



# THE HORIZON

**The Official Scholarly Journal of  
High School Students**

# THE HORIZON

The Horizon is the official academic journal of the high school students of Colegio de San Juan de Letran, Intramuros, Manila

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Volume 1 Issue 1

June 2025

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## INFLUENCE OF SUSTAINABLE BRAND PACKAGING ON THE CONSUMER SATISFACTION OF SENIOR HIGH SCHOOL STUDENTS IN LETRAN MANILA

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### ABSTRACT

In recent years, concerns about environmental sustainability are growing on a global basis, impacting both consumers and businesses. This study explored the influence of the factors that affect Senior High School (SHS) consumers in supporting sustainable packaging as well as their satisfaction towards sustainable packaging. Using survey questionnaires, data were collected from 170 SHS consumers in simple random sampling and analyzed using linear regression to measure the level of satisfaction of SHS consumers who utilized sustainable packaging. The results indicated that SHS consumers generally show very high levels of satisfaction with brands that use sustainable packaging. Furthermore, the results revealed that sustainable brand packaging has a significant influence on the satisfaction of senior high school students, where the factor sustainability claims have a significant influence on consumer satisfaction.

**Keywords:** Sustainable Packaging, Consumer Satisfaction, Influence level, SHS consumers, Letran Manila

### INTRODUCTION

#### Background of the Study

Over the past few years, environmental sustainability has become more and more a concern on a global scale, influencing both businesses and consumers in the market. As environmental awareness grows, 74% of Gen-Z consumers are willing to pay more for sustainable products, according to a study stated in the Global Buying Green Report (Trivium Packaging, 2021). Due to this environmental trend, more and more business brands have adopted greener packaging solutions, aiming to attract consumers who are socially responsible. Despite all of these, the question of how moving towards sustainability influences consumer behavior and their satisfaction still remains, especially among younger generations in senior high schools.

Boz et al (2020) claims that more companies have responded to rising consumer demand for sustainability initiatives based on the recognition of a necessary shared value. The Sustainable Packaging Coalition (SPC) created an objectives database, which outlined the packaging sustainability aims of numerous companies. Corporations including McDonald's, Unilever, Nestlé, Kraft-Heinz, PepsiCo, and Coca-Cola developed goals in action to raise the sustainability of their packaging by 2025 and beyond. These goals include things like "increased recycling and recycled material while reducing virgin material composition, sustainable sourcing, weight reduction, packaging design for improved recovery, etc."

Sustainable packaging has been known for years. The SPC (cited in Sustainability, 2020) defines sustainable packaging as "a world where all packaging is sourced responsibly, designed to be effective and safe throughout its life cycle, meets market criteria for performance and cost, is made entirely using renewable energy, and once used, is recycled efficiently to provide a valuable resource for subsequent generations". Additionally, it stated that compostable packaging cannot be classified as sustainable if it is not produced with efficient materials, does not satisfy market demands, and is not profitable. Instead, its promotion would be inaccurate to label it as sustainable packaging.

This study addresses the lack of research on the influence of specific factors of sustainable packaging, such as social norms and personal values, package design, price, and sustainability claims, on consumer satisfaction among SHS students at Letran Manila. While the researchers' objective is to measure the level of satisfaction of SHS consumers that utilize sustainable packaging, a deeper understanding could be gained through a more detailed examination of which factors influence consumer satisfaction the most. For example, surveying whether students are more attracted to the environmental benefits, visual appeal, or perceived quality of sustainable packaging could highlight particular areas where firms might improve their approaches. Additionally, this study addresses the gap by examining the influence of sustainable brand packaging on consumer satisfaction. This gap may provide valuable insights into how young consumers, specifically SHS students, respond to sustainable packaging and how sustainable brand packaging influences consumer satisfaction.

#### Research Objectives

1. Measure the level of satisfaction of SHS consumers that utilize sustainable packaging.
2. Identify what is the level of influence of the factors that affect SHS consumers in supporting sustainable packaging.
3. Determine if there is a relationship between sustainable brand packaging and consumer satisfaction.
4. Recognize which of the sustainable packaging factors has an influence on the consumer satisfaction of SHS students.

#### Statement of the Problem

The main objective of this study is to examine how sustainable brand packaging influences the consumer behavior of SHS students of Letran Manila. Specifically, it aims to investigate the following questions:

1. What is the level of satisfaction of SHS students in using

- brands that utilize sustainable packaging?
2. What is the level of influence of different factors of sustainable packaging on SHS students when purchasing from brands that utilize sustainable packaging?
3. Is there a significant relationship between sustainable brand packaging and consumer satisfaction?
4. To what extent do social norms and personal values, package design, price, and sustainability claims influence overall consumer satisfaction with sustainable packaging among SHS students?

Null Hypothesis H0: Sustainable brand packaging does not significantly influence the consumer satisfaction of SHS students at Letran Manila.

Alternative Hypothesis Ha: Sustainable brand packaging significantly influences consumer satisfaction of SHS students at Letran Manila.

## Review of Related Literature

### The Role of Sustainable Packaging in Consumer Behavior

Research indicates that sustainable packaging significantly enhances environmentalist consumer behavior and can lead to increased product sales. This phenomenon is particularly evident in younger demographics such as Millennials, who are more responsive to green marketing strategies (Smith & Brower, 2012). As consumers become more aware of the environmental ramifications of packaging, there is a pronounced preference for eco-friendly options (Orzan et al., 2018). This shift in consumer preference underscores the need for brands to adopt sustainable packaging practices as part of their marketing strategies.

Current consumer behaviors are characterized by the pull-factor of being environmentally conscious. Thomas (2024) said that 74% of consumers prefer to pay a premium for products that use sustainable packages. Thus, this statistic stresses the fact that the degree of environmental consciousness with regard to packaging has become valuable when making decisions. Thomas (2024) also points out that brands utilizing environmentally friendly packaging are perceived as more trustworthy and responsible. This perception strengthens the connection between sustainable practices and brand loyalty, as consumers are more likely to support companies that align with their values. This shift is particularly pronounced among younger demographics, such as millennials and Gen Z, who prioritize environmental concerns in their consumption habits. As these groups continue to exert influence on the market, the demand for sustainable packaging is expected to grow, compelling companies to innovate in their packaging strategies to remain competitive. The adoption of sustainable packaging is not only seen as a competitive advantage but also as a necessity for companies to meet regulatory and social expectations. Many countries are implementing stricter regulations on plastic use and packaging waste, driving businesses to adopt sustainable alternatives. As a result, the intersection of consumer demand and regulatory pressure is shaping the future of packaging in the global market, where environmentally friendly practices are becoming the new standard.

### Factors related to sustainability packaging perceptions

Numerous studies have examined consumer attitudes toward various aspects of packaging design; however, there is a notable lack of research evaluating how sustainable packaging influences consumer choices. This gap in direction-oriented information may explain why sustainable packaging, despite being highly promoted, often fails to meet market projections (Ziyne et al., 2020). Several factors have been reported to significantly influence consumer perceptions, including social norms and personal values, package design, price, and sustainability claims.

According to Terry's theory of planned behavior, self-identity, social identity, and group norms play crucial roles in shaping consumer intentions (as cited in Ziyne, 2020), a significant relationship exists between consumers' intentions and social norms only when individuals identify with a relevant reference group, highlighting the importance of group membership. This correlation is particularly strong when the group norm is perceived as "pro-recycling". In addition to this, recent studies have demonstrated that social influence operates not only through perceived norms but also through the desire to conform to environmentally responsible behaviors within one's community. For instance, White et al. (2019) highlight that sustainable consumer behavior is significantly shaped by descriptive norms (what others do) and injunctive norms (what others think one should do), especially among younger demographics who are more susceptible to peer influence. This indicates that promoting sustainable packaging may be more effective when aligned with socially visible and widely accepted behaviors within peer networks.

The review also emphasizes the role of graphics and colors in packaging design as widely used cues to signal sustainability. Interestingly, product efficacy perceptions decline when an eco-label or green color is used alone; in such cases, consumers may associate the color green with lower product efficacy, leading to decreased purchase intentions (Tobler et al., 2011). However, the addition of an eco-label to green-colored packaging can mitigate this negative effect. Beyond color, the tactile and structural aspects of packaging also influence consumer perception. Magnier and Schoormans (2015) found that minimalist and natural-looking packaging is often associated with eco-friendliness, but if the design appears too plain or cheap, it can undermine consumer confidence in product quality. Moreover, sustainable packaging that communicates environmental value through design elements such as recycled textures or biodegradable seals tends to increase consumer trust and perceived authenticity (Becker et al., 2011). This suggests that an integrated approach to design, combining aesthetics with informative labeling is key to influencing green purchase behavior.

Ziyne's review further cites Gadema and Oglethorpe's study in 2011 regarding the use and effectiveness of carbon labeling in food products. Their survey of UK supermarket shoppers found that 72% preferred carbon labels, yet 89% reported confusion regarding the information provided. The authors suggested that reliance solely on consumer preference can lead to feelings of guilt when purchasing products with higher carbon footprints. Instead, they advocated effective collaborations between policymakers and food supply chain members to improve consumer understanding.

Moreover, previous research has indicated that price is a significant barrier affecting consumer choices regarding sustainable packaging and recycling (Martinho et al., 2015). This highlights the need for further investigation into how price influences consumers' purchase intentions for green products and environmentally friendly packaging. Expanding on this, Van Doorn and Verhoef (2015) emphasize that while consumers express strong preferences for sustainable products, their willingness to pay a premium is often limited unless they perceive a direct personal benefit, such as product safety or health. Additionally, studies by Gleim et al. (2013) found that price sensitivity remains a dominant factor, particularly among students and low-income consumers, despite growing environmental awareness. This reinforces the importance of balancing affordability and sustainability in packaging strategies to avoid alienating price-conscious buyers.

### Consumer Perception and Its Impact on the Growth of Green Products



The growth of green products can be a way to understand how the public feels about green brands and products. Their findings show that respondents with a positive view about green products also show higher satisfaction with green products, which is crucial information for making a purchasing decision. Having information about the public perspective of green products is important in conducting effective campaigns aimed at engaging citizens in more eco-responsible activities. (e.g., selective collection, product reuse, etc.), as well as implementing actions to promote environmental protection and further reduce natural resource consumption. According to their results, the researchers observed that such factors include a consumer's good attitude toward green items and their level of knowledge about these products. Several studies have found a strong relationship between customer happiness and purchase intention. If the sustainability of a product is a priority, satisfaction with obtaining it can be a grounding exhibit for green. Regardless, customers are willing to tackle environmental problems by choosing their products. They are willing to buy green items as long as they match the functionality criteria in comparison to non-green products in terms of quality, price, durability, and the ease of use is regarded as loyalty, which leads to future purchases of the same product or brand.

### Sustainability packaging in the Philippines

In the Philippines, the shift towards sustainable packaging has also been reflected in the changing preferences of Filipino consumers. A study by Cruz and Santos (2023) highlights that 68% of Filipino consumers prefer purchasing from brands that incorporate eco-friendly packaging. This preference is largely driven by increased awareness of environmental issues such as plastic pollution, which significantly affects the country's ecosystems, particularly its oceans and waterways. The researchers found that many Filipino consumers, especially in urban areas, are more willing to support brands that actively promote sustainability through their packaging. They also note that brands that adopt sustainable practices, including the use of recyclable or biodegradable packaging materials, tend to build stronger emotional connections with their consumers. This results in higher levels of brand loyalty and satisfaction, as consumers feel they are contributing to environmental preservation by supporting such businesses. This aligns with global trends where eco-conscious purchasing behaviors are becoming more prevalent, particularly among younger consumers who prioritize social responsibility when making purchasing decisions.

A study made by Dena et al. (2023) stated that the majority of Filipino customers are currently seen to be active users of sustainable packaging in the Philippine market, and they typically use it twice a week on average, according to the researchers' findings. Furthermore, the survey shows that consumers in the 29-year-old age range are more receptive to using and purchasing eco-friendly packaging. Regarding social considerations, it was also found that female Filipino customers are more likely to purchase and use sustainable packaging when they have support from friends, family, and social media. In terms of economic considerations, women are also more likely than men to purchase sustainable tertiary packaging. Additionally, certain Filipino customers frequently choose to purchase and utilize environmentally friendly packaging to its strength and extended shelf life.

## Research Framework

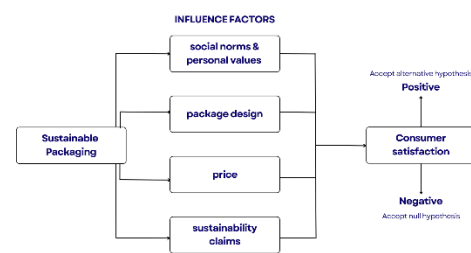


Figure 1. Conceptual Framework

## Theoretical Framework

According to the theory of planned behavior (Ajzen, 1991), the goal of the idea was to take responsibility for every action that a person is capable of controlling. This model's central idea is behavioral intent, which is shaped by attitudes toward the probability that behavior will produce the desired result as well as personal evaluations of the advantages and disadvantages of that result. Attitudes, subjective norms, and perceived behavioral control are the three elements that determine intents. Depending on the extent to which a behavior is truly under the individual's control and the degree to which perceived behavioral control is a reliable indicator of actual behavioral control, external factors may also directly force or prevent behaviors, regardless of the intention.

Using the TPB framework, this study examined how those elements work together to affect consumer satisfaction with sustainable packaging from brands. The researchers determined links between attitudes, subjective norms, and perceived behavioral control by gathering data through surveys and interviews. This ultimately allowed the researchers to provide insights into how consumer satisfaction is impacted by sustainable packaging.

## METHODOLOGY

### Research Design

The data gathering procedure for the study was conducted through a structured survey method where SHS students from Letran Manila were the respondents for the study, focusing on those who had experience with brands that utilized sustainable packaging.

The researchers used a non-experimental research design, as it was the most suitable for examining the relationships between sustainable brand packaging and consumer satisfaction. Specifically, the study was carried out through survey and evaluative methods to assess the influence of sustainable brand packaging on consumer satisfaction and to identify factors that strongly affected the SHS students' decision to support sustainable brand packaging, as well as the level of satisfaction derived from supporting it.

An online self-administered questionnaire was developed, concentrating on key areas such as their influence on their purchasing decisions through scales, and their level of satisfaction with brands that use sustainable packaging. This study interpreted whether the expectations of the student consumers were met whenever they purchased from a brand that implemented sustainable brand packaging.

Prior to distribution, the questionnaire, was validated to assess its clarity and validity, with necessary adjustments made based on the feedback received. The final questionnaire was then administered online by distributing the online g-forms link through various

methods such as e-mailing and forwarding links to Messenger group chats to collect data instantaneously and also ambushing classrooms during break times and free times where QR code was provided to access the questionnaire link.

### Sampling Method

Simple random sampling was the method used by the researchers to select study participants. Using simple random selection, each member of the population had an equal chance of being selected, minimizing bias and guaranteeing a representative sample (Creswell, 2014). This method works especially well for getting a complete picture of the population. The study specifically concentrated on Letran Manila SHS students that support sustainable brand packaging. The research aimed to obtain a representative and diverse sample of students by using this method of sampling.

The target population for this study was the senior high school students of Letran Manila. A sample size of 170 students was selected with a 95% confidence level and a 5% margin of error to ensure that the results accurately represented this group. The study was conducted through survey and evaluative methods to assess consumer satisfaction with the use of sustainable packaging and to identify the factors influencing their purchasing decisions, including the considerations they made when buying products with sustainable brand packaging.

### Data Collection and Analysis Procedures

Following the non-experimental research design of the study, the survey and evaluation took place at Colegio de San Juan de Letran. A structured survey was used to gather data from 170 students, who were selected to achieve a 5% margin of error and a 95% confidence level. In addition to general customer satisfaction and behavioral indicators such as buying frequency, the survey included Likert scale items to examine factors such as social norms, personal values, package design, pricing, and sustainability claims.

Once data collection was completed, the dataset was analyzed using linear regression to quantify the relationship between sustainable packaging and consumer behavior. Linear regression analysis is a statistical method used to understand and predict the relationship between two variables. It allowed the researchers to determine the potential effects of changes in one variable (the independent variable) on another (the dependent variable). The strength and direction of this relationship were indicated by the coefficient of correlation. In addition, the mean and standard deviation were computed to measure the satisfaction levels of SHS students in Letran Manila and to assess the influence of various sustainable brand packaging factors.

By using this data analysis, the researchers were able to effectively address the research questions and identify the most significant factors influencing satisfaction. The analysis also examined the relationship between various aspects of sustainable packaging and the overall satisfaction levels of SHS consumers. If the findings showed a significant impact of sustainable brand packaging on consumer satisfaction, the alternative hypothesis ( $H_a$ ) was accepted. Conversely, if the findings showed no significant impact, the null hypothesis ( $H_0$ ) was retained.

## RESULTS AND DISCUSSION

The table below presents the profile of the research respondents. A total of 170 SHS students participated in the study, consisting of 82 Grade 11 students (48%) and 88 Grade 12 students (52%). This distribution indicates a nearly equal representation from both grade

levels, providing a balanced perspective on their level of satisfaction with sustainable packaging.

**Table 1. Profile of Respondents**

Grade Level	Frequency	Percentage
Grade 11	82	48%
Grade 12	88	52%
<b>TOTAL</b>	<b>170</b>	<b>100%</b>

The satisfaction scores with brands that utilize sustainable packaging are presented below (table 2). The satisfaction level assessment includes five distinct questions, each evaluated using mean scores and standard deviations (SD).

**Table 2. Satisfaction level of SHS Students**

Satisfaction Level Assessment	Mean	SD	Interpretation
How satisfied are you with the visual design and appearance of brands' recyclable packaging material	3.42	0.62	Very Satisfied
How satisfied are you with the ease of opening and using products from brands that use packaging that are designed to reduce environmental impact?	3.51	0.62	Very Satisfied
How satisfied are you with the quality of the product when its packaging is environmentally friendly?	3.51	0.63	Very Satisfied
How satisfied are you with the products that contribute to reducing environmental waste?	3.64	0.56	Very Satisfied
How satisfied are you with the cost of products that use recyclable packaging material compared to those with disposable packaging?	3.44	0.72	Very Satisfied
<b>MEAN</b>	<b>3.50</b>	<b>0.63</b>	<b>Very Satisfied</b>

The results also showed that products contributing to environmental waste reduction received the highest mean score (3.64, SD = 0.56), which is interpreted as "Very Satisfied". This high mean score for products that reduce environmental waste suggests that students place significant value on the environmental benefits of sustainable packaging. It further indicates that brands focused on reducing waste are effectively meeting student expectations. The relatively low standard deviation (SD = 0.56) suggests a more unified opinion among students regarding their satisfaction with this aspect.

In contrast, the visual design and appearance of recyclable packaging material received the lowest mean score (3.42, SD = 0.62), though it still falls within the "Very Satisfied" range. While this score indicates a high level of satisfaction, it suggests that students may prioritize other factors over design. The slightly higher standard deviation (SD = 0.62) reflects more diverse opinions among students. Other questions, such as questions related to product quality, ease of opening products, and cost of products, were also interpreted within the "Very Satisfied" range.

The overall mean score of 3.50 (SD = 0.63) indicates that, on average, SHS students are "Very Satisfied". This result implies that SHS students are highly satisfied with the visual design, ease of opening, product quality, contribution to reducing environmental waste, and cost of products from brands that use sustainable packaging.

**Table 3. Influence Level Assessment**

Influence Level Assessment	Mean	SD	Interpretation
I am more likely to buy from brands that use recyclable packaging materials if I see that my friends or peers do the same.	3.34	0.70	Strongly Agree
My environmental beliefs make me more likely to buy from brands that use environmentally friendly packaging.	3.49	0.65	Strongly Agree
The aesthetic appeal of recyclable packaging materials influences my choice to purchase from certain brands.	3.52	0.72	Strongly Agree
I consider the price difference of products with recyclable and single-use packaging in my buying decisions.	3.45	0.75	Strongly Agree
I am more likely to buy from brands that openly promote their commitment to using environmentally friendly packaging	3.49	0.69	Strongly Agree
<b>MEAN</b>	<b>3.46</b>	<b>0.70</b>	<b>Strongly Agree</b>

The table presented above shows the results from the influence level assessment of SHS students. The assessment includes five distinct factors which include social norms, personal values, package design, price, and sustainability claims, each evaluated using mean scores and standard deviations (SD).

The overall mean score of 3.46 (SD = 0.70) indicates that, on average, SHS student “Strongly Agree” that sustainable brand packaging factors such as: (1) social norms, (2) personal values, (3) package design, (4) price, and (5) sustainability claims, influence their purchasing decisions when buying from brands that uses sustainable packaging.

Specifically, the packaged design factor received the highest mean score of 3.52 (SD = 0.72), which is interpreted as “Strongly Agree.” This means that the aesthetic appeal of recyclable packaging materials most influences the SHS student’s choice to purchase from certain brands, compared to the other factors.

The analysis of factors influencing student purchasing decisions revealed a clear hierarchy, as detailed in Figure 3. Package Design was identified as the most influential factor, achieving the highest mean score (M = 3.52, SD = 0.62). This was followed closely by Personal Values (M = 3.49, SD = 0.65) and Sustainability Claims (M = 3.49, SD = 0.69), which were rated as equally significant. Price also emerged as a relevant factor (M = 3.45, SD = 0.75). In contrast, Social Norms exerted the least influence on purchasing decisions, receiving the lowest mean score of all factors evaluated (M = 3.34, SD = 0.70).

On the other hand, the table below shows the result of a regression analysis on the relation between students' consumer satisfaction to sustainable brand packaging. The table shows that there is a strong and significant relationship among the two variables, by the t-value (5.17), and the p-value (<.001), both of which are below the 5% significance level.

**Table 4. Sustainable Brand Packaging influence to Consumer Satisfaction**

Variable Independent	Variable Independent	t-Value	p-Value	Decision	Conclusion
Sustainable Packaging	Consumer Satisfaction	5.17	<.001	Reject Ho	Significant

The t-value shows a strong effect size, indicating that sustainable packaging has a significant influence on how satisfied consumers are, while the small p-value presents strong evidence against the null hypothesis. Therefore, the null hypothesis—which states that sustainable brand packaging does not significantly influence consumer satisfaction—is rejected based on the results. Hence, the alternative hypothesis is accepted—which states that sustainable brand packaging significantly influences students’ consumer satisfaction.

This means that Letran Manila SHS students' consumer satisfaction is significantly influenced by the sustainable packaging factors of sustainable brands. This emphasizes how crucial it is to implement sustainable practices in brand packaging since they appear to have a significant influence on how customers perceive sustainable packaging brands. As Thomas (2024) also points out, brands utilizing environmentally friendly packaging are perceived as more trustworthy and responsible.

**Table 5. Sustainable Packaging influence**

Variable Independent	Variable Independent	t-Value	p-Value	Decision	Conclusion
Social norms and personal values	Consumer Satisfaction	0.187	0.852	Do Not Reject Ho	Not Significant
Package Design		0.935	0.351	Do Not Reject Ho	Not Significant
Price		0.788	0.432	Do Not Reject Ho	Not Significant
Sustainability Claims		3.979	<.001	Reject Ho	Significant

The table shows that social norms and personal values (t=0.187; p=0.852), package design (t=0.935; p=0.351) and price (t=0.788; p=0.432) that had no apparent influence on SHS students' consumer satisfaction with sustainable packaging. However, sustainability claims (t=3.979; p<.001) have a significant influence on students' consumer satisfaction. As a result, the null hypothesis is accepted for the three factors (social norms and personal values, package design, price) and only rejected on one factor (sustainability claims).

This strong influence of sustainability claims aligns with broader consumer behavior trends in the Philippines. A 2022 Pulse Asia survey revealed that 83% of Filipinos prefer to support brands with environmentally responsible operations and products (BusinessMirror, 2023). This suggests that messages promoting sustainability such as green packaging, recyclable labels, and eco-friendly certifications are highly persuasive because they align with the public’s growing environmental awareness. Supporting this, Kantar’s 2021 “Who Cares, Who Does” report found that 75% of Filipino shoppers actively seek out brands that help reduce their environmental footprint (Kantar Worldpanel, 2021). These findings contextualize the results of the present study by showing that environmental messaging not only captures attention but also enhances consumer satisfaction when it resonates with their values.

Hence, the results of this study concludes that only sustainability claims play a significant role on consumer satisfaction among the four factors tested. Nonetheless, it is important to acknowledge that such responses may also be influenced by halo effects or social desirability bias, where consumers respond more favorably to what is seen as socially or ethically correct, rather than based on objective product attributes. It is also important to acknowledge that biases such as selection bias as the sample population may not fully represent a broader consumer population, it is only limited to the Letran senior highschool students (Carrington, Neville, & Whitwell, 2010).

## CONCLUSION

Based on the results and conclusion of this study, this research concludes that the satisfaction level assessment of senior high school students regarding brands that use sustainable packaging are generally very high. The highest satisfaction was observed with products that contribute to reducing environmental waste, indicating that students highly value sustainability. While other factors like product quality, ease of opening, and cost also received positive feedback, the visual design of recyclable packaging was rated slightly lower. However, even the lowest score still reflects strong satisfaction. Overall, the senior high school students at Letran Manila are highly satisfied with the brands' sustainable packaging, which suggests that brands are meeting their environmental and product-related expectations.

The influence level assessment results indicate that senior high school students are strongly influenced by sustainable packaging when choosing brands. Among these factors, the aesthetic appeal of recyclable packaging has the biggest influence and impact, followed closely by personal values and sustainability claims. Price and social norms are also influential, though not as much as other elements and factors. Overall, students strongly agree that all the assessed factors significantly impact their purchasing decisions, which demonstrates how important sustainable packaging is in influencing the generation today.

There is a strong and significant relationship between sustainable brand packaging and consumer satisfaction among Letran Manila senior high school students. With a t-value of 5.17 and a p-value of less than 0.001, the results reject the null hypothesis, confirming that sustainable packaging does impact consumer satisfaction. This highlights the importance of using eco-friendly packaging, as it not only improves brand perception but also increases consumer trust and satisfaction.

Only sustainability claims have a significant impact on consumer satisfaction with sustainable packaging among Letran Manila senior high school students. The factors of social norms and personal values, package design, and price did not influence satisfaction, as indicated by their high p-values. However, sustainability claims, with a t-value of 3.979 and a p-value of less than 0.001, were found to significantly affect satisfaction. This supports the idea that consumers value brands that promote environmental sustainability, making sustainability claims a key factor in improving consumer satisfaction.

## RECOMENDATIONS

Brands should continue to focus on enhancing the environmental benefits of their brand packaging, as this is the most valued aspect by students. They should also emphasize their commitment to sustainability in advertisements and promotions to align with students' sustainability environmental values. While the visual design of recyclable packaging may not be as highly rated, it still plays an important role and could be improved to better align with student preferences and retain consumer satisfaction.

Brands should prioritize using recyclable packaging materials with visually appealing designs to attract senior high school consumers, as well as those who support sustainable packaging. By having eye-catching designs in their sustainable packaging, brands can also capture the attention of these SHS consumers who are drawn to the packaging that aligns with their sustainability value and aesthetics preference. In addition to increasing brand satisfaction, this strategy can enhance customer loyalty among consumers who give sustainability priority.

Brands should prioritize the use of sustainable packaging, since sustainable brand packaging has a significant influence on consumer satisfaction. This recommendation is important, especially those brands that target young customers like senior high school students from Letran Manila. By doing this, brands that utilize sustainable packaging can improve consumer satisfaction by positioning themselves as responsible companies that give importance to both environmental and consumer satisfaction.

Brands utilizing sustainable packaging should be more vocal with its sustainability claims. Since sustainability claims have a significant impact on Letran Manila's senior high school students' consumer

satisfaction, brands should highlight their eco-friendly motives in their marketing strategies and promotions. By doing so, brands can further improve the satisfaction level of senior high school students, especially those who are environmentally conscious consumers.

Additionally, it is recommended that brands should improve the aesthetic appeal of their sustainable packaging. Based on the conclusions, it was stated that aesthetic appeal received the lowest mean score in the satisfaction level assessment, despite being highly prioritized and interpreted as the most influential factor on influence level assessment. Hence, brands should further enhance the packaged designs of sustainable packaging to have higher consumer satisfaction.

It is also recommended for future researchers to be more specific when evaluating brands that utilize sustainable packaging in terms of the sustainable packaging factors. Hence, future researchers should now source specific brands in order to have more specific data on how really influential the sustainable packaging factors are in consumer satisfaction.

Lastly, future researchers could expand the sample size and its demographics to further generalize results. They could also incorporate open-ended questions on the survey questionnaires to integrate qualitative insights that could strengthen the overall study.

## REFERENCES

- Baždarić, K., Šverko, D., Salarić, I., Martinović, A. and Lucijanić, M. (2021). The ABC of linear regression analysis: What every author and editor should know, 47. doi: 10.3897/ese.2021.e63780
- Bevans, R.(2023). Simple Linear Regression | An Easy Introduction & Examples. Scribbr. <https://www.scribbr.com/statistics/simple-linear-regression/>
- Boz, Z., Korhonen, V., Koelsch Sand, C. (2020). Consumer Considerations for the Implementation of Sustainable Packaging: A Review. Sustainability, 12(6), 2192; <https://doi.org/10.3390/su12062192>
- Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2010). Why ethical consumers don't walk their talk: Towards a framework for understanding the gap between the ethical purchase intentions and actual buying behaviour of ethically minded consumers. Journal of Business Ethics, 97(1), 139–158. <https://doi.org/10.1007/s10551-010-0501-6>
- Creswell, J. W. (2014). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (4th ed.). SAGE Publications. <https://doi.org/10.5539/elt.v12n5p40>
- Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences (2nd ed.). Lawrence Erlbaum Associates. <https://doi.org/10.4324/9780203771587>
- Dena, A., Honrado, L., Mica Lin, P., & Dotong, E. (2023). Promoting the Usage of Eco-Friendly Tertiary Packaging: A Market Research on the Perceived Behavior of Filipino Consumers Based on Sustainability Factors. American Journal of Social Development and Entrepreneurship, 2(1), 26–31. <https://doi.org/10.54536/ajsde.v2i1.1223>
- Digital, L. (n.d.). Trivium Packaging | 2021 Buying Green Report. <https://www.triviumpackaging.com/news-media/reports/2021-bu-ying-green-report/>
- Dobson, M.(2024, November 22). What is sustainable packaging? GWP Group. <https://www.gwp.co.uk/guides/what-is-sustainable-packaging/>
- Gleim, M. R., Smith, J. S., Andrews, D., & Cronin, J. J. (2013). Against the green: A multi-method examination of the

- barriers to green consumption. *Journal of Retailing*, 89(1), 44–61. <https://doi.org/10.1016/j.jretai.2012.10.001>
- Holbrook, M. B. (1999). Consumer value. A framework for analysis and research. [https://mycourses.aalto.fi/pluginfile.php/1573229/mod\\_folder/content/0/Holbrook%20%281999%29.pdf](https://mycourses.aalto.fi/pluginfile.php/1573229/mod_folder/content/0/Holbrook%20%281999%29.pdf)
- Kautish, Pradeep., & Dash, Ganesh. (2017). Environmentally concerned consumer behavior: evidence from consumers in Rajasthan. *Journal of Modelling in Management* , 12 , 712-738 <http://doi.org/10.1108/JM2-05-2015-0021>
- Ketelsen, M., Janssen, M., Hamm, U., (2020) Consumers' Response to Environmentally-Friendly Food Packaging—A Systematic Review. *J. Clean. Prod.* 254, 120123. <https://doi.org/10.1016/j.jclepro.2020.120123>
- Lakatos, E. S., Nan, L. M., Bacali, L., Ciobanu, G., Ciobanu, A. M., & Cioca, L. I. (2021). Consumer Satisfaction towards Green Products: Empirical Insights from Romania. *Sustainability*, 13(19),10982. <https://doi.org/10.3390/su131910982>
- Montes (2022), Study on the Impact of Green Cosmetic, Personal Care Products, and their Packaging on Consumers' Purchasing Behavior in Luzon,Philippines. <https://ieomsociety.org/proceedings/2022orlando/27.pdf>
- Sansom, R. (2021). Theory of planned behavior. *Change Theories Collection*. [https://ascnhighered.org/ASCN/change-theories/collection/planned\\_behavior.html](https://ascnhighered.org/ASCN/change-theories/collection/planned_behavior.html)
- Schwartz, S. H. (2006). Basic human values: An overview. [https://uranos.ch/research/references/Schwartz\\_2006/Schwartzpaper.pdf](https://uranos.ch/research/references/Schwartz_2006/Schwartzpaper.pdf)
- Thomas, D. (2024). How sustainable packaging influences consumer behavior | C.L. Smith. C.L. Smith. <http://surl.li/uonmeh>
- Van Doorn, J., & Verhoef, P. C. (2015). Drivers of and barriers to organic purchase behavior. *Journal of Retailing*, 91(3), 436–450. <https://doi.org/10.1016/j.jretai.2015.02.003>
- What is Influencing Factors | IGI Global Scientific Publishing.(n.d.). <https://www.igi-global.com/dictionary/influencing-factors/47914>
- Woźniczko, M. (2024, September 4). Packaging design: the forgotten marketing medium. Packhelp. <https://packhelp.com/packaging-design/#:~:text=%E2%80%9CPackaging%20design%20is%20the%20connection,a%20product%20suitable%20for%20marketing.%E2%80%9D>
- Zauner, A., Monika Koller, M., & Hatak, I. (2015). Customer perceived value—Conceptualization and avenues for future research. *Cogent Psychology*. <http://dx.doi.org/10.1080/23311908.2015.1061782>
- Zhao, X., Huo, J., & Zhang, Q.(2020). The impact of customer satisfaction on customer loyalty: A study of the mobile phone industry in China. *Journal of Business Research*, 118, 132-139. <https://doi.org/10.1016/j.jbusres.2020.07.039>



## PERCEPTION OF SENIOR HIGH SCHOOL STUDENTS ON THE ROLE OF SCIENCE AND ENVIRONMENTAL ACLE CLUBS IN ENHANCING ENVIRONMENTAL AWARENESS

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### ABSTRACT

This qualitative research study investigates the role of the ACLE (Alternative Class Learning Experiences) science and environmental clubs in creating awareness, attitude change, and activism among Senior High School students of Colegio de San Juan de Letran Manila. It aims to portray how these clubs complement the learning that occurs in a classroom with real-life experience which brings depth of understanding and application of knowledge on the environment. Through qualitative case study methods, the researchers conducted FGD to gather the data. Findings show that being part of these clubs increases students' awareness of ecological issues, practice of eco-friendly behaviors, and development of leadership with collaboration skills through real-life hands-on projects and programs.

**Keywords:** ACLE Club, Environmental Awareness, STEM Awareness

### INTRODUCTION

#### Background of the Study

Climate change, pollution, and deforestation are just a few of the main global issues that require immediate attention but through education, people could raise awareness and teach students how to address these challenges. Senior High School students need a strong foundation on how they can be of any help in addressing these environmental problems. Educating students about the problems of the environment is important because it helps in gaining the knowledge, skills, and experience to take action to address present and future environmental issues (Hanane, 2024). Through Alternative Class Learning Experience (ACLE) clubs at Colegio de San Juan de Letran Manila, Letranites can learn not only about these problems but also some of the practical ways to engage students with real-world environmental issues, promote collaboration, leadership, and eco-friendly habits.

Smith (2020) mentions that environmental clubs play an important role in promoting being ecocentric to students—a belief that nature is as important as humans. Students who join environmental clubs tend to build a strong connection with nature and become more aware of their responsibilities to protect the environment (Smith, 2020). His findings support the idea that clubs like these can help Letran students develop a deep sense of environmental responsibility.

Despite the Philippines' collective effort to integrate environmental awareness in basic education curriculum, there is a scarcity of research on the efficiency of these clubs in raising awareness of environmental issues and incorporating them into a wider curriculum. Existing studies have predominantly focused on waste management; however, there is still a lack of thorough research on how students view these clubs' contributions to environmental awareness and literacy.

This study aims to explore the impact of these clubs on students' environmental awareness. Specifically, it aims to identify ways of improving environmental awareness at Letran Manila. Moreover, concepts of knowledge, attitudes, and behavior and their relationships

can be addressed using the idea of environmental literacy, which may reflect on students as the study continues (Fang, 2020). Understanding the effectiveness of these clubs from the students' perspectives can help identify strengths, challenges, and opportunities for development in incorporating environmental issues into school activities.

#### Research Objectives

The study seeks to understand the perspectives of Senior High School students on the role of Science and Environmental clubs on their environmental awareness. Specifically, this study seeks to:

1. Determine the various activities and events handled by the different clubs designed to perform its roles in enhancing the environmental awareness of the students.
2. Understand Senior High School students' perspectives on the impact of Science and Environmental ACLE Clubs on their environmental awareness.
3. Identify ways of improving environmental awareness at Letran Manila based on the students' perspectives.

#### Statement of the Problem

This study aims to understand the different perceptions of the Senior High School students on the role of science and environmental ACLE clubs in enhancing their environmental awareness. Specifically, the study aims to answer the following questions:

1. What are the various activities and events handled by the different clubs designed to perform its roles in enhancing the environmental awareness of the students?
2. What are the perspectives of the students on the impact of Science and Environmental ACLE Clubs on their environmental awareness?
3. What are the ways to improve environmental awareness at Letran Manila based on the students' perspectives?

#### Scope and Limitations



The study aims to understand the different perspectives of Senior High School students on the role of Science and Environmental clubs on their environmental awareness. Furthermore, from the responses this study will gather, we will be able to pinpoint areas for enhancement for incorporating environmental awareness at Letran Manila. This study is limited to the Senior High School STEM students of Letran Manila who are current members of the Verdure Club, the Erudites Club, and the i-Volunteer Club.

### Conceptual Framework

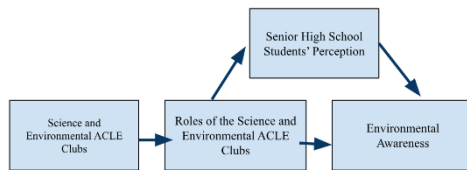


Figure 1. Conceptual Framework of the Study

This study follows a conceptual framework that visually shows the relationship between the science and environmental ACLE Clubs, their roles in environmental awareness. It also shows the interconnection of the perception of the Senior High School students between the relationship of the roles of the clubs with environmental awareness. As shown in the figure, the ACLE clubs are the primary influence in our study (independent variable), and environmental awareness is the dependent variable.

### Review of Related Literature

Several studies about environmental awareness have assessed the different roles of school environmental clubs on the knowledge, practices and behaviors, in terms of the students.

#### The Role of Environmental Clubs

Beach (2023) stated in the *Journal of Adolescent and Adult Literacy* that the teachers and students who are part of environmental clubs are able to engage in critical inquiry about various issues contributing to the overall well-being of our environment. The participants of Beach's study, both the club coordinators and student members, were able to show a thorough understanding of the interconnectedness of environmental issues such as energy/transportation, agriculture/food production and economic systems. They acquired knowledge about the issues surrounding these topics and used them in order to take actions and address the various concerns, such as taking part in planting community gardens and promoting the use of recycling to reduce the use of plastic wastes. This study offers a valuable insight into how environmental clubs play its role in enriching its members' critical thinking regarding these environmental issues, and their involvement in sustainability practices. This encourages the students to apply their knowledge in a practical way as it agrees to the idea that these clubs serve as a way for them to have a chance to learn through their experiences (experiential learning).

Apart from that, Huoponen (2025) conducted a study in an upper secondary school in Finland where it is mentioned how environment-focused clubs (Eco-clubs) promote the practice of pro-environmental behavior among its students. This study found out the perception of eco-club members where it is stated how these individuals greatly appreciate how these clubs support the environmental actions in their school, while incorporating a relaxing setting to look forward to other than regular schoolwork.

In a similar context, a journal article written by Kiss et. al (2024) presents a result that the participants of eco-clubs consider the community as a safe space where the exchange of knowledge, experiences and self-discovery motivates them to participate and reflect on their behaviors. These provide valuable insights that the peer-learning process that happens within these eco-clubs where the

discussion is linked in real-life situations encourages the participants to apply and keep their learnings in practical situations, thus enhancing their sustainable lifestyle practices. Moreover, it highlighted the "spill-over effect" where members start to share and spread their knowledge to their peers and families, showing how these clubs emphasize the environmental perceptions of its members and their ability to integrate these discoveries in broader societal contexts.

#### Environmental, Science, Technology, Engineering, and Maths (E-STEM education)

Koculu and Girgin (2022) found that E-STEM enhances students' knowledge of environmental problems such as pollution and sustainable agriculture. Their experiment with fifth-grade students indicated that an integration of STEM with environmental education boosts students' attitudes and capabilities towards engineering design activities. This integrated way enforces a better grip of environmental concerns, furthering the practical problem relevance of STEM education.

The study of Tuazon et al. in 2024 showed how environmental education impacts the institutional practice in responding to a particular environmental issue and fostering sustainable development. It underscores the capability and limitation of environmental education as an institutional framework, highlighting a balanced approach of strengthening resilience while enhancing a strong relationship between society and the environment. Environmental education is an effective educational strategy for developing the attitudes, knowledge, and skills required to tackle environmental challenges, but it also unmasks areas of empowerment and vulnerability in the pursuit of sustainability. This paper explores the way environmental education affects institutional actions for tackling precise environmental challenges and attaining sustainable development. Utilizing a semi-systematic literature review, the study integrates themes across different studies to assess strengths and weaknesses of environmental education in institutional contexts. Outcomes reveal that environmental education strengthens institutions to undertake long-term sustainable practices, building environmental awareness, incorporating indigenous knowledge, and fostering academic and community engagement in global environment efforts. The discoveries have laid the ground for enhancing environmental education's contribution to sustainable development, scientific advancement, as well as stimulating creative solutions to the issues of the environment.

#### Environmental Education, Literacy, and Issue Integration

The context of environmental education is important because it encompasses the attitude and knowledge of the learners towards the environment issues and practices. Many studies have explored students' environmental awareness, concern, knowledge, attitude, and learning systems to enhance effective environmental education that nurtures ecological concern and responsibility.

A person's environmental literacy and systematic activity form an integration that can be described as ecological understanding. Evidence indicates that learners, as a whole, have inadequate background knowledge for them to function in the society as responsible citizens who can deal with environmental issues (Smith et al., 2020). This is also the case with studies done with pupils in Kazakhstan where school children's environmental awareness and knowledge is grossly inadequate which points to deficient environmental education teaching and learning processes. Johnson and Lee's (2020) research finding concurs with other works that claim lack of environmental knowledge does not equate to lack of awareness of such issues amongst learners which was found to be the case for students' environmental awareness.

Attitude toward the environment is how an individual's thoughts and feelings are connected to the natural world. Research in psychology has demonstrated that learners can exhibit a relatively sound environmental attitude, even in the absence of deep environmental understanding (Davis & Miller, 2020). This feature has also been observed among the Kazakhstan senior pupils who apparently knew almost nothing about the environment but still had an environmentally friendly attitude. The same studies in other areas suggest that learners appreciate the environment, even when there is little emphasis on environmental education (Anderson, 2020).

Different groups from across the globe have different interests and issues with the environment. Research studies also suggest that learners tend to see air pollution, water pollution, and natural calamities as issues they care about most (White & Brown, 2020). Students in Kazakhstan expressed the greatest concern about floods, pollution of rivers and seas, and the air, while showing lesser concern about problems of overpopulation, radioactive waste, the extinction of species, and climate change (Garcia, 2020). These findings support other studies which show that learners tend to focus more on local environmental issues than global ones (Taylor, 2020).

## METHODOLOGY

### Research Design

The researchers applied a qualitative case study design in which, as defined by Creswell (2014) cited by an article of BINUS University (2024), *"is a qualitative research method that provides an in-depth examination of a single entity (e.g., an organization, program, event, or individual) within its real-world context."* This study aims to gather detailed insights through open-ended questions and interviews—which allowed the participants to share their personal experiences and perspectives freely. Analyzing the collected data revealed the contributions of these clubs towards environmental awareness, the effectiveness of their programs, and any challenges in implementation. By concentrating on the qualitative aspects of students' experiences and viewpoints, this approach offered a well-rounded understanding of how ACLE clubs shape students' learning and actions, providing essential insights for improving environmental awareness initiatives at Letran Manila. This comprehensive analysis will help pinpoint strengths, identify areas for enhancement, and opportunities for further integrating environmental issues into school activities.

### Sampling Method and Participants

The researchers used purposive sampling, a non-probability sampling technique, to select interview participants who possess specific knowledge and experiences relevant to the study's focus, ensuring rich and detailed data collection (Nikolopoulou, 2022). This sampling technique enabled the researchers to purposefully select participants who are most likely to give rich and detailed information regarding the focus of the study.

The study took place at Colegio de San Juan de Letran Manila. The locale allows both participants and researchers to engage in meaningful discussion about matters that will be addressed. More so, Letran Manila is an ideal location since it is known to have active co-curricular organizations, and it provides a comfortable environment where students participate in various environmental activities. Participants consists of Senior High School STEM students from Letran Manila who are current and active members of the Verdure Club, the Erudites Club, and the i-Volunteer Club. The researchers selected two students from the I-Volunteer Club, three students from the Verdure Club, and one from the Erudites Club to participate in the open-ended focus group discussion to have a diverse and

representative sample that provided valuable insights into their experiences and perspectives on environmental awareness within their clubs.

The researchers selected three students from the Verdure Club, two from the i-Volunteer Club, and one from the Erudites Club to participate in the focus group discussion in order to achieve a diverse and representative answers. This sampling was purposeful and represented the different level of engagement that each club had in raising awareness of environmental issues. The Verdure Club, which is the most engaged in environmental projects and activities, was given more representation to get in-depth and experience-based insights. On the other hand, due to the Erudites Club's limited involvement in environmental awareness, just one member was chosen from among them. Moreover, only a small number of Erudites members were willing and able to attend the FGD.

### Research Instruments

Krueger (1994) and Morgan (1996) defined Focus Group Discussion (FGD) as a qualitative research method by which data are collected from a small number of participants through organized and subjective discussion. This methodology is suitable for this study as it provides an in-depth knowledge on the experiences of Science and Environmental ACLE clubs in environmental awareness, perspectives, and challenges their members face while being a member of their club. Through open-ended discussions, this study seeks to explore how these clubs impact students' environmental knowledge and attitudes as well behaviors. The FGD helped identify the potential improvements in integrating environmental awareness into student activities at Letran Manila.

### Data Collection Procedure

Focus Group Discussions (FGDs) were the method the researchers used to collect data. This approach was selected because it promotes an open dialogue in which the chosen participants are free to share their own ideas, opinions, and reflections in a conversational environment. FGDs, unlike structured questionnaires, permit more detailed discussions, where students could react to other people's ideas and generate a more substantial interaction.

The researchers believe this method aligns well with the study's goal of understanding students' perspectives on the role of Science and Environmental ACLE clubs. Through guided conversations, students are expected to express not only what they know, but also how they feel about their involvement in environmental awareness and what improvements they think can be made. The following steps will guide the data collection process:

**Participant Selection** – The researchers used purposive sampling to select six STEM students from Colegio de San Juan de Letran Manila. Three students will be chosen from Verdure Club; two students will be chosen from i-Volunteer; and one student from Erudites Club.

**Scheduling and Consent** – Prior to the FGD, the researchers informed the respondents about the purpose of the study, the way data will be utilized, and the importance of confidentiality. The respondents are required to sign a consent form indicating that they are aware and agree to participate voluntarily in the discussion.

**Discussion Session** – The FGD were conducted by the researchers via Google Meet to accommodate participants remotely while ensuring a focused and comfortable discussion. The discussion followed a guide of open-ended questions related to club activities, environmental learning experiences, and potential improvements. The session ran for about 45 to 60 minutes.



Documentation – With the participants' permission, the researchers audio-recorded the discussion for accuracy. Notes are also taken to capture important points, group dynamics, and non-verbal cues.

Transcription and Analysis – Following the FGD, the researchers transcribed the recording and start analyzing the data by pinpointing the recurring themes, patterns, and individual insights pertaining to environmental awareness in the clubs.

Confidentiality and Ethics – Personal information were kept confidential. Pseudonyms are employed when reporting data to conceal participants' identities. Participants were assured that their answers would be kept completely private and used only for scholarly and research purposes. Throughout the whole research procedure, their privacy and well-being were respected.

By using FGDs, the researchers aim to gather authentic, detailed insights into how ACLE clubs influence students' awareness, behavior, and commitment to environmental issues.

## RESULTS AND DISCUSSION

### Summary of the Results and Discussion

The study found that Colegio de San Juan de Letran Manila's Science and Environmental ACLE groups significantly increased students' environmental consciousness through the different clubs in the school. The first research objectives revealed that clubs planned advocacy events. Which includes clean-up drives and sustainability campaigns and actively involved students in environmental outreach, which aligns itself with global environmental engagement. The second objective showed that involvement in clubs enhanced their comprehension of environmental issues on a local and worldwide scale. More so, vital life skills like leadership, responsibility, and volunteerism were also exhibited in students' holistic development. The participants suggested ways to improve the third objectives, such as improved organization and enhanced club structure. Overall, the findings suggest that ACLE clubs contribute positively to the students' environmental awareness and growth.

### Findings

Research Objective 1. Determine the various activities and events handled by the different clubs designed to perform its roles in enhancing the environmental awareness of the students.

#### Community Outreach and Collaborative Initiatives

*"Ayun, nabanggit rin naman ni [respondent 1] yung coastal clean-up... outreach program namin kasi sa ganitong way naipapakita namin yung kahalagahan ng pagiging responsible sa kalikasan habang tumutulong rin sa community."* – R2

Environmental awareness in clubs extended beyond school activities and reached local communities (Adams, 2021). Many students highlighted how their participation in outreach programs strengthened their understanding of sustainability while reinforcing the importance of collaborative effort.

Through events such as tree planting and beach cleanups, ACLE clubs encouraged students to become active contributors to their community, which builds stronger relationships between youth and environmental organizations (Beach, 2023). Respondents emphasized that these initiatives allowed them to see the bigger picture—environmental responsibility is not an individual pursuit but a collective effort.

#### Environmental Advocacy through Organized Events

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*"Uh yung samin naman is yung mga clean-up drive namin like yung Echo Warrior in Action ganon yung Greenhouse in Full Bloom. Celebrating Human Month with the cause. Cycling for a cost and the yung recently yung Plant Play Protect."* – R3

G. Elsamanoudy (2024) Structured events serve as an essential part of environmental clubs, raising awareness and inspiring student participation. Many respondents shared how organized initiatives, ranging from clean-up drives to educational campaigns, helped reinforce sustainability principles.

Programs such as "Plant Play Protect" and "Echo Warrior in Action" not only promoted environmental cleanliness but also educated students on responsible waste disposal and conservation methods. Events related to Human Month, cycling programs, and greenhouse projects introduced innovative approaches to engaging students in sustainability discussions.

The visibility of these initiatives encouraged broader participation. Several students noted that witnessing peers and club leaders involved in environmental advocacy motivated them to take part, illustrating the role of well-organized projects in enhancing awareness

Research Objective 2. Understand Senior High School students' perspectives on the impact of Science and Environmental ACLE Clubs on their environmental awareness.

#### Environmental Awareness through Club Activities

*"For me, for being in this. And very direct clubs help me with different environmental issues na hindi naman ako aware before kasi sa Verdure po tinuturuan po nila kami na mga actions po natin sa person minsan directly po nakaka-affect sa nature."* – R3

Environmental awareness is most effective when it moves beyond theory into real-world understanding, and for many respondents, their ACLE club experiences played a vital role in this. Students shared how their awareness of environmental issues significantly deepened after participating in clean-up drives, nature-based events, and sustainability campaigns. Through firsthand experiences, they saw the direct link between individual actions and environmental outcomes, especially in local contexts like Arroceros Park or Baseco Beach. These insights did not just stay personal—students reported how these events influenced their peers and communities to become more conscious and proactive.

The global perspective also emerged strongly, especially through activities such as the international coastal cleanup. Several students reflected on how such initiatives helped them understand that environmental problems are not confined to the Philippines; they are part of a much larger, interconnected struggle. This awareness encouraged them to think beyond local impacts and view their participation as part of a broader movement. Their natural interest in nature (e.g., from farming family backgrounds or a love for plants) also served as a personal gateway into deeper ecological understanding.

This finding supports the ideas of Smith (2020), who emphasized that the participation of students in environmental clubs encourages them to develop ecocentric values and a deeper awareness of their responsibility toward the environment.

#### Personal Growth from Volunteer Involvement

*"Nakatulong rin 'to sa akin kasi mas mapa-igting p*

*niya yung passion ko sa pag-volunteer at mas na-develop niya pa yung social responsibility ko.” – R1*

Beyond environmental awareness, Science and Environmental ACLE clubs contributed to students' personal development. Many reported that they gained essential life skills such as communication, leadership, time management, and a heightened sense of responsibility (Duda, 2025). These skills were not learned in isolation but through organizing events, collaborating with others, and engaging in outreach programs. The clubs, therefore, served as important developmental spaces where values taught inside the classroom—like service and responsibility—were practiced and embodied.

Students also shared how their passion for community service deepened through the clubs. By engaging in meaningful work, they experienced a sense of fulfillment that motivated them to continue giving back. The emotional rewards of volunteering, like joy and purpose, reinforced the positive impact of their involvement. For many, these moments transformed their idea of education into something more holistic—where growing as a person was just as important as academic success.

Research Objective 3. Identify ways of improving environmental awareness at Letran Manila based on the students' perspectives.

#### Proposed Solutions for Club Improvement

*“Siguro ano, pwede kaming gumawa ng mga creative activities na patungkol sa environmental like eco-friendly games or contest na related sa recycling and we can collaborate with other ACLE like Verdure...” – R2*

In response to the challenges they faced, students proposed several creative and feasible solutions. These included rotating schedules for participation, introducing fun and competitive eco-friendly activities, and strengthening collaboration between clubs. The goal of these suggestions was not only to boost participation but to make environmental awareness more engaging and relatable. By tailoring events to students' interests, clubs could foster deeper involvement while still meeting their educational goals.

Some also emphasized the importance of better planning and communication. Clubs that established clear, attainable goals had a higher chance of maintaining momentum and producing noticeable outcomes (Ronald et. al, 2024). By organizing event outlines in advance and making schedules more consistent, students believed more members could be involved. Another recurring idea was to improve the club experience by investing in adviser support and leadership training. These practical, student-driven ideas reveal that learners are not only aware of what's lacking, but they are also eager to co-create solutions that make clubs more effective, inclusive, and impactful.

#### Strengthening Club Structure and Management

*“Uhh, siguro hindi talaga one man job yung uhh pag sosolve ng mga ganitong challenge, specially uhh sa mga clubs natin. Uhh, community tayo na may sariling mga missions and for now siguro wala talaga concrete plan yung Erudite para ma-address yung mga ganitong challenge, specially ayun nga hindi kami nahahandle ng maayos and umh hindi rin gaano kadalas yung mga meetings namin and yung pag aasikaso sa mga projects namin kaya ayun wala masyado na-implement para ma-solve yung ganitong conflicts.” – R6*  
*The Horizon Vol. 1, No. 1 (June 2025)*

One of the biggest challenges in improving environmental awareness within clubs is the lack of structure and management. As highlighted by a respondent from Erudite, clubs function as communities with specific goals, yet without clear direction or planning, they struggle to fulfill their missions. A major issue raised by students is the absence of consistent leadership and adviser support. Some clubs, including Erudite, experience irregular meetings and poor organization, making it difficult to implement environmental projects effectively. In relevance with the findings of Kiss et. al (2024), these eco-clubs must be a place for its members to engage with each other through these activities. But without a solid management system, activities become inconsistent, and members feel disconnected, leading to reduced participation and enthusiasm.

Another challenge is the lack of actionable plans to address these management issues. As the respondent pointed out, there is currently no concrete strategy in place to resolve conflicts within their club. This results in missed opportunities for members to engage in meaningful environmental awareness activities.

#### CONCLUSION

The study, “Perceptions of Senior High school Students on the Role of Science and Environmental ACLE Clubs in enhancing Environmental Awareness” seeks to explore, analyze, and interpret the perceptions of Senior High School STEM students on the role of Science and Environmental ACLE clubs in enhancing environmental awareness at Colegio de San Juan de Letran - Manila. Through Focus Group Discussion (FGD), the study examined students' awareness of club activities, their perceived impact, and recommendations for improving environmental awareness within the colegio. From the data collected, the following findings have been made.

ACLE clubs contribute significantly to the personal development of students. Students shared that their involvement in environmental clubs not only enhanced their knowledge of ecological issues but also developed their leadership, communication, time management, and teamwork skills. These experiences helped shape their sense of responsibility, both as individuals and as members of a community, fostering a deeper connection between academic learning and real-world application.

Outreach programs and organized events play a crucial role in raising environmental awareness. Participation in community-based projects such as coastal cleanups, tree planting, and environmental campaigns helped students connect classroom knowledge with real-life environmental concerns. These activities also encouraged collaboration with other institutions, showing students that environmental advocacy is most effective when approached as a shared responsibility.

Despite their benefits, ACLE clubs face internal challenges that hinder their effectiveness. While students appreciate the opportunities provided by Science and Environmental clubs, many have pointed out issues such as inconsistent meetings, limited member participation, and lack of proper club management. These structural weaknesses prevent some clubs from fully achieving their goals, highlighting the need for stronger leadership, better planning, and more consistent adviser support to maximize their impact on the awareness of the students.

Respondents proposed several recommendations to enhance club operations. These include refining leadership structures, fostering

inter-club collaboration, and implementing strategic scheduling to accommodate student availability. Many suggested creating more engaging activities such as eco-friendly competitions, recycling initiatives, and integrated science projects to sustain interest and boost participation. Addressing these concerns may lead to more effective and impactful environmental awareness programs at Letran Manila.

Only sustainability claims have a significant impact on consumer satisfaction with sustainable packaging among Letran Manila senior high school students. The factors of social norms and personal values, package design, and price did not influence satisfaction, as indicated by their high p-values. However, sustainability claims, with a t-value of 3.979 and a p-value of less than 0.001, were found to significantly affect satisfaction. This supports the idea that consumers value brands that promote environmental sustainability, making sustainability claims a key factor in improving consumer satisfaction.

## RECOMMENDATIONS

From the findings and conclusions extracted by this study, the researchers respectfully recommend the following actions to the following individuals:

**For the Students** - Students are urged to get involved in ACLE clubs and start environmental initiatives that highlight their interests as well as more general environmental concerns. By utilizing the different resources available, it may influence other students to foster an environmentally friendly school. Students should also take leadership in proposing and planning creative, inclusive activities that promote environmental responsibility beyond school premises.

**For the Science and Environmental ACLE Clubs** - Clubs should implement structured, year-round programs that rotate member participation and incorporate a variety of engaging and hands-on activities like collaborative drives and inter-club initiatives. This is to ensure that all the members of clubs will be able to participate in different club initiatives. The researchers also suggest making efforts to evaluate member feedback regularly to keep activities meaningful and relevant.

**For the Club Advisers** - Advisers must take a proactive role in planning and monitoring club operations. Additionally, advisers should undergo periodic training on environmental awareness and student-led program facilitation to effectively support their clubs' missions. Establishing their knowledge on certain topics regarding the environment will be useful in the holistic development of the club members.

**For the Institution (Colegio de San Juan de Letran Manila)** - The institution should support ACLE clubs with sufficient resources and logistical support. Strengthening the institutional foundation for environmental literacy will foster a more consistent and impactful approach to environmental awareness. Institutional partnerships with government agencies, NGOs, and environmental professionals should also be included to expand the reach of the clubs' goals.

**For Future Researchers** - Researchers should also consider a longitudinal approach to examine long-term behavior changes and the sustainability of club initiatives. Exploring the effectiveness of digital tools or virtual platforms in enhancing environmental awareness could also be a relevant approach, especially in urban academic settings. In which the future researchers can understand the different approaches needed to pursue students' environmental awareness.

## REFERENCES

- Baierl, T., Johnson, B., & Bogner, F. X. (2022). Informal Earth Education: Significant shifts for environmental attitude and knowledge. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.819899>
- Beach, R. (2023). Teachers and students use of systems thinking about their participation in school environmental clubs. *Journal of Adolescent & Adult Literacy*, 67(1), 22–31. <https://doi.org/10.1002/jaal.1299>
- Creswell, John W. "Qualitative Inquiry and Research Design: Choosing Among Five Traditions." Thousand Oaks, CA: Sage Publications, 2014.
- Grace, M., Abdon, M., & Farin, E. (2022). Solid waste management practices of high school students in selected secondary schools of Zambales, Philippines. *J. Bio. & Env. Sci*, 20226663(1), 152–163. <https://innspub.net/wp-content/uploads/2022/11/JBES-V21-No1-p152-163.pdf>
- Hanane, E. F. (June, 2024). Extracurricular Activities in Environmental Educational Clubs: A Way to Improve Learning and Anchor Environmental Culture In Qualifying Secondary. *International Journal of Innovative Research in Multidisciplinary Education*, 03(06). <https://www.researchgate.net/publication/381685514>
- Houponen, A. (2023). Expert Teachers' Perceptions of Their Students' Environmental Literacy and the Practice of Environmental Education. *Discourse and Communication for Sustainable Education*, 14(1), 112–136. <https://www.researchgate.net/publication/370307560>
- Huoponen, A. (2025). How eco-clubs foster pro-environmental behavior in a school context: a case from Finland. *Fennia*. <https://doi.org/10.11143/fennia.146717>
- Kiss, G., Orsolya, L. Tünde, T., Tamás, V., & Ágnes, N. (2024). The transformation of sustainable lifestyle practices in ecoclubs. *Cleaner and Responsible Consumption*, 13, 100189–100189. <https://doi.org/10.1016/j.clrc.2024.100189>
- Koculu, A., & Girgin, S. (n.d.). The Effect of E-STEM Education on Students' Perceptions and Engineering Design Process about Environmental Issues. <https://eric.ed.gov/?q=Senior+High+School+Students%27+Perspectives+on+the+Role+of+S+science+and+Environmental+ACLE+Clubs+in+Enhancing+Environmental+Education%2C+Literacy%2C+and+Issue+Integration+at+Letran+Manila&mp;id=EJ1383318>
- Krueger, R. A. (1994). Focus group. A practical guide for applied research (2nd ed.). London: Sage.
- Morgan, D. L. (1996). Focus groups. *Annual Review of Sociology*, 22, 129–152.
- Pirchio, S., Passiatore, Y., Panno, A., Cipparone, M., & Carrus, G. (2021). The effects of contact with nature during outdoor environmental education on students' wellbeing, connectedness to nature and pro-sociality. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.648458>
- Sapanova, N., Cessna, S., DeChano-Cook, L. M., Childibaev, D., & Balta, N. (n.d.-b). Kazakhstani High School students' environmental knowledge, attitudes, awareness and concern. <https://eric.ed.gov/?q=environmental+awareness+in+science+and+environmental+clubs+in+school&mp;id=EJ1422330>
- Smith, W. (2020). The role of environment clubs in promoting ecocentrism in secondary schools: student identity and relationship to the earth. *The Journal of Environmental Education*, 50(1), 52–71. <https://doi.org/10.1080/00958964.2018.1499603>
- Tuazon, K. J. L., Moñedera, S. P., Corpuz, J. T., Mijares, A. M. I., Singh, R. C., Guillo, A. J., & De Guzman, S. D. (2024). Assessing the impact of environmental education on sustainable practices: A semi-systematic literature review.

International Journal of Applied Science

Understanding Study Case as Research Design by John Creswell.  
(2024, March 8). BINUS Communication.  
[https://binus.ac.id/malang/communication/2024/03/08/understanding-study- case-as-research-design-by-john-creswell/](https://binus.ac.id/malang/communication/2024/03/08/understanding-study-case-as-research-design-by-john-creswell/)

## Guide to Contributors

The Horizon is the official academic journal of the high school students of Colegio de San Juan de Letran, Intramuros, Manila

The editors recommend that manuscripts conform to the following guidelines:

1. Manuscripts should be endorsed by their respective research advisers together with the consent from the student researchers.
2. Authors should submit two versions of the manuscript. One file (“file not for review”) should include the names of the authors (adviser and student/s), their contact information (e-mail addresses), and current affiliation (program/area and college). The other file (“file for review”) should remove any information that would identify the authors.
3. The paper should include keywords and an abstract of 100 – 200 words.
4. The article should contain approximately 6000 – 7000 words (including abstract, tables/figures, and references) and should be typed in a 12-point font, Garamond, double-spaced, with one-inch margin on all sides.
5. Tables/figures and references should follow the APA format style. Table titles are placed above while figure titles are placed below.
6. Reference should follow the APA format style.
7. The editors prefer to have the file in Microsoft Office Word 97-2003 Document (.doc) format and should be sent to [thehorizon@letran.edu.ph](mailto:thehorizon@letran.edu.ph)
8. Manuscripts that are already published or in the process of publication in other journals will not be considered in the Letran Business and Economic Review.

## Review Process

1. The editor screens the submitted manuscripts and selects those deemed suitable for peer reviewing. Selected articles then undergo a rigorous double-blind refereeing.
2. Once accepted, a Copyright Agreement will have to be sought from the student researchers and their research adviser.
3. Attached with the letter of acceptance are the comments and suggestions from the members of the editorial board. Revisions should be incorporated and returned to the Center within 2 weeks.
4. The editor makes the final decision on the publication of the revised articles.

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