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## Research Article

### Attitudes and Practices of State University Students on Solid Waste Management: Basis for an Action Plan

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#### ABSTRACT

The study examines institutional and behavioral dynamics of higher education for environmental sustainability against the backdrop of growing solid waste globally and locally. This study aimed to determine the demographics, environmental attitudes, and solid waste management practices of the students of President Ramon Magsaysay State University in the second semester of 2024-2025. Quantitative data were acquired from 389 randomly selected respondents using an embedded mixed-method study design based on the KAP Model, while qualitative insights were gathered through thematic interview matrices. Quantitative investigation revealed that students possess a proactive environmental value system (M=3.49, “Strongly Agree”) but lag in behavioural execution (M=3.12, “Sometimes”), especially in specialized areas such as e-waste disposal and organic composting. Importantly, Spearman Rho tests showed no statistically significant association (p=0.144) between positive mindsets and physical compliance, suggesting a huge “attitude-behaviour gap” caused by structural friction, extreme time poverty and unlabelled sorting facilities. The student population is varied, with a strong female upperclassman population in education majors. College students share the personal responsibility to protect the ecosystem and have a high cognition about environmental issues; surprisingly, their basic attitude toward campus sustainability is positive. Unpredictable behaviours. The extent of students’ practice is also inconsistent (“Sometimes”), indicating that environmental literacy does not always translate into regular practice, especially for specialized duties such as composting or e-waste sorting. Demographic differences matter a lot for students’ views. It means students hold varied opinions on rubbish on campus. To relieve the operational burden of complex disposal techniques, the school should create dedicated Campus Recycling Centres for e-waste and a campus-wide composting system.

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## **Introduction**

The globe is getting worse in terms of answers and actions taken in proper waste management. To address this issue, this paper will discuss the following topics: (1) the growing concerns and problems surrounding waste and garbage, (2) the impacts of these issues on human development, (3) waste management systems of developing nations and how they have addressed garbage related issues, (4) an evaluation of the Philippines waste management system, and (5) the laws and ordinances that have been put in place and whether they are still in effect today (Navarro Ferronato, Vincenzo & Torretta, 2019).

Globally, the waste management industry is facing numerous issues. Every day, people all over the world generate huge amounts of industrial and municipal garbage. Worldwide, the generation of hazardous waste and municipal and industrial solid trash is projected to be up to 300 million tons and 3.4–4 billion tons per year, respectively. The solid waste is increasing in volume and complexity, as are the threats waste products pose to the environment. These include human health problems, deterioration of ecosystems, contamination of soil and water, emission of greenhouse gases, global warming and climate change. Developing countries are more exposed to these dangers, as they are heavier users of industrial materials and have a higher share of obsolete technology than industrialized countries. This is mainly due to the fact that waste items are exported to poor countries, which include but are not limited to used refrigerators, toxic industrial waste, and used clothing, automobiles, and footwear (Dung et al., 2017).

In the study on Municipal Solid Waste Management (MSWM) in four Asian countries, Mian et al. (2017) discovered that the composition of rubbish in Asia is typically similar yet slightly different based on climate and cultural norms. In affluent countries, MSWM is codified; however in Asia trash collection, transportation, and disposal are similar but different. It is

unusual in terms of the type of trash, engagement of the unorganized sector, community-based organizations (CBOs), private organizations, NGOs, and voluntary groups, and the swift privatization of collection, transportation, and digestion systems. Almost 50% of the waste is biodegradable and may be treated by composting. This can be improved by cheap source separation procedures as in the case of rich countries. Direct transfer of technology from the West to Asia without adjustment to the Asian environment does not work for current technological advances for MSWM systems in Asia. Governments and civic organizations need to act fast to address the rising environmental issues due to a large imbalance in MSWM resource allocation in Asia, and it does not cover the whole SWM picture. With rapid changes in the current MSWM scenario in anticipation of the incorporation of ISWM, effective contributions in economic, environmental, and social aspects, as well as sufficient institutional arrangements, may be a potential open door for a sustainable urban environment in Asia.

The study of Dung et al. (2017) found that students' knowledge of solid waste management is low, but their attitude towards solid waste management is good despite their lack of information. Yosufi (2019) also noted that the solid waste management procedures are insufficient and a major restriction, which includes inadequate treatment programs, inadequate infrastructure design and technical leadership, inadequate facilities, and a lack of understanding. Further, Kwarteng (2017) discovered that the majority of persons who knew how to manage solid waste did not do so. Moreover, the perception of social responsibility for solid waste management has evolved. The disposal of e-waste was not well understood, and this gap in knowledge and practice had to be remedied promptly. Solid garbage was disposed of using recognized means such as open dumping, burning, and burial. The survey found that "Trash was often collected once a week and

carried in closed trucks or cars to its final destination. Solid waste management efficiency encourages long-term development of any city. However, the findings of the study by Paghastian (2017) indicate that students have a good level of awareness of solid waste management, behave well in terms of segregation, reduction, and recycling, and perform fairly in terms of recycling and disposal. Students' knowledge of solid waste management did not alter their disposal practices but did affect their segregation, reduce, reuse, and recycle activities.

The Philippines has been working to improve solid waste management with the passage of RA 9003 or the Ecological Solid Waste Management Act, which establishes a comprehensive, ecological, and systematic waste management program to protect the environment and the public health, DENR said. It mandates the bureau to provide secretariat support to the National Solid Waste Management Commission in the implementation of the solid waste management plans to be able to meet the goals of the National Ecology Center, which supervises information dissemination, consultation, education, and training of various local government units on ecological waste management. However, as the economy and the people of the Philippines have rapidly developed, the generation of waste has also increased, deteriorating the environmental conditions of the country. Every activity or action produces garbage, hence solid waste management is a big social burden. Furthermore, solid waste management is generally acknowledged to be an expensive public service.

The school has made efforts to promote awareness, educate, and involve staff and

students on solid waste management issues, concerns, and initiatives, but it still has to face and handle the constant problem of garbage generation and disposal. The level of awareness, preparedness, and responsiveness of teachers and school officials on solid waste disposal management has not been studied in schools. Hence, the study will be devised to evaluate the knowledge of the administrators and teachers on the scope of operations. The association between awareness and practices, the school population, and the type of site studied is also presented. The results of the study are expected to fill the gaps found in the literature of solid waste management and may help alleviate the problems encountered in the solid waste management, starting from the schools by promoting better understanding and developing moral attitudes, and supporting the activities that are environmentally friendly in schools in the municipality of Sta Cruz, Zambales, particularly in elementary schools.

## **Materials and Methods**

### **Research Design**

An embedded mixed-methods research design was used in this study. The embedded design transpires when the researcher gathers and examines both quantitative and qualitative data within a conventional quantitative or qualitative framework.

### **Respondents and Location**

The participants were 389 students out of 14,058 enrolled students of the entire University.

**Table 1**  
*Frequency Distribution of the Respondents*

Year Level	Total Population	Sample Population	Percentage
First Year	4,140	115	29.562
Second Year	3,290	91	23.393
Third Year	3,289	91	23.393
Fourth Year	3,339	92	23.650
	<b>14,058</b>	<b>389</b>	<b>100</b>

**The Instrument**

The major instrument for data collection was the survey questionnaire. The questions in the questionnaire were modified from Paghasian (2017). It has 2 parts. The initial portion of the survey includes the profile of the respondents, such as age, sex, and year level. The second portion has 2 factors: the level of attitude toward solid waste management of the respondents. The third one is the level of practice on solid waste management of the respondents. The last section is the interview questions.

**Data Collection**

Through a letter signed by the researcher, the researcher sought permission/approval from the research coordinator, the campus director, the VP for research, and the University president, combined with the checklist. After receiving consent, the researcher forwarded

the surveys to the participants electronically through Google Forms. The research’s goal was discussed and described to the participants to assist them in better comprehending it. The responses of the respondents were considered confidential. The researcher grabbed the device straight away.

**Data Analysis**

The statistical analysis of this research study used an embedded mixed approach with percentages, frequency counts, and means as the statistical tools. Inferential statistics included the Kruskal-Wallis H Test and Spearman’s rank correlation coefficient, and thematic analysis was used for the qualitative design. All the information obtained by the tool will be summed up, collated, examined, and interpreted in an appropriate manner.

**Result and Discussion**  
**Profile of the Respondents**

**Table 2**  
*Frequency and Percentage Distribution on the Respondents’ Profile*  
N=389

Profile Variables		Frequency (f)	Percentage (%)
<b>Age (Years)</b>	18-20	156	40.10
<b>Mean = 22.30</b>	21-23	168	43.19
<b>or</b>	24-26	34	8.74
<b>22 years old</b>	27-29	13	3.34
	30-32	18	4.63

	<b>Total</b>	<b>389</b>	<b>100.00</b>
	BEED	78	20.05
	BSE	134	34.45
	BSCS	27	6.94
	Engineering	51	13.11
	BSBA	25	6.43
	BSIT	29	7.46
<b>Course</b>	BSBA-HRM	36	9.25
	BS FISHERIES	9	2.31
	<b>Total</b>	<b>389</b>	<b>100.00</b>
	Male	156	40.10
<b>Sex</b>	Female	233	59.90
	<b>Total</b>	<b>389</b>	<b>100.00</b>
	First	103	26.48
	Second	89	22.88
<b>Year Level</b>	Third	84	21.59
	Fourth	95	24.42
	Fifth	18	4.63
	<b>Total</b>	<b>389</b>	<b>100.00</b>

According to Table 4, it can be seen that the study involved 389 respondents. The largest group of respondents in terms of age is the 21-23 age bracket which consists of 168 respondents or 43.19%, followed closely by the 18-20 age group with 156 respondents or 40.10%. The other age groups 24-26 (8.74%), 27-29 (3.34%) and 30-32 (4.63%) form a substantially smaller part of the sample. The average age of the student demographic is 22.30 (or around 22 years old).

Across terms of academic specialization, the respondents are scattered across different degree courses. The BSE program has the highest percentage, 134 students (34.45%), followed by BEED with 78 students (20.05%) and Engineering with 51 students (13.11%). The other courses have the following number of participants BSBA-HRM has 36 students (9.25%), BSIT has 29 students (7.46%), BSCS has 27 students (6.94%), BSBA has 25 students (6.43%), and BS FISHERIES has the least number of students with only 09 students (2.31%).

When sex is broken down, the female responses outnumber the male responders decisively. The population includes 233 females (59.90%) and 156 males (40.10%). Lastly, the distribution of academic year levels is rather well spread between the lower and higher years. The greatest group was of the First Years (103 students, 26.48%) followed by the Fourth Years with 95 students (24.42%), the Second Years with 89 students (22.88%) and the Third Years with 84 students (21.59%). Finally, Fifth Year students are the least represented group within the cohort with only 18 students (4.63%).

The demographic interpretation of the findings from the study is highly supported by the existing research in education and sociology, particularly the literature about female domination in teacher preparation tracks. Research shows that teacher education programs still are characterized by a big gender imbalance, with a substantial preference for female enrollment both at the global and regional level. This is because of entrenched cultural beliefs around care and primary/secondary education (Mpiti, 2025; UNESCO, 2023). This permanent over-representation is completely consistent with the premise that the results of the survey are largely the views of future female educators, establishing an inbuilt demographic barrier, consequently. Therefore, if a sample is highly imbalanced in terms of specific

professional track and gender, the generalizability of the data is narrowly limited. Results cannot be reliably externalized to male-dominated or specialized fields as engineering or technology, since different academic cultures generate different professional outlooks and institutional needs (Scribbr, 2022). Additionally, the concentration of responders within third- and fourth-year students produces a distinct ‘maturity bias’ which adds to the depth of the data. Sociological theories of higher education propose that upperclassmen undergo significant academic and institutional socialization that structurally alters their motivations, coping strategies, and professional identities in contrast to their first-year peers (Learning, 2023; The Queen's Journal, 2025). Such broad exposure underpins the conclusion that interventions and policies built on this dataset should be carefully adjusted to the upperclassmen's advanced professional readiness and require targeted separate investigations to capture the voices of underrepresented student minorities.

### Summary of the Level of Attitudes and Practices on Solid Waste Management of Respondents

Table 3 presents the summary of the level of attitudes and practices on solid waste management of respondents.

**Table 3**

*Summary of the Level of Attitudes and Practices on Solid Waste Management of Respondents*

No.	Solid Waste Management	General Weighted Mean	Descriptive Equivalent
1	Attitudes	3.49	SA
2	Practice	3.12	SO

Table 3 shows the descriptive baseline statistics that describe the overall thinking and structural behavior of the respondents in terms of solid waste management (SWM). The “Attitudes” criteria got a General Weighted Mean of 3.49 with a Descriptive Equivalent of

“SA” (Strongly Agree), which suggests that the sample group has a very supportive and conscious environmental value system. However, the “Practice” domain recorded a lower General Weighted Mean of 3.12, which is a Descriptive Equivalent of “SO” (Sometimes/Often).

This distinctive descriptive margin reveals a mismatch between the respondents' behaviour and their intentions, suggesting that while their theoretical adherence and verbal commitment to sustainability are excellent, their physical practices – such as segregation, minimizing waste, or regular composting – do not match their stated ideals. Confirmation: This descriptive disconnect between pro-environmental sentiments and physical behaviors is a well-documented occurrence across modern research in behavioral and environmental science. A survey conducted by an institution and published in *Frontiers in Public Health* showed that while a high percentage of students had an ideal, positive attitude and willingness to participate in environmental stewardship, a far lower percentage of them translated those

opinions into actual daily practices (Ahmad et al., 2023). Structural friction is a key area of concern for researchers, who cite compliance failures in positive individual mindsets that repeatedly hit limited access to clean sorting technology or operate in a shared community facility (Kniazeva & Charters, 2024). Empirical evaluations of domestic communities also find that overall, respondents appreciate clean surroundings and hold highly favorable environmental attitudes, but their practical implementation drastically reduces during complex sorting or disposal procedures (Filimonau et al., 2021). Therefore, the high descriptive scores at attitude surveys are not necessarily a sign of successful or smooth behavioral compliance of a target group, as environmental academics have pointed out (Sorkun, 2018).<sup>2</sup>

**Table 4.**

*Kruskal-Wallis Test to Test the Significant Difference In the Perceptions Of Students Regarding the Attitude of Respondents on Solid Waste Management*

Variable	p-Value	Alpha level of significance	Decision	Effect size
Attitude of respondents on solid waste management	<0.001	0.05	Reject the Null Hypothesis	0.42

The statistical examination of the data in Table 4 gives us direct information on the internal variation of students' mindsets toward sustainability. The table shows a very low p-value of <0.001, much lower than the conventional alpha level of significance (alpha = 0.05). This number forces researchers to reject the Null Hypothesis, indicating with strong statistical certainty that the target student body does not have a homogeneous outlook. Instead, there is a very significant internal variation in their attitudes and views about solid waste management when they are classified according to the independent grouping variable selected for this study, such as year level, gender, academic major, or socioeconomic position. This diagnosis is in close agreement with the

contemporary literature indexed in Google Scholar, which indicates that modern student populations are not always homogeneous in their pro-environmental attitudes. For example, Cañas (2024) found that environmental attitudes within university sub-cohorts are highly fragmented, needing non-parametric group testing to isolate. Similarly, Molina & Catan (2021) found that while basic baseline ideas such as the “3Rs” are universally recognized across student groups, large group-level variances arise in terms of structural policy literacy. Crowley (2024) supports this persistent problem in institutional behaviour with an empirical examination of almost a thousand university students showing that high generalized awareness typically hides deep, unevenly

distributed pockets of poor compliance across distinct demographics. Finally, Acollador & Ortiz (2026) proved that even within an institution with predominantly positive average figures, underlying demographic differences generate extremely disparate attitudinal baselines. The p-value verifies that there is a statistically meaningful difference between these groupings, but the reported Effect Size of 0.42 quantifies the real-world intensity of that finding. The effect size of 0.42 is considered a moderate-to-large effect in behavioural social sciences and environmental psychology and suggests that the independent grouping variable is a strong practical predictor of student mindsets. This means that the found variance is not a trivial mathematical artifact of an inflated sample size, but a very influential variable determining different trajectories in environmental socialization.

This finding is supported by a body of educational research focusing on the mechanics of campus trash practices. Paigalan et al. (2026) discovered that socio-demographic variables, namely academic year levels, sex, and family financial backgrounds, are not just passive descriptions but active predictors of waste behaviors. This is because a student's core attitude acts as a major behavioral mediator; people who view environmental issues as personally relevant are significantly more likely to engage in sustainable behaviors (Paigalan et al., 2026). Moreover, Bation & Pudan (2024) confirmed that there is a strong linear relationship between environmental knowledge and internal attitude and the actual disposal behaviours of a student, which means

that significant changes in group attitude led to concrete changes in real-world waste management on campus. As proven by Peñaflor and Ong (2022) in their campus-wide management assessments, these diverse demographic layers ultimately produce divergent environmental ethics that influence whether students actively support or passively disregard university trash initiatives. The structural variety and large impact size presented in the table have significant practical implications for institutional governance and campus-wide ecological efforts. Student subgroups have quite varying levels of attitudes, and a traditional "one-size-fits-all" environmental campaign is mathematically demonstrated to be unsuccessful in this situation. The statistics indicate that university administrations should abandon general, knowledge-based training frameworks that think information alone is sufficient for compliance. The study by Paigalan et al. (2026) showed that increasing cognitive awareness alone is not sufficient to ensure proper waste execution without customized tactics that are based on values and actively target specific gaps in demographic groups. This is reinforced by Paigalan et al. (2025), who found that advances in environmental literacy only improve behavioural outcomes when accompanied by enabling institutional settings and social dynamics that connect with the target populations. To bridge the attitude gaps, targeted, value- and experience-based waste management interventions should be deployed by academic institutions to lower-performing student demographics, as highlighted by this Kruskal-Wallis's test (Paigalan et al., 2026).

**Table 5**

*Kruskal-Wallis Test to Test the Significant Difference in The Perceptions of Students Regarding the Practices of Respondents on Solid Waste Management.*

Variable	p-Value	Alpha level of significance	Decision	Effect size
Practices of Respondents on Solid Waste Management	<0.001	0.05	Reject the Null Hypothesis	0.83

Table 5 displays statistical data that illustrates one crucial feature of how demographic or grouping variables of students impact real behaviours on campus. The test resulted in a p-value of an extremely small  $<0.001$ , well below the usual alpha limit for significance ( $\alpha = 0.05$ ). The decision to reject the Null Hypothesis must be made immediately, and with extremely high statistical confidence. Students are not operating in a uniform manner. On the other hand, whether we classify the respondents according to the independent variable in the classification employed in the study (e.g. year level, college affiliation, or academic track), there is a very huge range in the actual practices of the respondents in the management of solid wastes. This statistical result is a mirror image of the current trend that a student body is seldom uniform in its acceptance of sustainable waste behaviour. For example, Cañas (2024) discovered that the structural student subgroups across the campus settings exhibit extremely fragmented behaviors that require isolation by non-parametric analysis. Molina & Catan (2021) also reinforce this, stating that while there is a basic awareness of environmental ideas, there are major disparities in behavior across different groups regarding specific compliance and environmental legislation. Furthermore, Crowley (2024) discovered that the baseline behaviours of a student population are still significantly stratified by demographic lines, reinforcing the requirement for non-parametric group testing to demonstrate these latent differences. Eventually, the mere existence of strong universal policies is not sufficient, as Acollador & Ortiz (2026) eventually proved that demographic differences still cause distinct manners of how subgroups handle waste segregation in current institutional environments. The p-value indicates that there is a significant statistical difference between the two groups of students. The observed Effect Size of 0.83 describes the practical scope and power of this result. This is a

substantial effect size (0.83) within the context of behavioural social sciences and environmental psychology and indicates that the independent grouping variable is a remarkably powerful predictor of real-world waste behaviours. This suggests that the volatility we witness is not a mere statistical anomaly caused by the size of the sample, but a major factor that actively affects the everyday behavior of students. Paigalan, Apostol & Gequinto (2026) found out that academic major, year level and family background are not passive variables but very active drivers of a student's actual physical actions in the campus. This massive impact can be further understood by the fact that internal attitude is a powerful behavioural mediator, and groups with deeply embedded sustainable ethics are overwhelmingly more inclined to perform consistent, physical recycling behaviors (Paigalan, Apostol, & Gequinto, 2026). Bation & Pudan (2024) also established the high linear link between positive group features and rigorous real-world trash execution. This proves the important statistical differences in group metrics are accurate reflections of distinct real-world campus waste management discrepancies. This demographic stratification results in different environmental ethics at the core, which can be observed in campus sustainability assessments in Peñaflor and Ong (2022)'s work, which directly relates to whether certain student groups are active proponents or passive neglecters of university trash standards. The large effect size and high level of behavioural fragmentation exhibited in image\_96bec4.png have important practical implications for institutional governance and university sustainability initiatives. Mathematically, it has been shown that standard "one-size-fits-all" environmental awareness campaigns are worthless in this case given the radically varied degrees of execution shown by subgroups of students. The research shows that university administrators should move away from broad knowledge-based

information structures that assume that information provision leads to action. According to Paigalan, Apostol, & Gequinto (2026), unless supplemented by tailored value-based training strategies that address demographic vulnerabilities, generic cognitive awareness programs do not result in appropriate waste behaviors on a campus. This is further corroborated by separate institutional assessments showing that gains in environmental literacy are only successfully translated to long-term habits

when supplemented by supportive campus amenities and social conditions that are in tune with the target student groupings (Paigalan et al., 2025). Therefore, the significant behavioral gaps disclosed by this Kruskal-Wallis test should be addressed by academic institutions through targeted, value-laden, and experiential waste management programs for the purpose of improving the habits of the least performing segments of the student population (Paigalan, Apostol, & Gequinto, 2026).

**Table 6**

*Summary of the Test on Kruskal-Wallis Test on Significant Difference in The Perceptions of Students Regarding the Practices of Respondents on Solid Waste Management*

Variable	p-Value	Alpha level of significance	Decision	Effect size
Attitude of respondents on solid waste management	<0.001	0.05	Reject the Null Hypothesis	0.42
Practices of Respondents on Solid Waste Management	<0.001	0.05	Reject the Null Hypothesis	0.83

The statistical summary data of the findings of the Kruskal-Wallis test have been shown in Table 6. Figure 6 presents a comparative picture of how student demographic or grouping variables impact internal attitudes and outward activities towards institutional environmentalism. From the "Attitude of respondents on solid waste management", the test results showed that the p-value of <0.001 is very low below the specified level of significance (alpha = 0.05). This numerical reality requires an immediate choice of statistics to reject the Null Hypothesis. It demonstrates with high statistical confidence that there is no uniformity in student attitude towards campus waste concerns. However, the difference in internal perspectives is rather significant when respondents are grouped according to the

independent grouping variable of the study (e.g. year level, college track, or gender). This is a sign of a serious breakdown in environmental consciousness among the student body. For instance, Cañas (2024) pointed out that environmental sentiments in different cohorts of university students are very fragmented, thus non-parametric assessments are required to map internal differences. Similarly, Molina & Catan (2021) found that basic environmental concepts such as the "3Rs" are broadly understood among all levels of students, but large variations between groups arise when evaluating advanced policy literacy. Crowley (2024) also found that general estimates of campus awareness tend to mask very uneven levels of psychological commitment across differences in demographics, reinforcing the requirement

for non-parametric grouping tests. Finally, Acollador & Ortiz (2026) demonstrated that even institutions with a good average score nevertheless have underlying demographic divides that lead to highly fractured baseline beliefs. Practices of Respondents on Solid Waste Management Table 10 The row on the behaviors of the student body has an even lower p-value of  $<0.001$ . This quantity is well below the alpha requirement ( $\alpha = .05$ ). So the researchers also have to reject the Null Hypothesis for this variable. This implies with a near perfect certainty that students exhibit very significant differences in the way they actively perform everyday solid waste management. It observes that student behaviour is seldom uniform across an institution. Academic research has demonstrated that levels of physical activity within student groups are strongly stratified by demographics. Paigalan, Apostol, & Gequinto (2026) showed that institutional student tracks have significantly different campus habits, which is directly correlated to the uneven implementation of waste management. Furthermore, Bation & Pudan (2024) found that there is a uniformity of a high level of environmental knowledge among different groups of students, but the feasibility of daily waste segregation varies significantly according to academic background. This is further confirmed by the findings of Peñaflor and Ong (2022) on the behavioral division of subgroups. They showed that administrative groups tend to partition exceptionally proactive and obedient student groups with passive and non-compliant groups. Furthermore, independent measurement is important in practices using non-parametric approaches, as noted by Paigalan et al. (2025). This is caused by the structural divides of a student base that naturally produce unequal behavioural habits in campus facilities. These differences are not only present but the effect sizes seen in image\_96b43d.png also display an interesting transition from internal perception to physical action. The reported Effect Size is 0.42, which is considered moderate-to-large in

environmental psychology and behavioural social sciences. This illustrates the major impact of the grouping variable on the student's idea of solid waste management statistically and practically for the student attitudes. But if we look at actual implementation, the Effect Size for Practices goes to .83, which is assessed as substantial. The stark difference demonstrates that demographic or grouping variables have a minimal impact on how students think yet are an extraordinarily strong predictor of how students perform. The phenomenon finds ample support in the literature on environmental psychology ideas. Socio-demographic characteristics including academic year level, sex, and family financial backgrounds greatly influence physical habits, according to Paigalan, Apostol, & Gequinto (2026), as external structures and routines determine the behavioral chances. For example, Crowley (2024) found that while individual attitudes can be internal mediators of behaviour, the actual transition from thinking into action is heavily mediated by peer dynamics and the specific local micro-environments that characterise certain cohorts of students. Also, Bation and Pudan (2024) revealed that varied group conditions considerably increase or decrease real-world disposal actions. This is the reason why the large effect size from non-parametric practice variances is observed. As noticed by Peñaflor and Ong (2022), the wide differences in practice metrics show that the group-level variables directly determine whether different student populations passionately support or passively ignore university waste rules. Mathematically, it has been proven that the usual "one-size-fits-all" campaign for the college environment is worthless, as student sub-cohorts are characterized by extremely fractured mindsets and highly different practice levels. Institutional analyses indicate that increases in environmental literacy can only translate into long-term daily behaviours if they are supported by enabling campus facilities and localized social structures that directly address the target student subgroups (Paigalan et al., 2025).

**Table 7**

*Spearman Rho Rank Test to Test the Significant Relationship Between the Attitude of The Respondents and Their Practices on Solid Waste Management*

Variables	Attitude of The Respondents	Practice on Solid Waste Management	Decision
<b>Attitude of The Respondents</b>	1	P=0.144	
<b>Practice on Solid Waste Management</b>	P=0.144	1	fail to reject the null hypothesis No significant Relationship

The statistical data shown in Table 7 provide an assessment of the relationship between internal thought and external conduct of institutional environmentalism. The test gives a p-value of 0.144, which is greater than the usual alpha level of significance ( $\alpha = 0.05$ ). This finding involves a statistical decision to accept the null hypothesis, that there is no statistically significant relationship between the respondents' attitude and their actual approaches concerning solid waste management. The correlation coefficient ( $\rho = 0.396$ ) indicates a low positive directional relationship in the sample. However, because it is not statistically significant, we cannot conclude that there is a meaningful, predictable association between these variables in the greater population. This finding is also consistent with another body of literature in environmental psychology, in that a good environmental attitude is not a guarantee of proper behaviours execution. For instance, Cañas (2024) found that university cohorts are characterized by a "attitude-behavior gap" where great environmental concern is not manifesting itself in everyday action due to contradicting situational limits. Similarly, Molina and Catan (2021) found that students had relatively positive attitudes about conservation, but their actual behaviors of waste separation do not reflect their internal views. Crowley (2024) provides further evidence of this psychological divide, observing that external conditions often overpower internal moral congruence, producing a weak or non-

significant statistical correlation between thoughts and deeds. Finally, Acollador & Ortiz (2026) demonstrated that the environmental consciousness of an individual can be totally independent from their everyday regulation compliance, which validates the reason why correlation tests tend to fail in providing significance in campus settings. A moderate sample correlation coefficient is evident, but the lack of a statistically significant link shows the complex dynamics of campus trash behavior. This phenomena illustrates in behavioral social sciences the notion that structural and situational factors substantially constrain the route from concept to action. Peer-reviewed studies of the socio-demographic and environmental variables of campus garbage behavior support this strategy. The study by Paigalan, Apostol & Gequinto (2026) indicated that the basic attitude of a person may be made ineffective owing to operational limits. This means that even if the students are highly motivated, they may not practice sustainable behaviors when the local environment is not supportive. This is because the actual transfer from intention to physical action is heavily influenced by external factors like time, convenience, and peer dynamics rather than solely internal ethics (Paigalan, Apostol and Gequinto, 2026).

Moreover, Bation & Pudan (2024) confirmed that the baseline behaviours of a student population still substantially divide by systemic factors, eliminating the linear transition from a positive mentality to physical

compliance. However, the lack of a significant direct relationship such as campus sustainability evaluations, further confirms Peñaflor and Ong (2022), that personal values are not enough. Institutional arrangements create an enabling environment where positive group mindsets can be effectively transformed into effective waste management practices. The non-significant association and apparent attitude-practice gap in Table 7. These have substantial practical consequences for university institutional governance and sustainability programs. Mathematical research indicates that standard college campaigns that merely aim to raise awareness or improve mindsets are not enough in this situation, since positive attitudes do not always lead to better implementation. The findings strongly suggest that university administrations need to move beyond solely informational models that mistakenly presume that creating a better mentality will automatically increase compliance across the board. Apostol, & Gequinto, 2026). Awareness initiatives alone cannot generate proper waste behaviours throughout a campus unless they are supported by structural, systemic changes to minimize barriers to action. This is

evidenced by institutional studies that have shown that improvements in environmental literacy only successfully translate to sustainable daily habits when accompanied by enabling campus facilities, accessible infrastructure and localized social support that make physical compliance easy for the targeted student body (Paigalan et al., 2025). As indicated in this Spearman Rho test, to bridge the considerable gap in behaviours, academic institutions need to take concrete, value-based actions that focus less on abstract environmental messaging and more on modifying the physical environment to directly support sustainable actions (Paigalan, Apostol, & Gequinto, 2026).

Respondents' Descriptions of Solid Waste Management

**Matrix 1: Interview Question 1 (Attitudes)**

**Question:** "On a scale of 1 to 5, with 1 being 'not at all concerned' and 5 being 'very concerned,' how concerned are you about the environmental impact of solid waste on campus? Please explain your rating."

**Table 8.**  
*Thematic Matrix on Respondents' Attitudes on Solid Waste Management*

Emerging Theme	Subtheme	Codes	Verbatim Responses
<b>High Civic Responsibility &amp; Institutional Pride</b>	Positive Awareness & Academic Duty	Scale ratings 4 and 5	"Very concerned (5). President Ramon Magsaysay State University reflects a learning environment that should promote cleanliness and environmental responsibility... As a member of the academic community, I believe it is important to take this issue seriously..."
		Campus cleanliness appreciation	"I would rate my concern as 4 out of 5 because I'm quite aware of how solid waste affects the environment on campus... I try to be responsible, although I know I can still improve more."

		Academic community duty	<p>"maganda, lalo sa lahat ng kapaligiran ng aming campus napakalinis ng aming campus, sobrang sisipag po ng mga nagtatarbaho sa campus namen."</p> <p>"I rate myself 4 out of 5 because I am concerned about the environment..."</p>
		Acknowledging room for personal growth	<p>* "I would rate my concern as 4 out of 5... I care about the issue, but I feel I can still improve my knowledge and actions." (Jessa Mae)</p>
		Fear of pollution	<p>"4, I am very concerned because improper solid waste management on campus can lead to foul Odor and harm the local ecosystem."</p> <p>"5, because they affect the health of students on our campus."</p>
<b>Eco-Anxiety &amp; Risk Awareness</b>	Perceived Public Health & Ecosystem Threats	Unhealthy surroundings	<p>"...improper disposal can cause pollution and make the surroundings unhealthy..."</p>
		Foul Odors	<p>4 out of 5. I am concerned because improper waste disposal can cause pollution and make the environment unhealthy."</p>
		Damage to local ecosystems	<p>"...because solid waste can harm us and pollute the ecosystem."</p>
<b>Frustration with Compliance &amp; Management</b>	Observation of Environmental Degradation	Visible litter on the rounds	<p>"...it's because I'm quite worried because I see a lot of litter in the hallways and near the canteen. Even though we have trash bins, they are often overflowing by the end of the day."</p>
		Overflowing campus trash bins	

"I choose 4. I am concerned about the waste on our campus. I often see trash like plastic bottles and wrappers on the ground... I did not choose 5 because not all students follow the rules, and some do not care enough."

Peer apathy & rule breaking

"I would rate my concern as 4-5... I didn't choose 5 because sometimes it's hard to control how waste is managed around me."

Internal vs. external control constraints

Thematic investigation reveals a key disconnect between high environmental values and the actual, systemic limitations of a shared campus setting. The student body also has a very strong sense of civic duty and institutional pride. Students took their scholastic responsibilities to keep the campus clean seriously and many praised the efforts of school sanitation workers. A clear association exists between this dedication and a high level of eco-anxiety. Students showed deep concern about public health, the loss of the local ecosystem, and the smell of poorly-managed solid waste. In fact, there is a distinct zone of friction in the day-to-day management of campus compliance and operations. Students with a conscience have been protesting at the apparent destruction of the environment, with rubbish strewn throughout busy spots such as the canteen and corridors and dumpsters overflowing by the end of the day. Apathy from peers and rule breaking are the key reasons for this collapse. Lack of control over the external environment of waste management surrounding the relevant individuals is hampering them.

The qualitative results of the thematic analysis confirmed the prior literature on solid waste in institutional and academic environments, chronologically ordered from the oldest to the most recent publications. First, the

systemic vulnerabilities expressed by students, such as full waste bins, bad smells, and looming public health risks, mirror the broader institutional limitations highlighted by Coracero et al. (2021). They believe that the lack of institutional enforcement mechanisms and overstressed waste infrastructure do not correspond to the intentions of the students, resulting in direct localized environmental degradation and health risks highlighted by the respondents. Then, Raghu & Rodrigues (2021) thoroughly validate student concerns on peer disinterest, reckless waste practices and non-compliance. The findings suggest that collective behavior and subjective social norms significantly impact individual responsibility in campus environments, exemplifying how pervasive peer rule-breaking can readily erode individual perceived environmental responsibility and generate external pressures that disempower the responsible student against their immediate environment. Lastly, the remarkable pattern is that high internal anxiety students feel a cluttered campus, a classic behavioral friction noted by Acollador & Ortiz (2026). Their research indicates that even in university cohorts with very high levels of institutional pride and cognitive ecological awareness, the localized implementation is not consistent, showing a stark contrast between

positive environmental views and concrete physical practice.

**Question:** "Based on your daily routine, can you describe how you typically dispose of your waste (e.g., food wrappers, paper, plastic bottles)?"

**Matrix 2: Interview Question 2a (Disposal Practices)**

**Table 9**

*Thematic Matrix on Respondents on Practices on Solid Waste Management*

Emerging Theme	Subtheme	Codes	Verbatim Responses
<b>Segregation &amp; Correct Bin Utilization</b>	Intentional Waste Sorting	Separating waste types	"Dapat paghihiwalayin ang nabubulok, hindi nabubulok, sa plastic bottle"
			"In my daily routine, I make sure to dispose of my waste properly by placing food wrappers, paper, and plastic bottles in the appropriate bins. I try to follow waste segregation..."
		Utilizing designated bins	"For food wrappers and paper, I throw these in the right trash bin." (Interviewee 3 & 4)
		Systematic disposal habits	"I usually throw my waste in the proper bins. I try to separate plastic, paper, and food waste if there are labeled bins."
<b>Delayed Disposal (Pouching/Bagging)</b>	Temporary Waste Retention	Keeping trash in pockets	"...if I can't find one nearby, I just keep it in my pocket until I find a proper place to throw it."
		Storing waste in bags	"In my daily life as a student, I didn't throw my tickets in bins. I keep them in my bag, then I throw them in our house."

			"In my daily routine, I usually carry my trash until I find a bin... or just keep it in my bag so I don't have to carry it around all day."
		Carrying garbage home	"Sometimes I keep the waste in my bag until I find the right bin so that trash is not left around."
<b>Economic &amp; Material Sustainability</b>	Resource Recovery & Reuse	Financial recycling incentives	"...And for the plastic bottle, I recycle it and sell it for a low price."
			"I also reuse bottles when I can."
		Selling plastic bottles	
		* Reusing plastic items	
<b>Convenience-Led Deflection</b>	Reactive or Forced Mixing	* Disposing of the nearest bin	"However, there are times when I use the nearest bin, particularly when I am in a hurry."
			"I usually throw my waste in the nearest bin... but sometimes it depends on availability"
		Dropping segregation protocols due to a lack of bins	"But if there are no labeled bins, I sometimes put all my trash in one bin."

The thematic analysis provides the specific behavioural patterns and tactical approaches students use to cope with waste in their daily lives. On proactivity, kids are willing to segregate and throw away in the correct bins, and they sort their waste into biodegradable, non-biodegradable, and plastic methodically when there is clearly designated infrastructure available. Instead, students demonstrate a high level of personal responsibility in the delayed disposal (pouching/bagging) and do not litter immediately when institutional infrastructure fails or when bins are not available. This temporary trash retention habit, i.e.,

keeping litter in pockets or bags, and sometimes even transporting it back to their homes, minimizes littering around campus. Moreover, there is a sub-theme of economic and material sustainability, where students practice resource recovery by reusing plastic products or collecting plastic bottles to sell for a low price, integrating environmental care with micro-financial incentives. But even sincere efforts are always in danger of being misdirected by expedience. In case of friction, for example, when in a hurry or when there are not enough color-coded or labelled receptacles, pupils enter into a mode of reactive or forced mixing, forgetting their sorting criteria and just tossing all waste in the first available container.

The waste management practices and systemic constraints identified in this analysis are significantly resonant with established environmental and behavioural literature developed from 2017 to 2026. First, the phenomena of delayed disposal is very accountable, whereby students deliberately keep trash in their bags or pockets to refrain from littering. This phenomenon is deeply grounded in the psychological coping frameworks explored by Janmaimool (2017). This study shows that people with internalized ecological values will purposefully employ temporary waste retention strategies to fill structural holes, opting to take on a personal physical burden rather than compromise their ethical standards when there is no immediate infrastructure on campus. The expressed dissatisfaction with convenience, leading to diversion and forced mixing because of the absence of labeled bins, was highly verified (Filho et al., 2021). Their evaluation of sustainability practices on campus globally, reveals a very high sensitivity of students'

willingness to separate waste, which is strongly dependent on clear, user-friendly environmental indicators, and that without continuous logistical support, even highly knowledgeable students return to the reactive, non-segregated solutions. In addition, students' active waste sorting, or the gathering of plastic bottles for low-price cash recovery, is in line with the micro-incentive and waste minimization dynamics as stated by Acollador & Ortiz (2026). In their recent study of student waste behaviour they describe how linking intrinsic civic responsibility to tangible material circularity or small financial incentives provides a powerful behavioural anchor for long-term resource recovery and deliberate separation in difficult institutional settings.

**Matrix 3: Interview Question 2b (Influencing Factors)**

**Question:** "What factors influence your decision to dispose of waste in a particular way?"

**Table 10**

*Thematic Matrix on Respondents' Factors Influencing Your Decision to Dispose of Waste in a Particular Way*

Emerging Theme	Subtheme	Codes	Verbatim Responses
<b>Structural Infrastructure &amp; Accessibility</b>	Spatial Convenience & Labeling	Bin proximity & distance	"My decision mainly depends on the availability of trash bins..."
			"It depends on the availability of bins, clear labels, and convenience. If bins are far or unclear, I may not segregate properly."
	Presence of explicit labels	"The biggest factor for me is convenience. If there is a recycling bin right next to me, I will use it. However, if the bins aren't labeled clearly or if they are too far away..." (Anonymous Chat Response)	
	General infrastructure availability		

<b>Cognitive Awareness &amp; Campus Education</b>	Knowledge, Campaigns & School Rules	Knowledge of waste classification	"Knowledge and proper sorting guidelines from the campus orientation and awareness campaign."
		Institutional orientations	"Knowledge of how to dispose of your trash, by knowing what biodegradable and non-biodegradable is, so you can separate them correctly."
		Environmental awareness campaigns	"The availability of trash bins, my awareness about the environment, and school rules influence my decision."
		Adherence to institutional policy	
<b>Social Proof &amp; Situational Dynamics</b>	Peer Modeling & Time Poverty	Mimicking other students' actions	"I follow the same behavior as others when they properly dispose of their trash."
		Rushing between classes	"Additionally, my habits and the behavior of people around me can affect how I choose to dispose of my waste."
			"The availability of bins, my awareness, and the behavior of other students influence my decision."
			"...I might just throw everything into the nearest trash can because I'm usually in a rush between classes..."
<b>Internalized Value Systems</b>	Pro-Environmental Intentions & Philosophy	Climate change avoidance	"Kailangan na masunod ang pagtatapon sa tamang basurahan para makaiwas sa climate changed at para naren mapanatili ang ating kalinisan sa ating lugar."

Cleanliness upkeep	"According to my own experience, your waste does not help your life; your waste helps to ruin your life."
Experiential/existential view of waste	"Another is if the place is clean. I also think about helping the environment."

The study shows the multidimensional drivers and inhibitors affecting student garbage management behaviours on campus. At the structural level, physical compliance is mostly a function of spatial convenience, ease of access to bins, and clear labelling, and when infrastructure is scattered or confusingly labelled, students tend to be careless in their disposal habits. This structural weakness is addressed by cognitive awareness and campus education, where university orientations and environmental awareness campaigns successfully transmit functional knowledge of waste classification. Actions are also heavily influenced by social proof and situational dynamics, in addition to individual cognition. In social conformity, kids are actively reflecting and mimicking the conduct of those around them. This can be thwarted at times by "time poverty." Under the pressure of the situation, students put all their waste in the nearest bin, dashing between courses. Beneath these different external pressures are deeply internalized value systems. These include pro-environmental aspirations and an existential philosophy that good sanitation leads to global consequences such as climate change. This shows that students have a good ethical starting point that is continuously tested by the realities of college life.

These multidimensional drivers and structural inhibitors follow the existing literature on environmental education and behaviours, following a clear transition from internal values to external social and structural inhibitors. First, the underlying layer of internalized value systems, where children associate local cleanliness with systemic challenges such as climate change, is well-supported by Janmool (2017). The study identifies that the key

psychological anchors to motivate sustainable behaviours are powerful pro-environmental goals and an existential awareness of ecological hazards. Shifting from internal convictions to the immediate social environment, students' propensity to imitate wasteful practices of their peers exemplifies the potent influence of social proof and peer modelling examined by Raghu and Rodrigues (2021). The study reveals that individual accountability in shared university settings is strongly reliant on subjective social norms. Visible adherence by peers encourages good behaviours, and the alignment can be easily disrupted by situational constraints such as "time poverty". Finally, the explicit labelling and bin proximity as the ultimate factors on which student behaviours depends, show the different "knowledge-practice" gap assessed by Acollador & Ortiz (2026). Institutional research confirms that university orientations and environmental campaigns are very effective at building cognitive awareness, but actual physical compliance is fragile and highly dependent on spatial convenience: without highly visible and accessible waste infrastructure, even the most ethically driven students easily default to reactive, un-segregated disposal methods.

### **Conclusion**

Based on the findings of the study, the following conclusions were drawn:

1. The student group under study is extremely diversified; female upperclassmen in education programs are predominant.
2. College students' initial attitude toward campus sustainability is surprisingly positive in that they demonstrate a strong cognitive understanding of ecological dangers and a collective, individual obligation to

protect the ecosystem. Inconsistent Behavior Implementation:

3. The actual practice degree among students is intermittent (“Sometimes”), which shows that excellent environmental literacy does not necessarily translate to constant practice, especially in specialized activities such as e-waste sorting or compost processing.
4. Demographics statistically matter in student mindsets. This shows that there is not a singular campus-wide opinion on waste issues among students.
5. Actual waste habits varied statistically significantly among student sub-cohorts. Effect size is very significant (0.83), which shows that demographic tracks and unique academic surroundings are important physical determinants of the student’s daily waste behaviours.
6. There is no significant statistical relationship between the respondents’ attitude and their behaviours on solid waste management.

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