surveys were primarily designed to examine the changing values and motivations of societies due to economic and technological advances (World Values Survey, n.d.). The first wave of survey only covered developed countries particularly in Europe, but in its succeeding waves, it expanded its range from low income to rich societies, and later on involved African and Islamic societies. The Philippines was first included in the third wave, and also joined in the fourth and sixth waves. The Social Weather

Station (SWS) conducted all these surveys in the Philippines in 1996, 2001 and 2012, respectively. The SWS is the leading social research institution in the Philippines, whose members, called fellows, are social scientists in political science, sociology, statistics, market research and other fields (SWS, 2015). For all these surveys, a total of 1,200 adult respondents with the respective mean age of 36, 39 and 43 were included in the final dataset for analysis.

For this paper, variables related to values towards the environment were investigated across the educational attainment of respondents. Unfortunately, only three variables were asked consistently across the three surveys, namely, membership in environmental organization, protecting the environment as a priority over economic growth and creating jobs, and the view on whether man should master or coexist with nature. These three variables were analyzed by educational attainment across survey years are presented in Table 1. Other environment-related questions were already unique for the specific survey year. These were also analyzed by education of respondents.

The Statistical Package for Social Sciences (SPSS) was used to generate crosstabulations and test of independence the variables for through appropriate measures like Chi square, Gamma and Kruskal-Wallis. The three datasets were weighted to allow for inferential statistical analyses. Heat maps were also incorporated into tables to be more readable and easier to interpret.

IV. RESULTS AND DISCUSSION

Table 1 shows the respondents' membership in environmental organizations, as well as their values toward the environment and nature based on their educational attainment. Overall, the proportions of respondents who were active members of environmental organizations increased from 1996, 2001 and 2012 surveys with respective percentages of 7.1, 9.0 and 14.2. Albeit the increase, it can be observed that only few Filipinos, which is only around one in ten, were actively engaged in organizations that advocated for the environment. In terms of the association with educational attainment, it was only in the 1996 survey when educational attainment was significantly associated with active membership in environmental organization. The chi-square test of independence result ($X^2 (6, N=1200) = 24.78, p < .001$) shows that those with higher education were more likely to be active members of environmental organizations than those with lower educational attainment. In later years however, no significant result were observed. In the 2012 survey, the heat map displayed almost similar proportions of respondents with active membership in environmental organizations who had elementary, secondary and college education. This result speaks for Filipinos' increased engagement in environmental organizations, regardless of educational attainment. However, the need to promote membership to environmental membership is necessary.

Table 1. Membership in environmental

organization, values towards environment and nature by educational attainment across survey years

On the perception whether protecting the environment should be given priority, even if it caused

Variables	Survey Years		
	1996	2001	2012
Active membership in environmental organization	7.1	9.0a	14.2
no education	0.0	7.1	3.8
elementary	3.6	12	12.3
secondary	6.4	6.9	15.4
college	10.5	9.1	14.8
	$X^2 (6, N=1200) = 24.78, p < .001$	$X^2 (3, N=1200) = 6.26, p > .05$	$X^2 (6, N=1200) = 6.82, p > .05$

Variables	Survey Years		
	1996	2001	2012
Protecting the environment should be given priority, even if causes slower economic growth and some loss of jobs.	68.9	64.1	64.2
no education	50	46.2	64.1
elementary	70.2	56.9	65.3
secondary	68.8	62.4	62.3
college	68.7	73.2	65.4
	$X^2 (6, N=1159) = 9.01, p=>.05$	$X^2 (6, N=1141) = 27.34, p=<.001$	$X^2 (6, N=1192) = 4.00, p=>.05$
Human beings should master nature vs coexist with nature			
Humans should master nature	44.6	49.5	
no education	30.0	42.9	
elementary	45.3	47.7	
secondary	46.1	51.9	
college	42.8	52.6	
Humans should coexist with nature	55.4	50.5	
no education	70.0	57.1	
elementary	54.7	57.3	
secondary	53.9	48.1	
college	57.2	47.4	
	$X^2 (3, N=1184) = 1.89, p=>.05$	$X^2 (3, N=1190) = 8.69, p=<.05$	

^a Proxy variable: Do voluntary work: conservation, environmental, animal rights

slower economic growth and some loss of jobs, three in four Filipinos agreed to this statement, despite slight decline from 69 percent in 1996 to 64 percent in 2001 and 2012. It is noticeable that in 2001, the level of education of respondents was significantly related to their view about the environment versus the economy ($X^2 (6, N=1141) = 27.34, p=<.001$). Those with lower education were significantly more concerned with the economy and creating jobs, while those with higher education however were significantly more willing to prioritize the environment even if this meant slower economic growth and loss of jobs. Interestingly, the latest survey in 2012 revealed that protecting the environment mattered over economic progress and job creation to the majority of Filipinos regardless of educational attainment. This is another good indication of a broader concern for the environment among Filipinos irrespective of education.

Filipinos were divided on the view whether human beings should master nature or should co-exist with nature, which were asked in 1996

and 2001 surveys. In 1996, the percentage of those who perceived that humans should co-exist with nature were slightly higher than those who thought that humans should master nature, with 45 percent and 55 percent, respectively. Further, educational attainment did not affect these views during this survey year. However, in 2001, half of the respondents thought that they should master nature and the other half felt they should co-exist with nature. Educational attainment was found to significantly affect the respondents' view of their relationship with nature ($X^2 (3, N=1190) = 8.69, p=<.05$). The heat map clearly revealed a significantly higher percentage of respondents with secondary and college education who thought that they should master nature. The reverse is true for the category that humans should co-exist with nature, where lower figures were generated in this group of respondents with higher education. The significant increase in the proportions, albeit small, echoes that the view of Filipinos toward nature is getting more pragmatic and manipulative, which when left unguided can lead to decisions and

activities that are unfriendly to the environment. Certainly, the ideal relationship between human and nature is not very clear among Filipinos. The belief that human must be the master of nature, especially among those educated Filipinos, poses potential danger of exploitation of the environment. Co-existence with nature to maintain a harmonious human and environment relationship needs to be reiterated in the EE at all levels of education in country.

Table 2 shows the attitude of Filipinos towards personal sacrifice for the environment and their trust to national capability of the country to address environmental problems without governing international agreements. While these responses were obtained in the 1996 WVS survey, an almost equivalent set of questions was asked in the 2012 survey round. In 1996, respondents were asked whether they would agree to an increase in taxes if the extra money were used to prevent environmental damage.

Table 2. Attitudes towards personal sacrifice for the environment and trust to national capability to address environmental problems, 1996 survey

Variables	Attitude Scale			
	Strongly Agree	Agree	Disagree	Strongly Disagree
I would agree to an increase in taxes if the extra money were used to prevent environmental damage	12	43.8	34.5	9.8
no education	0.7	1.0	1.0	0
elementary	16.9	20.7	32.1	32.8
secondary	39.4	37.7	37.1	40.5
college	43	40.7	29.2	26.7
	$\gamma = -.201, p < .001$			
I would buy things at a 20% higher price if it helped protect the environment	7.0	36.9	42.8	13.2
no education	1.2	1.4	0.6	0
elementary	16.9	20.5	28.3	33.8
secondary	38.6	39.7	38.8	29.3
college	43.4	38.4	32.3	36.9
	$\gamma = -.115, p < .01$			

As shown in this table (Table 2), the Gamma significance test of independence revealed that those with higher education (secondary and college) significantly favor this idea more than the those with lower education ($\gamma = -.201, p < .001$). A similar results was found when respondents were asked if they would buy things at 20 percent higher prices if it helped protect the environment ($\gamma = -.115, p < .01$). This statistical result reveals that those with higher education were more willing to sacrifice for the environment than those with lower education.

In the 2001 WVS survey (Table 3), personal sacrifice were asked through questions like if respondents were willing to give part of their income for the environment and if they agree to increase taxes to prevent environmental pollution. Again, the Gamma test of independence yielded

a significant result with $\gamma = -.152, p < .001$ for the first question and $\gamma = .084, p < .05$. Those with higher education had a more positive attitude towards incurring personal sacrifices for the sake of the environment. Another attitudinal question was asked for this survey if government should reduce environmental pollution, without costing them money. It can be observed that those with higher education disagreed with this idea more significantly as indicated by the negative Gamma result of $\gamma = -.217, p < .001$ than Filipinos with lower education. This finding is consistent with the result in 1996 that Filipinos with higher education are more willing to do personal sacrifices for the environment than those with lower education.

In the 1996 WVS (Table 4), some actions for the environment were asked to the respondents. The question were if respondents have chosen

products that are better for the environment, recycled something rather than throw it away, reduced water consumption for environmental reasons, attended meeting or signed petitions aimed at protecting the environment and if they have contributed to an environmental organization. The Kruskal-Wallis test of independence revealed positive significant results for all these five questions, which means that higher educational attainment influenced the decision of Filipinos to take actions for the environment. In particular, except for the question on reduced water consumption, the heat map revealed that the highest proportions that have done these environmental actions came from those with college education. It is desirable that all people regardless of educational attainment should individually take actions to preserve the environment. This can be achieved if actions were encouraged even in basic education.

Data consistently showed that from 1996 to 2012, majority of Filipinos embraces the view of protecting the environment. Environmental education as well as various disasters and environmental problems that Filipinos experienced over the years may have increased the awareness of Filipinos about the environment. Despite this growing awareness, the relationship between human and nature seemed to remain unclear among Filipinos. People's exploitive tendencies were revealed, especially among the educated Filipinos. The awareness part could be attributed to the success of EE as education

about the environment. However, education in the environment should be revisited to inculcate among students the ideal human-nature relationship that will lead to preservation of the environment.

Statistical results showed that there is a wide gap between values and environmental actions in terms of protecting the environment. While awareness on the need to protect the environment, actual engagement, as exemplified by the membership in environmental organizations, is very low. This result calls for an environmental education that is more of education for the environment as discussed in the dissertation study of Chin (2015). Citizenship education needs to be strengthened in order to stir among Filipinos the feel for membership to organizations that advocate environmental protection and preservation.

Overall, educational attainment significantly affects Filipinos' values and attitudes towards the environment. Those with higher education tend to have more favorable attitudes towards the environment compared with those who have lower education. The same is true in taking actions for the environment. These findings failed to provide evidence that regardless of educational attainment, have the same values and attitudes towards the environment. Conversely, the alternative hypothesis of this study that educated Filipinos have more positive values and attitude in favor of the environment is established in this paper.

Table 3. Attitudes towards personal sacrifice for the environment and government's responsibility to reduce pollution, 2001 survey

Variables	Attitude Scale			
	Strongly Agree	Agree	Disagree	Strongly Disagree
Would give part of my income for environment	17.8	54.5	24.5	3.1
no education	1	1.2	0.3	5.4
elementary	26.7	24.6	32.6	35.1
secondary	39	40.2	43.1	32.4
college	33.3	34	24	27
	$\gamma = -.152, p < .001$			
Increase in taxes if extra money used to prevent environmental pollution	15.4	48.9	30.9	4.8
no education	0.1	0.3	1.9	5.3
elementary	23	23.3	33.8	29.8
secondary	41	42.9	38.4	33.3
college	35.5	33.3	25.9	31.6
	$\gamma = .084, p < .05$			

Variables	Attitude Scale			
	Strongly Agree	Agree	Disagree	Strongly Disagree
Government should reduce environmental pollution, but it should not cost me any money	27.2	44.1	25.3	3.5
no education	1.2	0.6	1	4.9
elementary	29.4	28.9	22.7	17.1
secondary	40.6	40.5	41	46.3
college	28.8	30	35.3	31.7
	$\gamma = -.217, p < .001$			

Table 4. Actions taken for the environment by educational attainment, 1996 WVS.

Variables	Environmental Actions	
	Have done	Have not done
Chosen products that are better for environment	37.4	62.6
no education	0.2	1.2
elementary	16.9	30.8
secondary	36	39
college	47	29
	$X^2 (3, N=1189) = 50.02, p < .001$	
Recycle something rather than throw it away	49.5	50.5
no education	0.3	1.3
elementary	22.1	28.3
secondary	35.9	39.9
college	41.7	30.5
	$X^2 (3, N=1182) = 19.61, p < .001$	
Reduce water consumption for environmental reasons	78.8	21.2
no education	0.5	2
elementary	21.9	38.6
secondary	39.2	33.9
college	38.4	25.6
	$X^2 (3, N=1196) = 37.62, p < .001$	
Attend meeting, signed petition aimed at protecting the environment	20.3	79.7
no education	0.8	0.8
elementary	23.7	25.9
secondary	32	39.7
college	43.6	33.5
	$X^2 (3, N=1186) = 8.82, p < .05$	
Have you contributed to an environmental organization	34.4	65.6
no education	0.2	1
elementary	18.1	28.9
secondary	35	39.8
college	46.7	30.3
	$X^2 (3, N=1196) = 37.62, p < .001$	

V. CONCLUSIONS AND RECOMMENDATIONS

The ideal picture of Filipinos universally caring for the environment, regardless of educational attainment, remains blurred. Values, attitudes and actions of Filipinos towards the environment vary by the level of education attained. Therefore, EE in the Philippines at all levels should be revised and transition to become the education for the environment, which is critical and participative. Schools, instead of just raising awareness, should encourage students to take actions individually and in groups. Teachers and school administrators should model such behaviors to better encourage students for such actions. The increased environmental awareness could be attributed to effective integration of environmental issues in the sciences. However, the participation in environment-related organizations and specific actions that will help protect and preserve the environment are issued related to citizenship (Chin, 2015). Hence, school subjects that cultivate citizenship, such as social studies, should find means to integrate lessons on the environment, specifically teaching students on what actions to take in favor of the environment. Again, the new approach to EE, which is education for the environment, can serve as a theoretical guide in producing such lessons on citizenship.

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