Attitude towards Waste Segregation and Recycling Practices: Input on Waste Management Program

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Abstract

The increasing problem pertaining to garbage is one of the main problems that the Philippines is facing nowadays. Proper waste disposal in terms of waste segregation and recycling are only a few of the strategies made by government to address the aforesaid issue. In this study, the attitude of the students in terms of waste segregation and recycling and if each variable significantly differ and correlate from the different disciplines were assessed using a 30-item researcher-made survey questionnaire. The students' attitude towards waste segregation and recycling practices were determined as "disciplined" which implies that most students are following the segregation scheme of solid waste program and they are into recycling as well. Significant difference was found among the respondents grouped according to disciplines when their attitude towards waste segregation and recycling practices were compared and it implies each discipline possess diverse attitude towards waste segregation and various recycling practices. Also, no significant relationship and weak correlation were determined between attitude towards waste segregation and recycling practices which implies that the attitude towards waste segregation does not influence the attitude towards recycling among disciplines. Thus, the implementation and dissemination of this result in strengthening the waste segregation and recycling practices are hereby encouraged through integrating environmental education and current environmental issues in classroom instruction and including solid waste program as one of the agenda of every school organization. Furthermore, out from the result of this study, solid waste management plan and protocols may be drafted.

Keywords: Disciplines, Environment, Environmental Educatiom, Lifestyle

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Introduction

The persistent increase in human population and rapid industrialization has caused the continuing global problems on improper wastes disposal (Atienza, 2008) and the major drawbacks concerning wastes management, especially in the developing countries are the ineffective waste collection strategies and the lack of disposal sites (Reyes et al., 2013). Hence, the increasing problem pertaining to garbage is one of the main concerns that the Philippines is facing nowadays. Proper waste disposal is the main problem of environmentalists and the government as well. What make this a serious problem are the years of decomposition and place where to dispose garbage. Since waste management is the major concern that needs to be addressed, the government opted to increase recycling options because it trims down some waste disposal problems and in return, it provides benefit in the agricultural and manufacturing industries. Thus, the Local Government Unit launched a Solid Waste Management Program where in classification of wastes were identified and the utilization of garbage bins for segregation of wastes were introduced. This program as well extends learning in the community on how to convert recyclable materials to be turned into productive outputs. The main theme of the program is to educate the people in the community about waste segregation and recycling practices.

The enactment of certain policies relevant to improving environmental sanitation and community-perception on waste management is a matter of national urgency to minimize imminent outbreaks of diseases and adverse impacts on the economy due to loss of workdays, treatment cost, and clean-up activities (Joseph, 2006). Generally it is known that huge part of garbage is biodegradable however, non-biodegradable garbage are the one which drives the community's state be in danger. This scenario will lead to serious problems that may cause pollutions in many ways.

Waste segregation according to Cabildo and Santa Cruz (2008) is the program presented by the government using a mechanism of separating garbage accordingly to minimize the hazards that it may cause in the community. Also, Unday, et al. (2015) disclosed their findings that the use of Material Recovery Program in fostering the implementation of waste segregation is with high impact in achieving the zero waste target all over the country. On the other hand, according to Licy et al. (2013), the practices of basic solid waste management are often neglected at the individual level though most people are aware of the negative impacts of mismanaged wastes on the environment, their negative attitude coupled with insufficient environmental knowledge among individuals usually corresponds to poor practices towards maintaining good environmental conditions.

With the aforesaid waste problems in the country, the government started to address the waste related problems by drafting and implanting laws such as Ecological Solid Waste Management Act of 2000 (RA 9003), Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (RA 6969) and National Integrated Protected Areas System Act of 1992 (RA7586). More so, the government as well designed programs such as War on Waste, Clean and Green Program, Zero Waste Management

System, Composting, 3R's (Reuse, Reduce, Recycle), and the development Material Recovery Facility to realize and sustain the implementation of the laws pertaining to solid waste management implementation.

Since waste segregation and recycling are the widespread practices in the solid waste management program, it is mandated among barangays, subsequently, schools/ institutions as part of the community are also mandated to take its part in the implementation of the aforesaid program and Capiz State University as an agent of change is task to develop students' sense of responsibility towards the environment. So, it is important to find out students' attitude towards waste segregation and recycling so that it may serve as basis in strengthening the solid waste management implementation in the institution and also may serve as basis in formulating reinforcements in the implementation of solid waste management program.

With the aforementioned ways projected and implemented by the country and by its linkages, the researchers prompt to ascertain students' attitude towards waste segregation and recycling practices. Specifically, this study answers the questions what is the students' attitude towards waste segregation, what is the students' attitude towards recycling, is there a significant difference in the attitude of the students towards waste segregation according to discipline, is there a significant difference in the attitude of the students towards recycling according to discipline, is there a significant relationship between the attitude of the students towards waste segregation and recycling practices and what program can be formulated in strengthening the implementation of waste segregation and recycling practices?

Further, this study is anchored to the Behavior Change Model of Hungerford and Volk (1990) which the respondents reasoning was directly associated with the supposition that if people were better informed, they would become more aware of environmental problems and consequently, would be motivated to behave in an environmentally responsible manner. Thus, when knowledge increases, environmentally favorable attitudes lead to responsible environmental actions are developed (Akintunde, 2017).

Materials and Method

Research Design

This study employed descriptive-survey and correlational research design to determine the attitude of CapSU Main Campus students towards waste segregation and recycling practices. The respondent's profile in terms of discipline and their responses among the benchmarks pertaining to their attitude towards waste segregation and recycling were gathered using a researcher-made questionnaire.

This involves a quantitative research focusing on the gathered data for analysis. This was conducted in Capiz State University Main Campus during the second semester of 2018 – 2019. The researchers formulated statements, subjected for content validation and reliability test and a Cronbach's alpha of 0.876 and 0.831were obtained for

questionnaires on attitude towards waste segregation and recycling practices respectively.

Mean and standard deviation were used to analyze the responses of the respondents as to their attitude towards waste segregation and recycling practices. The attitude of the respondents towards waste segregation and recycling were interpreted as Highly Disciplined (4.21-5.00), Disciplined (3.41-4.20), Neither Disciplined nor Not Disciplined (2.61-3.40), Less Disciplined(1.81-2.60) and Least Disciplined (1.00-1.80). Inferentially, one way analysis of variance was employed to ascertain if there were significant differences on the attitude towards waste segregation and recycling in terms of discipline and Pearson moment of correlation was used to find out the relationship between variables.

This study used a 30-item researcher-made questionnaire consisting of three parts. The questionnaire was formulated to determine the attitude of the students towards waste segregation and recycling practices. The part I of the survey questionnaire was the students' discipline, part II was the questionnaire on attitude towards waste segregation and part III was the questionnaire on attitude towards recycling.

The respondents of the study were the 400 randomly selected students of Capiz State University, Main Campus; it was taken from the 3995 entire population of students. The sample size was determined using Raosoft software. Stratified proportional allocation sampling technique was employed in determining the samples per discipline.

Results and Discussion

Taking into account all the disciplines concerned in this study, the result shows in terms of attitude towards waste segregation was "disciplined" (mean = 4.0280) as presented in table 1. Thus, it implies that most students are following the segregation scheme of solid wastes in the campus and this may be attributed to the integration of waste management concepts in their lessons, existing school rules in terms of cleanliness and values honed at home. However, there might be factors that inhibit them to fully cope with the waste segregation program such as lifestyle or even commitment to the environment.

Table 1: Attitude of students towards waste segregation practices.

Discipline	Mean	Verbal Interpretation
Education (CoEd)	4.0874	Disciplined
Engineering, Architecture and Technology (CEAT)	4.0009	Disciplined
Management (CM)	3.9998	Disciplined
Industrial Technology (BIT)	4.0169	Disciplined
Overall	4.0280	Disciplined

The result of this study is in consonance to the finding of Dung et al. (2017) which they concluded that students' attitude towards solid waste management were positive and this was attributed to the integration of solid waste management and environmental

education issues among college curricula. Also, the study affirms to the findings of Diekmann & Preisendorfer (2009) that the level of consistency between environmental attitudes and behavior is affected by a person's knowledge and awareness, public verbal commitment and sense of responsibility. The transfer from attitudes to behavior can also be affected by lifestyle; many people, while professing to correct attitudes to the environment, are not ready to change their lifestyle in ways that might mean sacrificing certain forms of leisure and comfort for the sake of the environment. On the other hand, the result of the study negates with the findings of Licy et al. (2013) in which they presented that even most people are aware of the negative impacts of mismanaged wastes on the environment, their negative attitude coupled with insufficient environmental knowledge among individuals usually corresponds to poor practices towards maintaining good environmental conditions.

More so, when all of the disciplines concerned in this study were considered, the result in terms of attitude towards recycling was "disciplined" (mean = 4.0440) as shown in Table 2. The result implies that most students are equipped in recycling and this may be attributed to their orientation on saving the environment through inculcating values and concern in promoting sustainable practices that leads to environmental protections both in schools and at home.

Table 2: Attitude of students towards recycling practices.

Discipline	Mean	Verbal Interpretation
Education (CoEd)	4.1116	Disciplined
Engineering, Architecture and Technology (CEAT)	4.0328	Disciplined
Management (CM)	4.0082	Disciplined
Industrial Technology (BIT)	4.0224	Disciplined
Overall	4.0440	Disciplined

Thus, the result of this study affirms with the findings of Sivamoorthy et al. (2013), that creating better environmental practices among schools yielded better results in developing sense responsibility among students in doing their part in attaining the sustainable development goal in the country. Also, the findings of the study of Tam et al. (2018) that the attitude towards recycling habit among workers is positive; however, their behavior is not as strong as it should be. They are aware and concern about recycling and willing to improve the environment by develop recycling habit. However, work environment, including work routines and operating procedures are not very well prepared than it should be to match with the recycling behavior and thus affects the recycling outcomes.

A significant difference was found in the attitude of the students towards waste segregation according to discipline (pval=.017) and to identify where the significant difference lies among the disciplines, post hoc analysis was considered. The College of Education (CoEd) differed significantly when compared to the College of Management (CM) in favor with the College of Education (CoEd). However, when College of Education (CoEd) is compared with College of Engineering, Architecture and Technology (CEAT) and Bachelor of Industrial Technology (BIT), it does not differed significantly. The aforementioned result implies that each discipline possess diverse

attitude towards waste segregation and this can be attributed to the exposure of the students in waste segregation practices at home and also this may be due to the integration of environmental education issues in their respective curricula in terms of specialization and trainings.

Table 3: Analysis of Variance on the attitude of the respondents towards waste segregation practices according to discipline.

		SS	df	MS	F	Sig.	Remarks
Attitude towards Waste Segregation Practices	Between Groups	0.502	3	0.167	3.416	.017	***Significant***
	Within Groups	19.389	396	0.049			
	Total	19.891	399				

The result of the study corroborates with the findings of Barloa et al. (2016) which they found out that the attitude of the students towards waste management attributed significant difference in terms of their social status. The attribute pointed out the practice of waste disposal where majority of the student-respondents disclosed that their wastes disposal were unselective disposal of solid wastes.

Also, a significant difference was found in the attitude of the students towards recycling according discipline (pval=.010) and to identify where the significant difference lies among the disciplines, post hoc analysis was considered. The College of Education (CoEd) differed significantly compared to the College of Management (CM) and Bachelor of Industrial Technology (BIT) in favor with the College of Education (CoEd) but with the College of Engineering, Architecture and Technology (CEAT), it does not differ significantly with The College of Education (CoEd). The result implies that there are various practices that each discipline believes in and this might be influenced by the nature of field of specialization in terms of integration of contemporary issues in the present curricula in attaining sustainable development through recycling as one of the programs in waste management.

Table 4: Analysis of Variance on the attitude of the respondents towards recycling practices according to discipline.

		SS	df	MS	F	Sig.	Remarks
Attitude towards Recycling Practices	Between Groups	0.651	3	0.217	3.865	.010	***Significant***
	Within Groups	22.228	396	0.056			
	Total	22.879	399				

The result of this study supports the findings of Otitoju (2014) which shows a significant difference between waste recyclers and non-waste recyclers on their requirements for participation towards regular awareness, workshop & exhibition. Also, Awang's (2016) findings revealed that the attitude has significant impact on practicing green behavior elements namely, reducing, recycling and reusing. The attitude would positively relate to consumers pro-environmental behaviors.

A no significant relationship was determined between attitudes toward waste

segregation and recycling practices (sig2-tailed=0.510) and it shows weak correlation (r=0.033). This implies that the attitude towards waste segregation does not influence the attitude towards recycling among disciplines. That the respondents practice waste segregation but does not engage themselves in recycling and also this may be due to their lifestyle and economic strata. Another factor may be is that the message of recycling and waste segregation is not reaching some sections of the society.

Table 5: Pearson r on the attitude of the respondents towards waste segregation and recycling practices.

Variables	N	Pearson Correlation	Sig (2-tailed)	Remarks
Attitude towards Waste Segregation Practices	400	0.033	0.510	***Not Significant***
Attitude towards Recycling Practices				

This finding of the study refutes the premise presented by Davies et al. (2005) which they revealed that relationships between different sections of communities and between different spheres of public, private and civil society drawn out to have significance of relationships for waste management practices. The status and nature of these relationships affected respondents' perceived capacity to make an impact on waste problems and it certainly affected their willingness to become pro-active in relation to waste management by seeking out opportunities for preventing or minimizing waste.

Inclusion of seminars and re-orientation activities in terms of waste segregation and recycling practices to the various existing student organizations is one of the programs that may strengthen the implementation of waste segregation and recycling practices. Also, integration of waste management concepts in class is one way as well to develop and reinforce their attitude by means of constant reminder about proper waste segregation and recycling.

Conclusions

The students' attitude towards waste segregation and recycling practices were determined as disciplined which entails that most of the students are practicing waste segregation and recycling in school. It is also evident that some students are disposing their solid wastes without the means of segregation and also they are using recyclable materials but not all are engaging in recycling. Consequently, if strict implementation of waste management program is imposed in school and recycling workshops are provided, the attitude of the students towards waste segregation and recycling practices may be enhanced and equipped themselves to follow the waste segregation and recycling practices always.

More so, significant difference was found among the various disciplines of Capiz State University-Main Campus when their attitude towards waste segregation practices was compared. Likewise, significant difference was obtained among the

various disciplines when attitude towards recycling practices was compared. Also, it was found out that no significant relationship and weak correlation were determined between attitude towards waste segregation and recycling practices.
Furthermore, activities such as seminars and re-orientation in terms of waste segregation and recycling practices is one of the programs that may strengthen its implementation and integration of environmental education and current environmental issues across all curriculum offered in the campus is also a program that may be used to reinforce positive attitude of the students towards waste segregation and recycling practices.

Recommendations

The implementation and dissemination of the result of this study in strengthening the waste segregation and recycling practices, integration of environmental education and current environmental issues, seminar and/or orientation of Republic Act 9003 or otherwise known as Ecological Solid Waste Management Act of 2000 are hereby encouraged.
School organizations are also encouraged to include solid waste management in their organization agenda. Thus, solid waste management plan and protocols may also be drafted.

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