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Level of Students' Ecological Awareness, Knowledge, Practices and Impact (SEAKPI) of Selected DepEd and Private Senior High Schools in Metro Manila

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Abstract

Among the qualities developed in science students is to become good caretakers of Mother Nature. Yet, ecological and health problems continue to occur related to poor solid waste management. This cross-sectional study aims to assess the students' ecological awareness, knowledge, practices, and impacts of solid waste management program in selected K+12 DepEd and private schools in Metro Manila. Descriptive-cross sectional design was used for the study with 535 senior high students using random sampling technique. The instrument for data collection was questionnaire survey by using a 4-point Likert Scale. Using IBM SPSS version 20 package, collected data were subjected to percentage, mean, standard deviation, t-test and ANOVA statistical analyses at 0.05 level of significance. Results showed that majority of the students' responses in the questionnaire surveys were moderately aware of the ecological issues in their schools. Student participants were highly knowledgeable on ecological issues, problems, and environmental conditions and facts. This implies good information dissemination drive at school levels. It also showed that there is significant difference in the level of awareness and practice between DepEd and private senior high schools, particularly in the level of ecological knowledge and impact of the local SWM. In general, holistic approach on waste management education in the school is vital to building a dynamic solid waste management systems and programs.

Keywords: Ecological awareness; Knowledge; Practices; Impact; Ecological problem; Environmental solid waste management program; K+12 schools

Abbreviations: DENR: Department of Environment and Natural Resources; CAP: Catholic Association of the Philippines; NCR: National Capital Region; SPSS: Statistical Package for the Social Sciences; TVL: Technical-Vocational-Livelihood; STEM: Science-Technology-Engineering-Mathematics; EFA: Exploratory Factor Analysis; KMO: Kaiser-Mayer-Olkin; ANOVA: Kaiser-Mayer-Olkin; GRB: Gender-Responsive Budgeting; GAD:

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Gender And Development; SEAKPI: Students' Ecological Awareness, Knowledge, Practices and Impact.

Introduction

The Philippines is one of the many countries in Asia fronting ecological hazards, problems, and challenges particularly in highly urbanized cities like Metro Manila. A scenario of poor solid waste management disposal system causes an ecological degradation and garbage pollution particularly in water when floods come. This may be easily seen from the list of ecological concerns, where the Department of Environment and Natural Resources (DENR) is even proactive in implementing its campaigns and report on ecological status in Metro Manila. Leading among these ecological concerns are poor solid waste disposal, inactive reinforcing of the environmental laws and city ordinances, and lack of self-discipline [1]. These environmental concerns are widespread and because of these many schools in cities are highly affected institutions.

In Metro Manila, even moderate downpour of rains, classes suspensions are expected particularly school sites situated adjacent the rivers and flood prone areas like Marikina City, Quezon City, and other low lying cities in National Capital Region (NCR). With this occurrence, this condition have caused enormous effect and impact in the learning development of the students with subsequent suspension of classes for many days or weeks when floods come, students may not learn anything due to this situation [2].

So, assessment of ecological problems and students' involvement and cooperation on the issues of ecological degradation are vital [3]. The flood caused by trashes or solid waste materials in the canals, ponds, rivers, lakes, creeks, and beaches have caused major problems in the cities. With this, assessing students' ecological awareness, knowledge, practices, and impact are necessary in order to find actions and solutions [4]. On the other hand, school has a vital role for this study because education can make humans conscious and knowledgeable about ecological problems and awareness is essential for right action because no one is excuse for these problems and issues [1].

As we face these ecological problems, it might be difficult to foresee the situation of the future generations for this scenario. Our government must appropriately regulate to implement ecological laws (Republic Act (RA) 9003 or the Philippine Ecological Solid Waste Management Act of 2000), policies, ordinances, and seek dynamic solid waste management programs in the schools as partner to promote ecological care as an essential medium for raising ecological awareness and honing ecological intelligence [5]. As mentioned by the Catholic Association of the Philippines (CAP), there should be an integration of environmental studies Makabayan (Social Studies) in high school science curriculum so that the young generation shows their apprehension as ecological citizens [6].

As enumerated in the World Youth Report [6] it was stated that the youth have mutual concerns and distinct responsibilities relative to ecological care because numerous ecological risks and hazards disproportionately affect not only the young ones but same with the people living in the areas [7]. The young generation is bound to do action and involvement that could help make effective actions and active responses to ecological changes for the better [8].

With this, awareness and knowledge of numerous ecological concerns is necessary among the youth or students as the hope of our forthcoming generations. So, by being aware of the present condition of the ecology, let's work together to achieve ecological sustainability because this situation it implies knowledge about ecology as well as attitude, values, and ecological intelligence and skills to solve ecological related issues and concerns as an essential stepping stone to bring responsible ecological citizenship as stated in the Theory of Planned Behavior [9].

Meanwhile, UNESCO (2010) on Education Millennium Development Goals (MDG 2 and 3), Henson and Roberts [10] that there must be a focused on access to education to integrate into MDG 7 the ecological sustainability target that the present condition of our ecological problems may can have an immediate actions and a decisive action in the future. To do so, young generations must establish strong decisions, actions, relevant skills, knowledge, and values in dealing the ecology [11].

At present, it widely agreed that education is a very important vehicle for uplifting the possibilities for sustainable ecology that young generation are recognized as ecological stakeholders (Philippine Agenda 21) to participate in ecological problems [12]. With this, a key element that has been recognized is the significance of promoting a potentially life-long outlook towards ecology protection both the youth and adult [13, 14]. Thus, this study is important as a material evaluation on waste management based on ecological conservation and school participation. Therefore, the researcher wanted to assess the level of students' ecological awareness, knowledge, practices, and impact on solid waste management system

of the selected K + 12 DepEd and private schools in Metro Manila to answer the following objectives of the study:

a. What is the level of students' ecological solid waste management system in terms of: (2.1) awareness; (2.2) knowledge; (2.3) practices; and (3.4) impacts?

b. Is there a significant relationship on the age and gender of the students when it comes to solid waste management system in their school?

c. Is there a significant difference on students' solid waste management system between DepEd and private schools?

d. What ecological solid waste management systems do DepEd and private schools differ?

Methods and Materials

This study used quantitative approach by conducting questionnaire survey for the data gathering from the K+12 DepEd and private schools in Metro Manila in September to November, 2018. The data were analyzed using SPSS Version 20 package. The descriptive analysis was carried out with the aim of obtaining significant differences on awareness, knowledge, practices, and impact on solid waste management system in their schools.

Area of the study

This research was conducted in Metro Manila both DepEd and private schools. Geographically, urban floods like in Metro Manila are the areas along the intersection of creeks and streets located in topographic lows. So, the school sites of the study were belonged to these prone flooded areas. These areas were determined with the following considerations:

a. Rapid industrialization;

b. Dumping of garbage in waterways;

c. Clogged waterways;

d. Old drainage system;

e. Huge amount of trash generated every day (The Manila Bulletin, 2018) which according to Japan International Cooperation Agency (JICA), the Philippine lost in the economy by 2.4 billion pesos/day because of ecological problems caused by flood alone in the National Capital Region (NCR).

Figure 1: The Map of the Study (NCR Gallery, 2018).

Validity and reliability of the instrument

A standardized survey questionnaire was developed and used to gather information from the student-participants on ecological awareness, knowledge of solid waste management disposal, practices, and impact. It was validated by experts in the field. Questions were revised based on the inputs on the content validity, as well as, based on the results of exploratory factor analyses to ensure that objectives of the study are met. Pilot testing was conducted among 114 student-participants. The questionnaire instrument shows good internal consistency level of Cronbach's alpha: 0.816.

Data collection of the study

The research data were collected by using questionnaires survey and was conducted to the target student-participants in the selected K + 12 DepEd and private senior high schools in Metro Manila. The student-participants who involved in this study were 535 senior high school students with no considerations of sex, but they were under 14-22 year old. A 40-item 4-point Likert survey instrument was administered to assess their ecological awareness, knowledge, practices, and impact on solid waste management programs in their respective schools. Basically, data collection using questionnaires were purely checklist with a maximum of at least 15 minutes to answer. With this, we personally administered the instrument and the return rate of 100% was achieved.

Lastly, institutional ethical standard was obtained from the participating schools in Metro Manila. Permission to conduct the survey questionnaires was acquired from the superintendent's office prior to the conduct of the study. After the researcher got the permission, the researcher went to the principal's office of the target schools and asked again a permission to administer the questionnaires among the senior high school students, second semester, academic year 2018-2019.

Data analysis

The data were analyzed using IBM Statistical Package for the Social Sciences (SPSS) Version 20 statistical computer software package. Then, descriptive analysis was applied to provide an overview of the gathered data by interpreting the data into tabulation which include awareness, knowledge, practices, and impact per ecological variable. Frequency distribution tables were constructed. Chi-square for independence test was used to compare differences between variables. All levels of significance were set at $p<0.05$.

Results and Discussion

Overview of the sample

A total of 535 students-participants participated in this study. The sample consisted of 245 (57.4%) and 288 (42.6%) students from DepEd and private schools in Metro Manila respectively. The mean student ages ranges from 14-22 years old from the sample of students. The students were randomly selected from the academic and Technical-Vocational-Livelihood (TVL) Track Strand of both Grade 11 and 12 levels, 217 (40.6%) students of which were from Academic Science-Technology-Engineering-Mathematics (STEM) Track Strand. Table 1 provides comparative demographic data for the sample.

Demographic	DepEd	Private	n (535)
Sex			
Female	159 (64.9%)	148 (51.0%)	307 (57.4%)
Male	86 (35.1%)	142 (49%)	228 (42.6%)
Age			
14-16	83 (33.9%)	142 (49%)	225 (42.1%)
17-18	152 (62.1%)	144 (49.7%	296 (55.4%)
19-22	10 (4.0%)	4 (1.4%)	14 (2.7%)
Mean (SD)	16.96 (0.977)	16.59 (0.745)	16.76 (0.878)
Age Range	15-22	14-20	14-22
Track			
Academic	212 (86.5%)	179 (61.7%)	391 (73.1%)
TVL	33 (13.5%)	111 (38.3%)	144 (26.9%)

Table 1: Comparative demographic data of the participants.

Table 1 presents the demographic profile of the student-participants from DepEd and private schools in Metro Manila. Among the student-participants, female has the most number in the study with 64.9%, followed by male with 51.0%. For their age brackets, it ranges from 14-22 since the student-participants came from Grades 11 and 12 senior high school students. When it comes to track strand, majority of them were academic with a combined number of 73.1%, then followed by TVL with 26.9%. Overall, the student-participants composed of 535 both DepEd and private schools.

Data analysis

The findings on the reliability and validity tests are described in this section. SPSS v. 20 was used for the analysis. For construct validity, exploratory factor analysis (EFA) with principal component method was performed to determine whether the sample size is adequate for the factor analysis, Kaiser-Mayer-Olkin (KMO) and Bartlett's Spherecity Test values were calculated. Sample adequacy was confirmed with KMO index of 0.734. The Bartlett‟s test of sphericity denoted that data are inter-correlated at 5% significance level ($\chi 2$ (780) = 1991.685, *p<.000).* EFA was performed with the 40 item-instrument.

As shown in the above scree plot, there are 8 factors extracted with eigenvalues greater than 1.0 using Varimax rotation. As a rule of thumb, the variables should have a rotated factor loading of at least |0.4| (meaning ≥ +.4 or

≤ –.4) onto one of the factors in order to be considered important.

Meanwhile, extracting with 8-factors, items were dropped (items 9, 11, 20, 28, 30, 33, 38) due to low values of communality (less than 0.5). In addition, more items (items 8, 12, 15, 16, 17, 21, 23, 26, 32, and 40) were dropped in 4 iterations as complex structures were identified. The final extracted items are shown in Table 3. The eigenvalues and % variance explained by the factors are indicated in the lower portion of the table. As computed, the factors extracted can explain 64.690% of the total variance in the sample data, which means the scales, reached the acceptable level. Communality values of the remaining items in the instrument ranges from 0.715 to 0.851.

In addition, though there are 8 factors extracted, the content validation of the items indicated that there are four (4) major factors that can be measured with the instrument; that is, there are two (2) sub-factors in one (1) major factor as they are interrelated. The four major factors (latent variables) are ecological awareness, ecological knowledge, ecological practice and ecological impact. Table 2 shows the loadings for the sub-factors that composed the 4 major factors studied in this study.

Item No.	Factors and sub factors							
	1	2	3	4	5	6	7	8
29	.781							
10	.764							
18	.586							
5	.502							
24		.778						
25		.744						
37		.603						
2		.532						
3			.758					
1			.745					
7			.618					
36				.743				
35				.631				
34				.619				
4					.748			
6					.723			
14						.772		
15						.760		
13						.551		
32							.681	
31							.568	
39							.448	
17								.751
19								.737
EV	5.89	2.146	1.727	1.649	1.47	1.26	1.028	1.003
%var	23.6	8.585	6.907	6.596	5.882	5.05	1.003	4.012
Total variance explained		64.69%						

Table 2: Factor loadings with rotate component matrix.

As seen in the table above, the 8 factors explained 64.9% of the variance. Factors 1 and 2 which assessed the ecological knowledge explained 8.036% of the variance with 8 items. Factors 3 and 5 which assessed the ecological awareness with 5 items, explained 3.197% of the variance. Similarly, with 5 items in factors 4 and 7, ecological impact was assessed and explained 2.677% of the total variance; while factors 6 and 8 assessed the ecological practice that explained 2.263% of the total variance in the data. Therefore, 23 items were retained out of 40 i-Group age brackets for ecological awareness, knowledge, practices and impact were computed to describe the mean score of SEAKPI level on solid waste management system in both schools using the Analysis of Variance (ANOVA). Comparable average ratings were obtained for awareness, practice, knowledge, and impact of both senior high schools. As presented in Table 3, only ecological knowledge has significant in terms of students' age in both senior high schools with a $p < 0.05$. tems in original survey instrument.

Variable		Sum of Squares	df	Mean Square	F	Sig.
Mean All	Between Groups	.235	2	.117	2.098	.124
	Within Groups	29.742	532	.56		
	Total	29.976	534			
Mean AW	Between Groups	.137	2	.069	.802	.449
	Within Groups	45.576	532	.086		
	Total	45.714	534			
Mean PR	Between Groups	.259	2	.1.29	1.351	.260
	Within Groups	50.911	532	.096		
	Total	51.170	534			
Mean KN	Between Groups	.557	2	.278	2.768	.046
	Within Groups	53.501	532	.101		
	Total	54.058	534			
Mean IMP	Between Groups	.343	2	.171	1.691	.185
	Within Groups	53.877	532	.101		
	Total	54.219	534			

Legend: Mean All (Overall mean), Mean AW (Awareness, Mean PR (Practices), Mean KN (Knowledge), Mean IMP (Impact)
Table 3: Group statistics for mean values by age using Analysis of Variance (ANOVA).

Comparison of SEAKPI variable in terms of age

Below is the interpretation data of the mean score when it comes to age in relation to their ecological awareness, practices, knowledge, and impact on the students' level of solid waste management systems in both DepEd and private senior high schools was based on the statistical parameters presented in Table 3.

Results showed that most students in both schools have high level on ecological knowledge compared to ecological awareness, impact, and practice. Interestingly, students with good exposure on ecological knowledge translate into exemplary practice level. Hence, of the total respondents, majority of them are females (307 both DepEd and private), followed by the males (228 both DepEd and private). The above findings indicate that the students' SEAKPI on solid waste management and recycling were somehow linked to their age status. This appears that association with students from good academic backgrounds in the school hold stable level of SEAKPI when it comes to solid waste management and this corresponds to a relatively steady school instruction and teaching even though they are already adolescents. With this, it has been suggested, likewise, that practices of basic solid waste management are often neglected at the individual level when they are not often reminded in as shown in Table 4, gender is highly significant for both male and female student-participants when it comes to the SEAKPI level on solid waste management in DepEd and private senior high schools. In relation to this, several empirical studies have highlighted the need to look into solid waste management issues through gender emphasized the importance of addressing gender-specific issues in managing solid wastes [15, 16] in the school [17].

Comparison of SEAKPI variable in terms of gender

The relation between student-participants' profile based on the mean average score in terms of gender shows highly significant (p = 0.05) in the four (4) variables of the study using the Analysis of Variance (ANOVA) as presented in Table 4 below.

Variable		Sum of Squares	df	Mean Square	F	Sig.
Mean All	Between Groups	1.142	1	1.142	21.115	.000
	Within Groups	28.834	533	.054		
	Total	29.976	534			
Mean AW	Between Groups	1.463	1	1.463	17.618	.000
	Within Groups	44.251	533	.083		
	Total	45.714	534			
Mean PR	Between Groups	1.318	1	1.318	14.096	.000
	Within Groups	49.851	533	.094		
	Total	51.170	534			
Mean KN	Between Groups	.570	1	.570	5.675	.018
	Within Groups	53.488	533	.100		
	Total	54.058	534			
Mean IMP	Between Groups	1.341	1	1.341	13.514	.000
	Within Groups	52.879	533	.099		
	Total	54.219	534			

Legend: Mean All (Overall mean), Mean AW (Awareness, Mean PR (Practices), Mean KN (Knowledge), Mean IMP (Impact)
Table 4: Group statistics for mean values by gender using Analysis of Variance (ANOVA).

Furthermore, Poswa, [16] argued that waste is not a neutral concept and that males and females may have different perspectives on what constitutes wastes.

In the Philippines, the biggest challenge is aligning national gender-related strategies and to local solid waste management plans and policies, especially at the provincial, municipal, and barangay levels. Since 1995, gender-responsive budgeting (GRB) has been adopted in the country as a strategy to mainstream gender and protects females' rights [18]. RA 9710 (2009) mandates all government agencies at the national and local levels to allocate at least five percent of their overall budget as part of the country's gender and development (GAD) budget on social programs like gender sensitivity, gender equality in the society, etc.

Comparison of DepEd and private schools on solid waste management

The main objective of this study is to assess if there is a significant difference between DepEd and private senior high schools in relation to the ecological awareness, knowledge, practice and impact of/to the students. To achieve this, a t-test for 2 independent means was conducted. T-test results showed highly significant on the four (4) variables and there was a proper dissemination effort in relation to ecological status. School administration and teachers may have similar activities that inform students of the ways to be eco-friendly. However, there might not be the same efforts to deepen and enculturate the students to be more ecologically aware that allows them to practice eco-friendly measures and be more committed to it. For this reason, whatever methods of helping the environment such as properly disposing their solid Table 5 shows the mean values in each variable (Mean AW for mean of ecological awareness; Mean PR for mean of ecological practice; Mean KN for mean of ecological knowledge and Mean IMP for mean of ecological impact). With the significance level of 0.5, the overall and specific mean values of the variables in the final SEAKPI scales t-test results between DepEd and private senior high school students are as follows: Overall mean (t = 4.012, p < 0.000); ecological awareness factor (t = 3.600, p < 0.000); ecological practice (t = 2.761, p < 0.006) variables; ecological knowledge (t = 3.496, p< 0.001); and ecological impact (t = 2.457, p < 0.014). These factors are highly significant for both DepEd and private senior high schools.

Variable	School Type	Mean	Std. Deviation	Levene's Test	t-value	*p*-value
Mean All	DepEd	3.5693	.22592	.267	4.012	.000*
	private	3.5083	.24170			
Mean AW	DepEd	3.2648	.34031	.995	3.600	.000*
	private	3.1805	.34755			
Mean PR	DepEd	3.7083	.27702	.064	2.761	.006*
	private	3.6635	.30561			
Mean KN	DepEd	3.6024	.34899	.842	3.496	.001*
	private	3.5731	.36218			
Mean IMP	DepEd	3.7437	.31663	.850	2.457	.014*
	private	3.6586	.34543			

Legend: Mean All (Overall mean), Mean AW (Awareness, Mean PR (Practices), Mean KN (Knowledge), Mean IMP (Impact)
Table 5: Group statistics for mean values for school type.

Wastes have different impact to their communities as well. The t-test results imply that students from DepEd schools have higher awareness level compared to private schools though not as high as the means of the other factors. Similarly, the students from DepEd senior high schools manifest more in their actions on what they learned from school about the ecology, and that the information dissemination has greater impact to these students.

These differences may explain the dissimilarity in the ecological literacy programs provided by the curriculum in each school types. It is not enough that students were informed. There must be follow up programs that educate these students on ecological practices for sustainable development that allows the character formation of more committed pro-ecology members of the society. Thus, even though the findings is highly knowledgeable of ecological situation in their localities and in the country as a whole, school administrators and faculty must strengthen, thru enhanced science curriculum, the integration of ecological concepts, principles, and practices in the different subject areas in the school in order to promote active students' engagement and establish students' participation in various communication campaigns.

Discussion

The use of SEAKPI survey is an emerging popular method to assess students and level of awareness, knowledge, practices, and impact related to ecological issues. In this study, the SEAKPI survey was implemented through a cross-sectional research design, to capture the awareness, knowledge, practices, and impact of the selected DepEd and private senior high school students, specifically on solid waste management system and recycling. In general, out of 40 item SEAKPI questionnaire, only 23 test items were retained from the original survey questionnaire. As extracted with 8-factors, items dropped were items 9, 11, 20, 28, 30, 33, 38 due to low values of communality (less than 0.5). And items 8, 12, 15, 16, 17, 21, 23, 26, 32, and 40 were dropped in 4 iterations as complex structures were identified. The final extracted items are shown in Table 2. The eigenvalues and % variance explained by the factors indicated in the lower portion of the table. As computed, the factors extracted can explain 64.69% of the total variance in the sample data, which means that the scales, reached the acceptable level. Communality values of the remaining items in the instrument ranges from 0.715 to 0.851 as computed. With this, in the field of educational research, Eigenvalue criteria for the number of factors were used. The value of the percentage and variance was applied for exploratory factor analysis. The screen test criteria for the selection of factors is plotted on a graph and factors are selected (Figure 2).

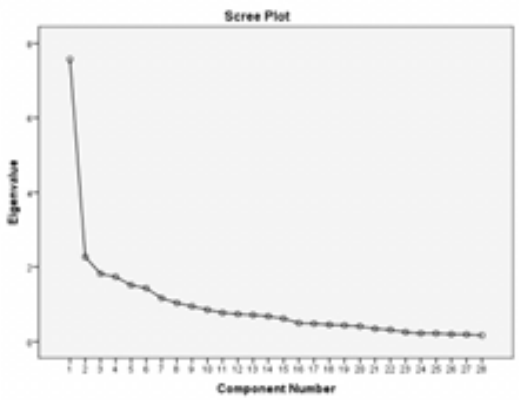

Figure 2: Scree plot of SEAKPI instrument.

So, based on the comparison of DepEd and private senior high schools on solid waste management mean values in each variable has the significance level of 0.5 in the t-test

scale results. Overall mean (t = 4.012, $p < 0.000$); ecological awareness factor (t = 3.600, $p < 0.000$); ecological practice (t = 2.761, $p < 0.006$) variables; ecological knowledge (t = 3.496, $p < 0.001$); and ecological impact (t = 2.457, $p < 0.014$). These factors are highly significant for both DepEd and private senior high schools.

Based on the result, the four (4) variables in the study were highly significant between the means of ecological awareness, knowledge, practices, and impact scores of both DepEd and private senior high schools respectively. This implies that there could have very good information dissemination efforts in relation to ecological status. School administration and teachers may have the similar activities that inform students of the ways to be eco-friendly. However, there might not be the same efforts to deepen and enculturate the students to be more ecologically aware that allows them to practice eco-friendly measures and be more committed to it. For this reason, whatever methods of helping the ecology such as properly disposing their solid wastes have different impact to their communities as well. The t-test results imply that students from DepEd schools have higher awareness level compared to private schools though not as high as the means of the other factors. Similarly, the students from DepEd senior high schools manifest more in their actions what they learned from school about the ecology, and that the information dissemination has greater impact to these students.

These differences may explain the dissimilarity in the ecological literacy programs provided by the curriculum in each school types. It is not enough that students were informed. There must be follow up programs that educate these students on ecological practices for sustainable development that allows the character formation of more committed pro-ecological members of the society. This suggests that DepEd senior high school students, at the time of the survey were somehow aware of the importance on the SEAKPI waste management program as to proper solid wastes management and recycling and they also exhibit good level when it comes to knowledge; however, relatively few students had exemplary practice level.

Relatively, Abdullah and Tuna [19] conducted same survey from secondary school students. The study revealed that knowledge level on ecological issues among student-participants showed good perception ratings. The students were at least, conscious but they could not explain on why ecological problems continue to exist in their community. Further, it found out that participants' was highly aware when it comes to knowledge level; however, the participants showed poor actions towards handling and management of river-dumped wastes by nonparticipation. The gap between knowledge and practices on household wastes [17].

This revealed that the students' knowledge and attitude were positively correlated with their level of practice. The tendency of the students to minimize the use of materials was highly associated with satisfactory knowledge and attitude ratings. Reuse of solid wastes including plastic/ glass bottles, cans, and paper and rainwater was also associated with satisfactory knowledge rating, but not other variables. Positive correlation of knowledge level was also reported by [20]. Similar to the findings of this study, respondents with higher knowledge scores were more likely to exhibit good practice on solid waste management. On the other hand, somewhat contrasting findings were reported in an ecological survey that involved students from 16 higher learning institutions in Malaysia. It was found that knowledge did not necessarily lead to sustainable ecological practices. The same findings were reported by Ifegbesan [21] in a knowledge-practice level assessment. It revealed that secondary school students from the sampled zones were relatively aware of waste problems in their school compounds, but the same students possessed poor waste management practices.

Another apparent break in the knowledge practices continuum was also demonstrated in another community survey in Angles City, Pampanga. It was shown that high knowledge and favorable attitude toward the ecological issues did not necessarily result in favorable ecologically-sustainable practices [22].

Meanwhile, when it comes to age, only in knowledge where they were significant and in terms of sex, all of them were significant at alpha=0.05. Nonetheless, one study demonstrated that compared to males; females were more aware of the importance of good behavior towards the ecology [23]. This highlights the importance of gender-fair campaigns and other-related programs relevant to addressing ecological issues and proposed conservation measures. Meanwhile, a weak negative relationship was observed between age and knowledge level [20]. Thus, younger respondents appeared to have better knowledge relative to the older ones as revealed in this study. The same positive correlation results between age and the respondents' knowledge levels were obtained [24].

Conclusion and Recommendations

The study was conducted to find out the level of students' ecological awareness, practice, knowledge and impact

(SEAKPI) from DepEd and private schools. As findings revealed, both these school types may need to be more creative in providing environmental awareness programs that allows them to work hand in hand with their localities to care for the environment. With this, environmental problems cannot be ignored at the current state. The garbage pollution and degradation of nature largely caused and attributed by solid wastes, thus, environmental education at school level is recommended and fused in social sciences subjects. It is also point out that government programs and policies pertaining to solving environmental problems should be adhered to.

Thus, government policy in DepEd and private schools in this regard is very explicit as environmental education is concern. This may be the reason why DepEd schools have higher scores compared to private schools. Somehow, the government schools' curricular exercise turned out to be fruitful. Yet, efforts must be continued. Below are some recommendations to consider:

- The social sciences subjects in the school curriculum may fuse environmental subjects in the school curriculum may fuse environmental subjects about the proper care of our surroundings as well as in the college level education.
- The schools may cooperate with the local government units to establish a system that will acculturate their students to being eco-friendly citizens of their society.
- The educators may also need to identify the barriers for students to assimilate and imbibe lessons they get from their science courses in relation to proper care of the environment.
- The school authorities may provide follow-up programs to make ecological practices like doing the 3 R'S (reduce, reuse, recycle) habits, clean-up drive, think creative possible solution, abide ecological laws or ordinances, care and conservation for the environment as to become part of the norm in the school culture and thus, students form good habits called eco-friendly surroundings.

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