Adolescents' Environmental Awareness Index

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ABSTRACT

Increasing environmental awareness is one of the continuing global efforts in saving the environment. The main thrust of this study was to create a reliable instrument that would measure the adolescents' environmental awareness through an exploratory factor analysis and reliability test. Two hundred and fifty respondents were purposively selected in this study with ages 15-17 years old in a basic education institution. Thirteen items were originally included in the instrument but only nine items remained after conducting EFA and reliability test. There are two psychometric properties identified namely, practices and consumption. The two-factor structure explains the 50.915% of the variance and have a Cronbach's alpha of .753 and .719 respectively which are higher than the acceptable Cronbach's alpha of 0.7. The nine-item instrument was found to having internal consistency. Educational institutions and environmental organizations can use this instrument for assessment before implementing any program related to environmental awareness. .

Key words: exploratory factor analysis, reliability test, environmental awareness

INTRODUCTION

With the advent of the fast-changing global landscape inevitably open different environment concerns such as climate change, soil erosion, global warming and pollution. At present, one of the on-going challenges of the society is to look for ways of living within the Earth's ability without committing actions that would be detrimental to its state of equilibrium.

Environmental awareness plays an integral role in preserving the ecology of the planet. It concerns with people's knowledge, behaviour, principles and practices that can affect the environment (Ghosh, 2014; Viswanathan, 2015). Having high environmental awareness among people would assure the creation of a sustainable planetary movement protecting every form of life on the earth and its delivery from destruction. Nowadays, civic societies recommend concrete actions in solving different environmental problems. The fundamental necessity of advocating environmental awareness is crucial for the survival of all living things in the next generation (Laxmi, Subbaiah & Rao, 2004; Nath, 2005).

Environment has been broadly defined. Nonetheless, it is a vital entity in every community because of the different necessities and resources it provides. Moreover, it is considered as an asset in the development of a nation (Green & Haines, 2016). In fact, the increase of environmental awareness is a global effort where all people must be involved. The United Nations is one of the international organizations which encourages concern for the environment among its members through the United Nations Environment Program (UNEP). In addition, environment protection is part of the 2030 Agenda for Sustainable Development. The United Nations Development Programme has stated provisions to include advocacies for clean water and sanitation, affordable and clean energy, climate action, life below water and life on land.

In a recent research conducted that measures the Environmental Performance Index of the countries in the world, Switzerland ranked as the country with highest percentage on environmental health and ecosystem vitality. On the other hand, countries in Asia like Japan is ranked 20th, Taiwan at 23rd and Singapore at 49th and Philippines is at 82nd spot (Environmental Performance Index, 2018).

In the Philippines, the 1987 Constitution states that "The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature." This acknowledges the need for environmental care among its people. In relation to this, there are different advocacies, programs and laws that support environment sustainability to promote consciousness to the people and to further protect the country's resources. One of which is an existing law that requires environment education. This is the Republic Act No. 9152 or 'National Environmental Awareness and Education Act of 2008'. Moreover, there are different yearly commitments of the government in reminding the call for environmental efforts. Some of these are the celebration of the Natural Clean up Month, National Environmental Awareness Month, Philippines' Earth Day, Philippine Environment Month, and Philippine Clean Air Month.

Despite the abovementioned efforts in environmental conservation, environmental problems in the Philippines are still present. As stated in the Philippine Development Plan (2011-2016), the threat of climate change, natural calamities, pollution and water scarcity continues. The plans to combat these problems are still part of the Philippine Development Plan 2017-2022 to finally have a Clean and Green Philippines.

Everyone has a responsibility in caring for the environment including the youth. Ultimately, how people treat the environment today will immensely affect the future generation (Green & Haines, 2016). Therefore, it is vital for the youth to partake in the different environmental efforts since they comprised the majority of the population. Relatively, there have been studies around the globe focusing on the adolescents' environmental awareness (Balderrama, 2014; Cetin & Hilal, 2010; Ghosh, 2014; Hassan, Noordin, & Sulaiman, 2010; Nga, 2016; Sivamoorthy, Nalini, & Kumar, 2010). Most of these studies show adolescents' contribution

to environment advocacies, mostly focusing on environmental preservation efforts of communities. To date, there are limited studies which focus on the development of inventory or scales which would measure the people' environmental awareness index.

Thus, this study is aimed at developing adolescents' environmental awareness index from a local perspective that would provide baseline information for policy review and program development. The formulation of an instrument is crucial in the study which would be subjected to exploratory factor analysis (EFA) and reliability testing. Specifically, the determination of the psychometric properties of the instrument and its internal reliability are the main considerations.

The effort to increase the awareness about environment has been cited in different studies including the different factors that affect environmental awareness such as age, gender, educational attainment (Astalin, 2011) and economic status (Duroy, 2005).

According to studies, one of the needed actions in instilling environment awareness is through the inclusion of environmental education in school's curriculum which aims to widen the knowledge and increase the participation of the people for the environment (Aisyah Nadhrah Ibrahim, Mariana Mohamed Osman, & Syahriah Bachok, 2011; Aminrad, Zarina, Sayed Zakariya, Hadi, & Sakari, 2013; Freije, Hussain, & Salman, 2017; Ghosh, 2014; Nath, 2005; Sengupta, 2010). More so, there have been different views concerning environmental awareness through education.

Some studies support the environmental awareness through education in places like Hanoi, India and Malaysia. There are some researches which focus on environmental education of primary school students, secondary school students (Balderrama,

2014; Ghosh, 2014; Hassan et al., 2010; Nga, 2016) and teachers as well (Larijani, 2010).

On the other hand, despite the presence of activities that support environmental awareness through education, it does not guarantee the students' total interest regarding environmental concerns (Erdoğan & Uşak, 2009). In addition, despite the effort to raise awareness among students through education, their practices does not reflect their level of awareness (Sengupta, 2010).

In relation to this, there have been studies that suggest possible ways to raise environmental awareness among people through education. This includes active participation of the public in environmental programs and daily activities that contribute to the environment (Anlabagan, 2015), curricular and extracurricular activities of students (Shobeiri, Omidvar, & Prahallada, 2007), the practice of 'mobile learning' (Uzunboylu, Cavus, & Ercag, 2009), use of the mass media in influencing the masses regarding environmental education (Sindhu & Singh, 2014) and the emphasis on the instruction in teaching environmental education and not merely about concepts (Astalin, 2011; Larijani, 2010). Hence, some studies suggest that environmental awareness should start in the early years of an individual through environmental education (Chawla, 2008; Coertjens, Pauw, Maeyer, & Petegem, 2010; Hagsér, 2013; Köse, Savran Gencer, Gezer, Erol, & Bilen, 2011).

Theoretical Framework

One of the oldest models used in explaining the environmental behavior is shown below. The behavioral change model is a simple framework that shows the relationship of knowledge, awareness or attitudes and actions. Based on the model, prior to having the desired behavior for environmental conservation, there is a need for the knowledge that is to be aware before taking an action. According to Akintunde (2017) the

framework may not enough to explain environmental related behavior. Though there are still improvements needed, the behavioral change model could serve as a basis in the creation of a new framework regarding environmental awareness. This can include different factors that can affect the actions in preserving the environment (Akintunde, 2017).

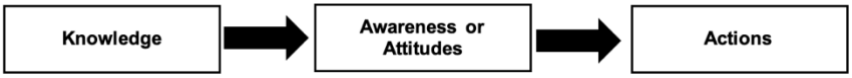

Figure 1. *Behavioral Change Model*

METHOD

Research Design

For the purpose of developing an instrument that would measure the environmental awareness of adolescents, the quantitative research design via exploratory factor analysis (EFA) and reliability test was used.

Participants

There were 250 respondents in this study who were selected through purposive cluster sampling. As rule of thumb, the number of respondents is determined by multiplying the number of items in the instrument by ten (Nunnally, 1978). According to Kass & Tinley (1979), the number of respondents will be the number of item multiplied by five or ten. On the other hand, the sample size ranging from 200-300 is recommended in attaining reliable results when using factor analysis (Boomsma 1982; Comrey & Lee 1992). Having a sample size of more than 200 is fair and can be a basis in having valid and reliable results in performing factor analysis (Boomsma, 1982; Comrey & Lee, 1992). In this case, the number of respondents are sufficient since the initial items of the instrument

are only sixteen. The respondents of the study are students with ages 15 to 17 years old enrolled in the Academic Year 2018-2019 in a private basic educational institution in the Philippines. Majority of the respondents (98%) are ages 15-17 falls under the age bracket of adolescents as defined by Erik Erikson. In addition, one hundred eighteen respondents (47.2%) are female, while one hundred thirty two respondents (52.8%) are male.

Survey Instrument

Based on the intensive review of literature, 16 relevant items were selected for testing. The initial instrument aims to measure the environmental awareness of adolescents. The said indicators were initially validated by three experts in terms of content and language using a reference validation matrix. Only 13 items remained after the content validation of the instrument. The items include specific behavioural indicators of students that can affect the environment. A four-point Likert scale (4=To a great extent, 3=Somewhat, 2= Very little, 1=Not at all) was used for each item.

The items that were included were designed for the adolescents on the basis of interviews and review of different literature pertaining to practices positively contributing to solve environmental problems. These items relate to the daily experiences of adolescents particularly the three Rs - reuse, reduce and recycle.

More so, as cited in the United Nations Environment Programme, plastic pollution and energy are some of the major contributors of environmental issues. Studies abroad mostly deals with environmental efforts in solid waste management particularly on the 3rs (Ahmadi, 2017; Maceachern, n.d.) and water and electricity usage (Frumhoff et al., 2015).

Ethical implications

After the instrument was validated by experts in the field in terms of content and language, a letter was given to the principal of the school asking for permission to conduct a survey. Later, informed consent forms (ICF) were signed by the respondents before the administration of the questionnaires. Only those students who consented became part of the sample. The ICF stipulates the purpose of the survey, the protection of privacy or confidentiality and the right to withdraw of the respondent. In consideration of ethics, the respondents' data and personal information were treated with utmost privacy and confidentiality.

Data Analyses

To test the validity and reliability of the instrument that is measuring the internal structure of the construct, exploratory factor analysis (EFA) and reliability analysis were performed. Exploratory factor analysis was implemented to assess the factors in the scale. To further check the consistency of the items for each domain as determined through EFA, a reliability test was also performed for each item in every domain.

Statistical evidence of validity via Exploratory Factor Analysis (EFA)

The statistical technique used to determine the convergent validity of a scale is exploratory factor analysis (EFA). It identifies the dimensionality of the construct of interest through the relationship of variables especially when there is a restricted information of dimensionality (Netmeyer, Bearden, & Sharma, 2003). Because of this, EFA is executed on the preliminaries of coming up with a new or revised instrument (Wetzel, 2011). Before conducting EFA, the descriptive statistics was also calculated. This

included the mean of the responses and the standard deviations of the factors. After this, the skewedness and kurtosis were identified to test the normality in the distribution. Once the normality of distribution was confirmed, through the use of the Statistical Package for the Social Sciences (SPSS, version 16) the exploratory factor analysis was conducted.

The first steps in the conduct of EFA is the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (KMO) test and Bartlett's Test of Sphericity. They were performed to check the validity of the construct and to confirm that the data gathered are enough in measuring the reliability of the index. The KMO test was used in identifying the sampling adequacy for factor analysis while determining the level of correlations between items for EFA. The Bartlett's Test of Sphericity has to reach a statistical significance of less than .05 to conduct an EFA.

The number of factors which have eigenvalues greater than one were identified (Kaiser, 1960). A scree test which was familiarized by Cattell (1966) was also used because it displays the elbow with the eigenvalues against the number of factors (Netmeyer, Bearden, & Sharma, 2003). The cumulative variance obtained for the factors must be greater than 0.5. Furthermore, the factor loading criterion used in this study was .30 (Floyd & Widaman, 1995).

Also, descriptive statistics was used to measure the appropriateness of the final nine (9) items in the scale. The mean of all responses and the standard deviations of each item were calculated. If the items in the initial EFA resulted in cross-loading with other items, those items can be deleted or grouped with a factor load of .30 until it become acceptable.

Reliability Analysis

An instrument or data questionnaire's reliability can be measured through the accuracy and consistency of the scores using Cronbach's alpha (McMillan, 2007). The items for each emerging factors must be subject to reliability test. Moreover, as stated by Blunch (2008), a Cronbach's alpha above 0.7 contains an acceptable internal consistency while an alpha value of 0.9 means that the internal consistency is excellent. Internal consistency connotes that the survey items directly affect each other.

RESULTS

Descriptive Statistics

Table 1 shows the descriptive statistics which include the means, standard deviations, minimum and maximum of the two proposed factors of the Adolescents' Environmental Awareness Index. It shows that the respondents had a moderate level of environmental awareness with their practices (*M*= 3.226285714) and consumption (*M*=3.43). Also, it indicates that there is an abnormality in distribution with the factors' skewedness and kurtosis.

Table 1. *Descriptive statistics of each factor of the Adolescents' Environment Awareness Index (AEAI)*

	Mean	Standard Deviation	Skewedness	Kurtosis	Min	Max	N
Factor 1	3.23	.484	-0.66521	0.599	1	4	250
Factor 2	3.43	.710	-1.34518	1.297	1	4	250
Total	**3.27**	**.465**	**-1.09231**	**1.937**	**1**	**4**	**250**

The table also shows that the data's minimum and maximum values were all the same for both factors- one and four respectively. Since

there were 250 participants, the test of normal distribution was based on the rule of thumb which is more than 200 (Field, 2009).

Exploratory Factor Analysis (EFA) for Validity

Exploratory factory analysis is the method that was used to further improve the reliability of the instrument by removing items which are inappropriate and by determining the dimensionality of the constructs (Netmeyer, Bearden, & Sharma, 2003). An exploratory factor analysis was done on the 9 item-scale with a Varimax rotation using the SPSS software since the items are based on literature and the component correlation matrix is less than .05 (low correlation). In this study, two factors were derived from the rotation in measuring the environmental awareness of the adolescents. The rotation matrix provided seven items for the first factor and two items for the second factor.

These factors are named **practices** and **consumption** based on the consolidated and essential underpinnings of the items.

Practices pertain to the habitual actions that affect the environment while consumption basically includes the wise use of water and electricity.

Preliminary Three-Factor Structure

The first step in conducting an exploratory factor analysis was through determining the eigenvalues for each factor in the data. The Kaiser-Meyer-Olkin Measure checked the adequacy of the sample for the analysis. In this study, the KMO= .814 satisfies the requirement because it is greater than Kaiser's threshold of 0.6 (Kaiser, 1974). In addition, Bartlett's test of Sphericity, (x^2) =743.865, p<.000, specified that correlations between items were sufficiently large for EFA. The initial three-factor structure with 13 items in the scale explained 51.499% of the variance in the pattern

of relationships among the items. For the first factor (practices), 29.744% while the second factor (precautions) accounts the 11.927% and the third factor (consumption) 9.828%.

During the first conduct of exploratory factor analysis, there are items which cross load to the other factors but even if deleted and rotated, the reliability would not result in the accepted Cronbach's alpha which is above .7.

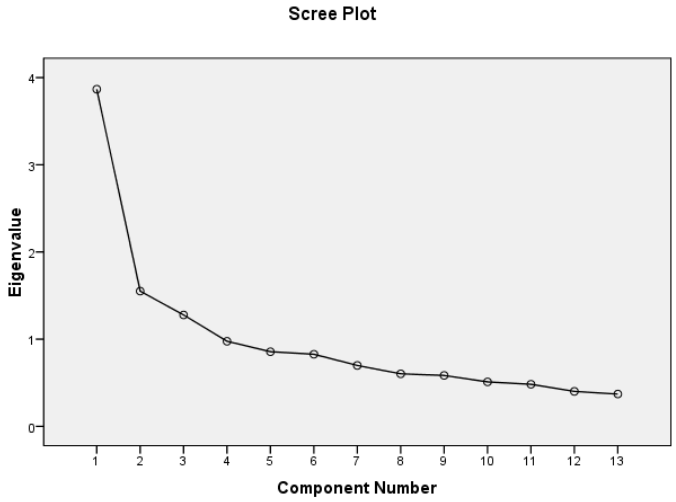

Figure 2. *Scree Plot for the Adolescents' Environmental Awareness Index (AEAI) Instrument*

Initial Items Analysis for Reliability

After determining the factors in the instrument that would measure the adolescents' environmental awareness, an item analysis was done to test the reliability of each factor in the said scale. The factors in the scale had an acceptable rating for the reliability except for factor 2. The Cronbach's alpha for practices,

precautions and consumption were: .753, .573 and .719 respectively.

In the preliminary exploratory factor analysis, there is one factor which resulted to .573 which is lower than the accepted measure of Cronbach's alpha. This factor includes four items which were deleted in the scale to increase the reliability of the instrument. As a result, all factors have a Cronbach's alpha higher than the accepted .7.

Final Two-Factor Structure

After deleting one factor with four items with a lower Cronbach's alpha, it resulted to the final two-factor structure that is composed of nine items. As shown in Table 4, there are seven items for factor 1 which express the practices that affect the environment and two items are included in factor 2 which represents consumption. Practices deals with the everyday activities of the adolescents while consumption pertains primarily to water and energy usage.

To have a higher reliability for the instrument, the four items that were deleted were: "I plant trees" which also cross loads with the other factors, "I prefer walking than riding a car", "I avoid using products with Chlorofluorocarbon (e.g. air conditioning unit, aerosol sprays, hair spray and fire-extinguishers) and "I avoid using harmful products which contain chemicals such as air fresheners, bleach, fertilizers, pesticides and toilet bowl cleaners."

In the end, the nine-item scale explained the 50.915% of the variance. Factor 1 (Practices) accounts 37.620% and factor 2 (Consumption) has 13.295% from the total variance. The nine-item instrument has a KMO=.802 is which is still higher the recommended threshold of 0.6 (Kaiser, 1974). Moreover, the Bartlett's test of Sphericity, (x^2) =536.975, p<.000, indicated that

correlations between items were sufficiently large for EFA. As a result, there were two factors identified in the scale which eigenvalues are larger than one.

Table 2. *Eigenvalues, Total Variances Explained for the Final Two-Factor Structure*

	Initial Eigenvalues			Extraction Sums of Squared Loading			Rotated Sum of Squared Loadings
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.386	37.620	37.620	3.386	37.620	37.620	2.560
2	1.197	13.295	50.915	1.197	13.295	50.915	2.050

Note: Principal Component Analysis

Table 3. *Component Transformation Matrix*

Factor	1	2
1	.795	0.607
2	0.607	-.795

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization

In the final two-factor structure of the Adolescents' Environmental Awareness Index (AEAI), there were no item which was under .32 factor loading. Therefore, the items remained in the index since their Cronbach's alpha is above 0.7 or the suggested value.

Table 4. *The Items and Final Two-Factor Structure of the Adolescents' Environmental Awareness Index after Factor Reduction Procedures*

	Factor	
	1	2
Factor 1: Practices		
1. I am aware about the different environmental problems (e.g. climate change, erosion, global warming and pollution).	.446	
2. I care about the environment.	.567	
3. I practice proper disposal of garbage (e.g. biodegradable and non-biodegradable).	.650	
4. I practice recycling at home and school (e.g. paper and plastic recycling).	.799	
5. I use paper bag, brownbag and Eco bag instead of plastic bags.	.675	
6. I use reusable bottles and food containers (e.g. tumbler, lunchbox).	.540	
7. I encourage others to save the environment.	.452	
Factor 2: Consumption		
8. I turn off appliances/equipment when not in use.		.842
9. I reduce my water wastage by turning off the faucet when not in use.		.844

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Item Analysis for Reliability

To determine the internal consistency of the instrument, a reliability test of each factor of the Adolescents' Environment

Awareness Index (AEAI) was conducted. If the Cronbach's alpha of the item ranges from 0.7-0.9 there is a satisfactory internal consistency (Blunch, 2008). In this study, the Cronbach's alpha for practices and consumption were .753 and .719 respectively (see Table 5).

Table 5. *Cronbach's Alpha for Each Element of the Adolescents' Environment Awareness Index*

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of items
Practices	.753	.757	7
Consumption	.719	.722	2

DISCUSSION

Based on the conducted exploratory factor analysis (EFA), a final two-factor structure of the Adolescents' Environmental Awareness Index (AEAI) has been established through this study.

The two factor-structure of the instrument of adolescents' environmental awareness index explained 50.915% of the variance in the pattern of relationships among the items. After conducting EFA, there were two identified psychometric properties namely practices and consumption. These two factors explains 37.620% and 13.295% of the variance respectively. Both factors had a Cronbach's alpha > .7 which are .753 and .719 respectively. Originally, there were thirteen items originally but nine items remained after deleting items with a lower validity result (practices: 7 items; consumption: 2 items).

The descriptive statistics proved that the study was appropriate in conducting a reliability and validity test through the use of exploratory factor analysis (EFA). There were 250 sample

size which is above the suggested sample size of 200 (Boomsma, 1982; Comrey & Lee, 1992). The exploratory factor analysis showed that the study successfully formulated a parsimonious two-factor structure by deleting four items which has a lower validity than the accepted Cronbach's alpha higher than 0.7. In the initial solution, items "I plant trees", "I prefer walking or riding a bike than riding a car", "I avoid using products with Chlorofluorocarbon (e.g. air conditioning unit, aerosol sprays, hair spray and fire-extinguishers)" and "I avoid using harmful products which contain chemicals such as air fresheners, bleach, fertilizers, pesticides and toilet bowl cleaners" has a lower reliability for their Cronbach's alpha is.573.

The reliability and validity of the instrument were tested during the first solution of exploratory factor analysis. Therefore, the Adolescents' Environmental Awareness Index (AEAI) can be utilized as a foundation tool before conducting advocacy campaigns that would further increase the environmental effort among youth. This instrument can also be a tool for the school administrators, in thinking of possible ways on how to properly include environmental awareness in school to make the adolescents act. However, because EFA is limited, confirmatory factor analysis (CFA) is suggested for future researches to scrutinize the relationships of the variables in the construct (Schreiber, Stage, King, Nora & Barlow, 2006).

The AEAI can also be responsible for adolescents' profile in terms of their environment awareness to be used in creating advocacies and programs. Even though, school administrators or environmentalists use it, there are other factors to consider which can further measure the adolescents' environmental awareness index. This can be possible through future researches. This study suggests the types of psychometric properties to be measured to

further understand the environment awareness of adolescents which are practices and consumption.

Emerging framework

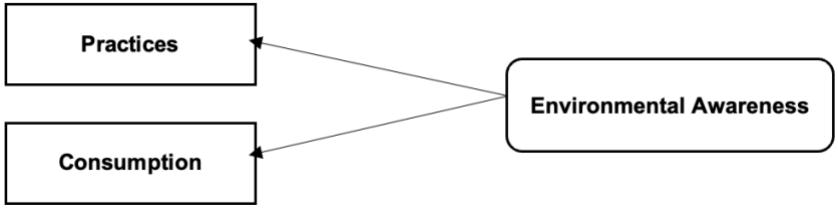

Figure 3. *Adolescents' Environmental Awareness Index (AEAI) Model*

Based on the conducted exploratory factor analysis and reliability test, there are two dimensions in measuring the adolescents' environmental awareness index. These factors are practices and consumption. Practices are the habitual actions that affect the environment while consumption refers to the water and electricity usage. These factors both deals on the everyday encounters of the adolescents which greatly contribute to the environment. As shown in Figure 3, the environmental awareness of adolescents can be identified with their practices and consumption.

Implications

The need for environmental effort is a global concern regardless of the age. And as studies show, there are different programs that instil the responsibility among people which starts with the need for environmental awareness. As Chawla (2008) stated, it is needed even in the younger years of an individual. Consequently, it is necessary for the society to instill the sense of

environmental sensitivity among its people. This effort can be attained through the help of different social institutions like schools. As a possible solution, the adolescents' environmental awareness index can be a first step tool in the creation of programs and projects intended especially in teaching or improving environment education. Furthermore, the results can be used to see which areas they shall put more emphasis.

In addition, the study confirmed the two psychometric factors of the Adolescents' Environmental Awareness Index (AEAI) which are practices and consumption. The importance of daily practices like recycling, reusing and waste segregation has been acknowledged through previous researches. Hence, the effort for water usage and electric consumption has also been included in different studies to combat the problems of the environment. Therefore, it is probable to measure the adolescents' environmental awareness through their practices and consumption using the AEAI.

Likewise, this study provides suggestion on what factors can adolescents improve in the effort of raising both awareness and action in saving the environment. To sum it all up, the adolescents' environmental awareness index which went through exploratory factor analysis and reliability test can be a guide in measuring awareness among adolescents regarding environment and on what areas can they further contribute.

Suggestions for Practice

Due to the continuous problems arising because of environmental destruction, the need for the human effort in saving the environment is really a must. There have been different support to conserve environmental resources. As an example, places like India, Hanoi, Malaysia include the subject environment education

in their curriculum. But there is still a need to assess the result of the environment education imparted especially to the adolescents. As cited in Erdogan and Usdak (2009) knowledge alone is not enough for the students to actively participate in environmental action. It even includes the participation of family and friends (Nath, 2005).

Therefore, school administrators and educators, can use the adolescents' environmental awareness index before they form different advocacies and conduct activities to first measure the level of awareness of the adolescents. In this way, there can be possible innovations with their projects. This is to further make the programs affective and effective to the learners. This AEAI also suggest to include the adolescents in involvement to programs that have a long term benefit to the environment like proper practice of waste segregation or the use of reuse, reduce and recycle.

Limitations

This study has its limitations. The study only used exploratory factor analysis (EFA) for the test of reliability of the items in the index. EFA is beneficial in examining the construct validity and psychometric properties of an instrument. However, EFA is not sufficient tool to test the theoretical foundations of the instrument. Therefore, Confirmatory Factor Analysis (CFA) should be done to further make the instrument reliable and valid. The respondents are only focused with adolescents with ages ranging 15-17 in only one higher educational institution in Pampanga, Philippines. The results cannot generalize all the adolescents' environment awareness index. Furthermore, the survey might cause similar responses from the respondents since they are enrolled in the same educational institution.

Future Research

The efforts needed in saving the environment starts with environmental awareness among the people. This study used exploratory factor analysis and reliability and validity test to create an instrument that would measure the adolescents' environmental awareness. For the improvement of the study, it is recommended to further conduct a Confirmatory Factor Analysis (CFA) to another set of respondents which are larger than the sample size used in this study. There can also be improvements on the number of items in the instrument to further identify the additional dimensions in measuring adolescents' environmental awareness. This study only covers two possible factors that can affect the adolescents' environmental awareness which are practices and consumption.

In addition, a comparative study with adolescents' environment awareness in a private institution and public institution can be made or a study that would compare the environmental awareness of different age range. It can also be a study that would compare the awareness and actions taken by the adolescents regarding environmental issues.

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