Solid Waste Management Awareness, Attitude, and Practices in a Philippine Catholic Higher Education Institution

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Abstract

The paper assesses the solid waste management awareness, attitude, and practices of the employees and students of a Catholic higher education institution in the Philippines. Using a descriptive research design, the data were collected using a self-administered survey questionnaire and analyzed using descriptive and inferential statistics. The major findings of the study show that the respondents demonstrated a very high level of awareness and attitude and high extent of practice of solid waste management. A significant difference was found in the awareness, attitude, and practices of respondents when they were grouped according to status and religion. Also, the findings established the relationship between awareness and attitude on one hand and the extent of practice of solid waste management. Awareness, attitudes, and practices were significantly related to age and educational level, except for sex which showed no correlation with attitude and practices. Generally, this paper validates how knowledge influences attitude that subsequently determines behavior particularly in solid waste management as intervened by appropriate environmental education.

Keywords: *Attitude, Awareness, Practices, Solid Waste Management*

1.0 Introduction

The indiscriminate disposal of solid wastes is one major threat to environmental and human well-being (Ejaz, Akhtar, Hashmi & Naeem, 2010; Neller & Neller, 2015; Domato, 2002). Experts attribute the worsening problem on solid wastes dumping to the increasing human population and rapid industrialization (Atienza, 2008 cited in Barloa, Lapie, & de la Cruz, 2016). Solid wastes are any rubbish or refuse generated from undesirable or useless materials or substances (Desa, Kadir, & Yusooff, 2011). As inevitable by-product of human activities (Sinha et al., 2008), solid wastes can be classified as biodegradable, recyclable, residual, and special according to the composition. They are produced from various sources such as households, commercial establishments, industries, and institutions. There is an

estimate of 1.3 billion tons of waste that countries produced every year. With this trend, the world is expected to generate 4 billion tons of waste by 2100 (Simmons, 2016). The Philippines ranked highest in the Southeast Asia regarding trash collection rate (Ranada, 2015) and the world's third-biggest dumper of plastic in the ocean (Suarez, 2015). Also, the National Solid Waste Management Commission (2013) reported that the Philippines generates waste every year on an average of 0.40 kg per capita. With this generation rate, the amount of waste is expected to increase to 16.63 million tons in 2020 from 14.66 million tons in 2014 with Metro Manila as the highest waste contributor (DENR, 2015).

One strategic approach to address this environmental problem is through solid waste management. Waste management is needed to reduce or mitigate the mounting global crisis on waste which endangers humanity, pollutes the environment, and damages communities. In particular, solid waste management is "a form of waste control, often associated with storage, collection, transport, process, and disposal of solid waste following quality standard of conservation, public health, engineering, economics, and other environmental concerns" (Rahmaddin et al., 2015). In line with this principle, the Philippine government signed into law the Republic Act (R.A.) 9003 which is also known as Ecological Solid Waste Management Act of 2000. The law provides the legal basis for a "systematic, comprehensive and ecological solid waste management program which shall ensure the protection of public health and environment." It mandates the creation of institutional mechanism and strategies for an effective implementation of the solid waste management program in the country.

Critical to a successful solid waste management program is education. Educating people and inviting them to participate in waste management program and initiatives can help them understand the waste issue and its consequences on human and environmental health, and the ways they can to mitigate it (Chakraborti, Hussam & Alauddin, 2003). Relevant to this idea, R.A. 9003 mandates the stronger integration in the academic curricula of formal and non-formal education of ecological solid waste management and resource conservation and recovery topics to promote environmental awareness and action among the citizenry (Section 2). Given this context, educational institutions play a vital role in this environmental education. Their educational programs and activities are potent means to raise awareness among the members of the academic community about this pressing environmental issue and to take active roles in the protection and care of the environment, our common home.

Guided by its vision, mission, goals, and objectives as a Catholic University, the University of Negros Occidental-Recoletos (UNO-R) advocates ecological education and spirituality among the members of the academic community which will hopefully change, inculcate, and develop in them convictions, attitude, and practices respectful to the environment. In fact, the religious education, campus ministry, and community extension programs consider concern for the environment and people, as well as responsible stewardship of God’s creation, as integral to the university’s evangelizing mission. For instance, religion subjects integrate discussion on the integrity of God's creation and man's fundamental duty to protect and develop it. Other subjects like science and

environmental courses include topics on the environment and solid waste management to help students understand the hazards of wastes to the environment and human health and train them on practical ways to reduce and manage their wastes at home and in the community. Likewise, the University has implemented the “Clean as You Go” (CLAYGO) policy to reinforce the curricular aspect and further intensify environmental consciousness and response of employees and students to waste problem in the campus. The aforecited institutional initiatives aimed at forming all members of the academic community "advocates of a sustainable environment" (Ahmad et al., 2015).

Though much had been done by the University to sensitize, educate, and engage employees and students in issues, concerns, and initiatives relative to solid waste management, the garbage production and disposal is still a perennial problem that the academic institution yet needs to appropriately address and resolve. So far, no study in the University has been conducted to assess how cognizant, disposed, and responsive employees and students are on solid waste disposal management. Thus, the study was conceived to investigate the level of awareness, the degree of attitude, and extent of practices of employees and students of the University on solid waste management. Moreover, it also examined whether their awareness, attitude, and practices significantly differ when they were compared according to status and religion. Also, the correlation between awareness, attitude, and practices and age, educational level, and sex were also investigated. The findings of the study intend to fill in the gaps in the literature on solid waste management in terms of fostering a better understanding, forming ethical attitudes, and promoting environment-friendly practices towards a safer, healthier, and more sustainable university campus.

Framework of the Study

The study is anchored on the Reasoned Action Theory (Fishbein and Ajzen, 1975) which stressed the relationship between behavioral intention and behavior. It argues that behavioral intention precedes action. The behavioral intention is influenced by one's attitude towards the action and subjective norms. The more fervent is the intention, the more likely the behavior will be performed. Reinforcing the theoretical statement above, the theory of Planned Behavior (Ajzen, 1991) explains that human actions are determined by person's intention which is influenced by his attitude in combination with the subjective norm and perceived behavioral control. Both theories provide a framework to help explain, understand, and predict human behaviors when individual's involvement is voluntary and self-controlled. Linking these theories to the study, the researchers hypothesized that students' awareness of the negative consequences of indiscriminate disposal of waste can favorably influence their attitude on how they can help to solve the wastes problem which will subsequently be manifested in their actions of managing their waste properly at home and in school.

On the other hand, while it is true that human behavior may be driven by individual’s intention and attitude, it could also be argued that self-interest can play a vital role in the decision-making and acting. According to the Rational Choice Theory (Green & Fox, 2007), individuals act with prudence and logic. The decision to act or not to act is based on rational calculation,

and the choice is made on available options that will guarantee the greatest satisfaction or profit to the individual. Meaning to say, individual human actions may also be determined by self-interest based on the pleasure and profit outcomes of doing or not doing. Thus, the theory implies that proper waste management may not always be altruistic rather it may be influenced by weighing its cost and benefits.

Relatedly, solid waste management awareness is an environmental campaign which aims not only to educate people on the consequence of creating and managing waste but also to form in them the right attitude which will consequently motivate them to do desirable practices for waste disposal at home, in school, and elsewhere. Several studies have been conducted which linked responsible environmental behavior with knowledge, attitudes, verbal commitment, and sense of responsibility of the person (Liou, 1992; Hines, Hugerford & Tomera, 1986); sociodemography, political attitudes, environmental knowledge and concern combined (Olli, Grendstad & Wollebaek, 2001).

Given the context, education is vital to the solid waste management program. Educating people to waste management will help them understand of the indiscriminate disposal of waste to the environment and human health and empower them to act accordingly (Chakraborti, Hussam & Alauddin, 2003). Along similar lines, environmental programs must be integral to the school's educational mission. Active participation of members of the academic community is important in the implementation of its institutional programs for environmental protection and sustainable development. Though recycling is the most visible, measurable, and enforceable environmental practice in the campus, the educational institutions must engage in waste reduction and reuse as effective ways of reducing the impact of environmental problems (Desa, Kadir, & Yusooff, 2012).

Cognizant of the significant role of education in solid waste management, R.A. 9003 mandates Philippine learning institutions to integrate into their educational activities the awareness and practices of solid waste management for the environmental education of all members of the academic community. The introduction or integration of waste management concepts and themes through environmental education in school at all levels will improve the understanding of the members of the academic community on proper waste management and more likely change their seemingly unfriendly waste management behavior and practices (Ifegbesan, 2010 p. 211).

A study by Desa, Kadir & Yusooff (2012) that assessed the attitudes, behavior, and practices towards the solid waste management of 591 first year students from UKM, Bangi Campus showed that students have a high level of behavior and practices regarding solid waste management program. However, the researchers noted that waste education and awareness strategy are still needed to develop more students' awareness and attitude towards managing solid waste to reduce the impact of the waste problem on the campus.

A similar cross-sectional study was conducted by Licy et al. (2013) to assess the knowledge, attitude, and practice of 300 high school and higher secondary school students on household waste management in Thrissur, Kerala. Using a self-administered questionnaire, the findings showed that high school students were

more aware of the importance of waste management compared to higher secondary students. Both groups lacked awareness of e-waste and its disposal. The findings further indicated that students demonstrated a positive attitude towards waste management. Also, no significant difference was found in the awareness and practice of students on waste management at home. The researcher also pointed out the need for waste management awareness to improve the practice of waste management. Parents should also be given environmental education during parent-teaching meetings or in community-based programs.

But awareness may not easily be translated into practices. For instance, Ifegbesan (2010) explored on the level of awareness and practices of waste management of 650 secondary school students from Ogun State in Nigeria. A self-administered questionnaire was used, and the findings showed that students were aware of the serious problem of waste management in their school, but they had poor waste management practices. It further indicated that their knowledge and practices with regards to waste management significantly differed when the students were categorized according to sex, age, and class membership. Likewise, a significant relationship was observed between the students' demographic profile and their knowledge and practices of waste management. The results may be traced to an ineffective waste management education design for school children.

Ehrampoush & Moghadam (2005) also conducted a cross-sectional study of the knowledge, attitude, and practice of solid waste disposal and recycling of 237 students from Yazd University of Medical Sciences. Likewise aided by the self-administered questionnaire in data gathering, the findings showed that students had a moderate knowledge of solid waste disposal. Moreover, their knowledge did not influence them to practice segregation of solid waste.

Likewise, the study of Adeolu, Enesi & Adeolu (2014) on the knowledge, attitude, and practices of 358 students in the secondary school towards waste management in Ibadan, Nigeria found that the students had a relatively moderate level of knowledge, attitude, and practice of waste management. But the evidence of those who used indiscriminate solid waste disposal methods like open dumping and burning is still higher. The findings also showed that students' sex, age, and class significantly influenced their level of awareness, knowledge, and practices of waste management.

Also, Yildiz, Yilmaz, Demir, & Toy (2011) conducted a study to find out the awareness and sensibility levels of 350 campus people about environmental problems in Erzurum, Turkey. The findings revealed that the respondents showed a moderate level of awareness and sensibility about the environmental problems; but despite their knowledge of the problems, the subjects of the study never showed interest in them.

Another study was conducted by Müderrisoglu & Atanlar (2011) which investigated the attitudes and behavior of 507 undergraduate students from Abant Yzzet Baysal University toward environmental issues. It further looked into whether the courses which students attended, their locality and gender affected their environmental attitudes and behavior. The result showed that students showed highly supportive environmental attitudes. However, the findings reported that the

courses student took and their locality did not affect their environmental attitudes, and behaviors. They also concluded that gender affected environmental attitudes. Women were found to have high environmental attitudes and behavior compared to men. Correspondingly, Raudsepp (2001) also found a consistent relationship between demographics such as age, education, and gender and environmental issues and concerns. Individual differences toward environmental issues may be apparent but collective action against common threat is not impossible to arrive at which this paper wants to demonstrate.

2.0 Methodology

This study utilized the descriptive-correlational research design to gather relevant information about the awareness (consciousness or knowledge), attitude (way of thinking, believing, and feeling), and practices (application or use of knowledge or belief) of solid waste management of employees and students. The purpose was to identify, describe, analyze, interpret, and compare correlates of solid waste management (Leedy & Ormrod, 2005).
Five hundred sixty-three (563) employees and students of the University of Negros Occidental-Recoletos, Academic Year 2017-2018 were the respondents of the study (Table 1). They were determined using multi-stage random sampling method. The sample size for student group was set at 95% confidence level with 5% margin of error.

Based on the literature review, a researcher-made survey questionnaire was used to gather the data. It consisted of 30 items distributed among three sections corresponding to awareness, attitudes, and practices on solid wastes management of employees and students. Ten statements were listed under each section, expressing a particular parameter in observable behavioral terms. The respondents responded to each item using the Likert scale such as Level of Awareness: *5 – very highly aware; 4 –highly aware; 3 – moderately aware; 2 –poorly aware; 1 – unaware; Degree of Attitude: 4 –strongly agree; 3 –agree; 2 –disagree; 1 –strongly disagree; and Extent of Practice: 5 –always; 4 –often; 3 –sometimes; 2 –seldom; 1 – never*.

Table 1. Profile of respondents

Variables	n	%
Status		
Student	361	64.1
Faculty	111	19.7
Non-Teaching Personnel	91	16.2
Sex		
Male	170	30.2
Female	393	69.8
Generational Age		
Generation Z (0-15 years old)	65	11.5
Generation Y (16-36 years old)	374	66.4
Generation X (37-52 years old)	96	17.1
Baby Boomers (53-71 years old)	28	5.0
Educational Level		
Elementary	24	4.3
Junior High School	50	8.9
Senior High School	71	12.6
College Student	216	38.4
College Graduate	128	22.7
Graduate Studies	74	13.1
Religion		

Catholic	472	83.8
Non-Catholic	91	16.2
Total	**563**	**100.0**

The questionnaire underwent validity and reliability testing procedures before the administration. For validity, the questionnaire was assessed by three assessors in the field—an environmentalist, educator, and a researcher using Good and Scates Jury Validation Form. Meanwhile, to establish the reliability of the instrument, it was pilot-tested to 30 employees and students of the university but who were not involved in the final survey. The reliability index yielded 0.80 using Cronbach alpha.

The data were analyzed by means of using descriptive and inferential statistics. The mean was used to determine the level of awareness, the degree of attitude, and extent of practices on the solid waste management of the respondents when taken as a whole and when grouped according to status, sex, age, educational attainment, and religion. Because the data were not normally distributed based on Kolmogorov-Smirnov and Shapiro-Wilk Tests of Normality, the Kruskall Wallis H-Test and Mann Whitney U-Test were used to determining the significant difference in the awareness, attitude, and practices of the respondents when grouped according to status and religion, respectively. Meanwhile, Pearson product-moment correlation coefficient was used to test if there was a significant relationship between awareness, attitude, and practices and age, educational level, and sex.

3.0 Results

The respondents demonstrated a very high level of awareness (M=4.35) on solid waste management (Table 2). Comparably, female respondents (M=4.39), the faculty members (M=4.62), Generation X (M=4.61), Master/Doctorate (M=4.66), and Catholics (M=4.39) obtained the highest mean scores

Table 2. Level of awareness of solid waste management

Variable	M	SD	Interpretation
Status			
Student	4.23	0.47	Very High
Faculty	4.62	0.39	Very High
Non-Teaching Personnel	4.52	0.49	Very High
Sex			
Male	4.25	0.52	Very High
Female	4.39	0.47	Very High
Generational Age			
Generation Z	4.02	0.48	High
Millennial	4.32	0.46	Very High
Generation X	4.61	0.43	Very High
Baby Boomers	4.57	0.59	Very High
Educational Level			
Elementary	3.74	0.49	High
Junior High School	4.09	0.40	High
Senior High School	4.41	0.45	Very High
College Student	4.25	0.45	Very High
College Graduate	4.52	0.47	Very High
Graduate Studies	4.66	0.36	Very High
Religion			
Catholic (n=472)	4.39	0.48	Very High
Non-Catholic (n=91)	4.17	0.51	High
As a Whole	**4.35**	**0.49**	**Very High**

Ranking their responses on awareness, being aware of the "Clean as You Go Policy" (M=4.76), adverse effects of solid wastes to health and environment (M=4.65), degradation/destruction that wastes can cause to the environment (M=4.58), responsibility to properly dispose solid wastes at home and in school (M=4.56), reduction of wastes they generate (M=4.57) obtained the highest mean scores. The items which respondents were least aware of consisted of composting method for organic wastes (M=3.92), financial resource which can be generated from wastes (M=3.97), excessive buying creates more wastes (M=4.12), sanctions for violation of not disposing garbage properly (M=4.23), and the kind of wastes generated (M=4.30).

Interestingly, both employees and students shared awareness on "Clean as You Go Policy", responsibility to properly dispose solid wastes at home and in school, the financial resource which can be generated from solid wastes, and composting organic wastes. Moreover, the respondents showed a very high attitude (M=3.64) on solid waste management (Table 3) regardless of status, age, educational level, sex, and religion.

Table 3. Degree of attitude on solid waste management

Variable	M	SD	Interpretation
Status			
Student	3.54	0.31	Very High
Faculty	3.82	0.24	Very High
Non Teaching Personnel	3.82	0.28	Very High
Sex			
Male	3.63	0.33	Very High
Female	3.64	0.32	Very High
Generational Age			
Generation	3.44	0.30	Very High
Millennial	3.61	0.31	Very High
Generation X	3.83	0.26	Very High
Baby Boomers	3.84	0.29	Very High
Educational Level			
Elementary	3.35	0.33	Very High
Junior High School	3.48	0.26	Very High
Senior High School	3.65	0.27	Very High
College Student	3.54	0.31	Very High
College Graduate	3.79	0.28	Very High
Graduate Studies	3.86	0.21	Very High
Religion			
Catholic	3.65	0.33	Very High
Non-Catholic	3.59	0.28	Very High
As a Whole	**3.64**	**0.32**	**Very High**

Categorized according to the parameters of their responses in terms of mean scores, the respondents believed that proper waste management promotes environmental and human wellness (M=3.93) and the need to educate people about proper waste disposal (M=3.91); felt embarrassed to throw wastes anywhere (M=3.89) and responsible to dispose my wastes properly (M=3.84); were concerned of the waste hazards to environment and human health (M=3.82); were inspired to keep one's home, school, and community clean and green (M=3.81); put importance on proper wastes disposal (M=3.79); considered solid wastes as both environmental and social hazards to be collectively resolved (M=3.77); were committed to minimize wastes (M=3.74); and took interest in environmental advocacies of the school and community (M=3.69).

Comparatively, both employees and students shared the conviction that proper waste management promoted environmental and human wellness, commitment to minimize wastes and interest in environmental advocacies of the school and community.

Furthermore, the employees and students demonstrated a high extent of practices (M=3.73) on solid waste management (Table 4). Regarding educational level, elementary students showed only a moderate extent of practices (M=3.12).

Table 4. Extent of practices on solid waste management of employees and students

Variable	M	SD	Interpretation
Status			
Student	3.58	0.62	High Extent
Faculty	3.96	0.68	High Extent
Non Teaching Personnel	4.02	0.64	High Extent
Sex			
Male	3.66	0.70	High Extent
Female	3.76	0.65	High Extent
Generational Age			
Generation Z	3.42	0.67	High Extent
Millennial	3.66	0.63	High Extent
Generation X	4.07	0.62	High Extent
Baby Boomers	4.11	0.74	High Extent
Educational Attainment			
Elementary	3.12	0.54	Moderate Extent
Junior High School	3.47	0.67	High Extent
Senior High School	3.89	0.60	High Extent
College Student	3.56	0.59	High Extent
College Graduate	4.00	0.67	High Extent
Graduate Studies	3.96	0.65	High Extent
Religion			
Catholic	3.77	0.66	High Extent
Non-Catholic	3.50	0.66	High Extent
As a Whole	**3.73**	**0.67**	**High Extent**

Looking into the solid waste management practices of respondents, “Clean As you Go” (M=4.59) ranked first which was followed by putting trash in their bags when waste bins are not available (M=439); taking or buying things as needed (M=4.08); disposing properly hazardous wastes (M=3.90); reusing and recycling (M=3.77); segregating wastes (M=3.72); volunteering for cleanups and environmental activities (M=3.34); composting biodegradable wastes (M=3.20); bringing reusable bags or basket (M=3.14); and attending environmental programs and activities (M=3.13), respectively.

Meanwhile, for both employees and students, “Clean As You Go,” putting trash in their bags when waste bins were not available, and taking or buying things as needed were among the highest solid waste management practices; while volunteering for cleanups and environmental activities and attending environmental programs and activities ranked as their common lowest practices.

The Kruskall Wallis test was used to determining the significant difference in the awareness, attitude, and practices when respondents were grouped according to status. There were significant differences in the awareness [$\chi 2=78.143$, $p=0.000$], attitude [$\chi 2=124.485$, $p=0.000$], and practices [$\chi 2=51.754$, $p=0.000$] when respondents are grouped according to status. Also, using Mann Whitney U test to determine the pairwise difference in the groups, it was found that the students had

significantly lower awareness, attitude, and practices than that of faculty and the non-teaching personnel.

Moreover, the Mann Whitney U test, showed a significant difference in the awareness [U=16062.000, p=0.000], attitude [U=18158.000, p=0.018], and practices [U=16299.500, p=0.000] when respondents were grouped according to religion. It implies that being a Catholic University, its environmental education, in general, and waste management program" in particular, were easily internalized by Catholic students and employees.

The Pearson r test showed that awareness was significantly correlated with age [r(561)=0.316, p=0.000], education [r(561)=0.379, p=0.000], and sex [r(561)=0.129, p=0.002]. However, no significant correlation was noted between attitude [r(561)=0.025, p=0.025] and practices [r(561)=0.066, p=0.119] with sex. Nonetheless, these results further confirmed how maturity in age and education were significant variables that enhanced positive relationships among the cognitive, affective and active disposition of individuals toward solid waste management programs. There were significant correlations between awareness and attitude [r (561)=0.492, p=0.000], awareness and practices [r (561)=0.520, p=0.000], and attitude and practices [r (561)=0.412, p=0.000].

Discussion

Overall, the findings confirmed that behavioral intention and attitude indeed influenced behavior. Meaning to say, the very high awareness and attitude of respondents on solid waste management favorably influenced their solid wastes disposal practices at home and in school (Fishbein and Ajzen, 1975; Ajzen, 1991). However, their solid waste disposal practices did not match their very high-level awareness. The result implies that while knowledge and attitude may determine the course of person's environmental action, they must also be aligned with the satisfaction and benefit that a person can derive from being concerned and committed to environmental initiatives. Thus, being conscious and convinced of the need to dispose of the solid wastes properly must be coupled with the person's passion and will to do it because of its benefit to humans and the environment. This weak and inconsistent relationship between environmental attitudes and behavior can be attributed to the refusal to abandon the comforts of modern life (Diekmann & Preisendörfer, 1998 as cited in Desa et al., 2011). In like manner, Pope Francis (2014) would attribute this to the prevalent throwaway culture and consumerist lifestyle of our generation.

Moreover, the results indicated the shared consciousness, concern, and effort of the employees and students of the University to do something about the mounting problem of solid wastes which endangers the environment and human well-being. It validated the commitment of the University to environmental sustainability which aims to establish a clean, greener, and safe campus for all the members of the academic community. In this context, employees, especially teachers, are expected to demonstrate a more advanced environmental consciousness, attitudes, and practices. Teachers have the responsibility to teach and guide students to understand profoundly and respond appropriately to the problem of solid waste management (Esa, 2010).

Likewise, the findings also affirmed of the vital role that academic institutions play in the environmental education and sustainability. Through their academic and non-academic programs and initiatives, schools can indeed raise awareness, develop the right attitude, and promote desirable practices among the students, faculty, and staff which can help mitigate the growing problem on solid wastes. However, active participation of the members of the academic community is importantly needed to integrate and implement environmental programs, projects, and initiatives. More importantly, more than just being aware and interested, employees and students must be truly engaged in desirable and effective ways to reduce the serious impact of the environmental problem such as the indiscriminate disposal of waste (Desa, Kadir & Yusooff, 2012; R.A. 9003; Ifegbesan, 2010). Previous studies claiming that awareness and attitude on solid wastes management problems do not necessarily translate to effective solid waste management practices (Ehrampoush Moghadam, 2005; Adeolu, Enesi & Adeolu, 2014; Yildiz, Yilmaz, Demir, & Toy, 2011) have been validated by the current findings.

Also, the significant difference found in the awareness, attitude, and practices of respondents when grouped according to status and religion signifies that employees and Catholics were more aware, disposed, and actively engaged in solid waste management matters compared to students and non-Catholics. Possibly, this may be due to the educational attainment, maturity of age, and rich experiences of employees compared with students. The findings linked to age and education with solid waste management awareness, attitude, and practices. It merely implies that the more educated and matured in age the people are, the more aware, concern, and committed they are towards environmental issues such as the problem of solid waste (Raudsepp, 2001; Ifegbesan, 2010; Adeolu, Enesi & Adeolu, 2014; GEM Report, 2015). On the other hand, the emphasis on care for the environment with the release of Pope Francis' encyclical Laudato Si (2014) and environmental inputs embedded in religious education instructions and environmental seminars and fora may have in a way influenced the mindset, attitude, and practices of Catholic respondents on solid wastes management.

Furthermore, the findings revealed that females are more conscious about solid waste management compared with males, negating the findings of previous studies that male are more knowledgeable on environmental issues such as solid waste management (Abdul-Wahab & Abdo, 2010; Esa, 2010). In fact, related studies showed that women perceive and exhibit more environmental sensitivity compared to men (Paco, Raposo, & Fiho, 2009). According to International Institute for Sustainable Development (2013), women advocate and support environment-friendly products than men. Nevertheless, regarding attitude, and practices, men, and women were both have positive attitude and practices of solid waste management. Sex has no correlation with attitude and practices. The finding did not support previous studies on the relationship between the practice of waste management and sex (Raudsepp, 2001; Eero, Grendstad & Wollebaek, 2001; Ifegbesan, 2010).

Finally, the findings affirmed that indeed there is a close association between knowledge, attitude, and practices on solid waste management. It found concurrence with the previous studies conducted (Jones

& Dunlap, 1992; Scott & Willets, 1994; McKenzie-Mohr, Nemeroff, Beers & Desamrais, 1995; Bradley, Waliczek & Zajicek, 1999; Franson & Garling, 1999; Raudsepp, 2001 Eero, Grenstad Wolleback, 2001; Ifegbesan, 2010).

4.0 Conclusion

This paper has demonstrated that solid waste management awareness, attitude, and practices of students and University employees are closely linked, which suggests that one strategic approach to implement successfully a solid waste management program is education. The school plays an important role on making individuals conscious of the consequences of their actions (i.e., reasoned action), in terms of costs and benefits (i.e., rational choice), and on planning appropriate ways (i.e., planned behavior) to ensure the realization of what are desired for human and environmental well-being. More specifically, with effective environmental education the members of the academic community become more concerned with the mounting problem of solid wastes, have developed positive attitudes, and drive them into collective action in mitigating the problem.

As centers of learning, the educational goals, objectives, and undertakings of the schools can facilitate the integration of environmental awareness, skills, and values which will undoubtedly transform the ways of thinking and actions of employees and students with regards to indiscriminate waste disposal at school and in the home. This is a valuable contribution of academic institutions to promoting and ensuring the quality of human life and common good through environmental protection and sustainability in the campus.

For an effective implementation of the law known as Solid Waste Management Act, it is recommended that a school-based Solid Waste Management Program had to be institutionalized and sustained to facilitate comprehensive awareness, foster ethical attitude, and form environment-friendly practices relative to solid waste management among members of the academic community towards a safer, healthier, and more sustainable university campus.

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