

Research Article

Awareness of Generation Z Students about The Plaf (Plastic Flamingo) and Other Campaigns Concerning Plastics in Online Shopping

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Abstract: Environmental awareness is crucial in addressing the issues of plastic waste and pollution, which have a significant impact on our environment and our health. The study aimed to analyze the awareness of Bulacan State University College of Science Generation Z students regarding PLAF (Plastic Flamingo) and other campaigns related to plastics in online shopping. The researchers used a descriptive research design to achieve this goal and collected data from 350 samples of Generation Z students through a standardized questionnaire distributed via Google Forms. The findings revealed that Shopee is the most commonly used online shopping application by students, and they tend to purchase items online when needed. Bubble wrap emerged as the most frequently used parcel packaging material. The results also indicated that the students are highly aware of the different impacts of parcel packaging, as evidenced by the mean score of 4.02. However, their awareness of environmental campaigns related to plastic was only average, with a mean score of 2.93. In particular, the understanding of PLAF (Plastic Flamingo) was low, with a cumulative mean score of 2.13. The findings suggest the need to improve Generation Z students' awareness of environmental campaigns and promote ecological practices and involvement in addressing plastic waste and pollution issues. Educating and engaging students through various campaigns and initiatives can help raise their awareness of the environmental impacts of plastic waste and encourage them to adopt sustainable practices in their daily lives.

Keywords: Awareness; Environmental Campaign; Generation Z; Online Shopping; Plastics

1. Introduction

Environmental awareness refers to an individual's understanding of the impact of human actions on the environment and their recognition of the interconnectedness of natural systems [1], [2]. It involves recognizing the sources and effects of environmental problems, such as pollution, deforestation, and climate change, and making informed choices that are sustainable, responsible, and beneficial for the environment [3]. Environmental education and awareness can help

individuals develop a deeper understanding of the environment and their impact on it [4].

Incorporating environmental awareness into daily practices and choices can involve various actions, such as reducing waste, conserving water, using energy-efficient appliances, using public transportation or carpooling, choosing sustainable products, and supporting environmentally-friendly businesses [5]. These actions can significantly reduce an individual's ecological footprint and contribute to conserving and preserving natural resources [3].

Environmental awareness is crucial in promoting responsible behavior and encouraging individuals to make informed decisions that benefit the environment [6], [7]. It fosters a sense of stewardship towards the environment and contributes to the sustainability of natural resources for future generations [8]. Although environmental awareness is essential in individuals' daily practices and choices, several problems arise due to this increased awareness. Some of these problems include:

a. Greenwashing

Companies claim that their products are environmentally friendly without any concrete evidence. Along with increasing environmental awareness, many companies are trying to use this as a marketing tool. Greenwashing can cause consumers to be deceived into thinking that they have done something good for the environment, even though this is not true.

b. Social Inequity

Emphasis on green practices can lead consumers to ignore issues of social injustice. Often, green practices such as buying organic produce or saving energy are only affordable to people with higher income levels, which can result in social inequalities.

c. Green Fatigue

Raising environmental awareness can become too much and overwhelming for some people, leading to fatigue or indifference to environmental issues. If information about the environment is continually exaggerated or received inappropriately, this can cause individuals to feel hopeless and unmotivated to act.

d. Value Conflicts

Sometimes, environmental practices conflict with the values of specific individuals or groups. For example, someone concerned about animal welfare may find it difficult to choose between buying organic products or vegan products that are not environmentally friendly.

Addressing these issues requires a balanced approach to promoting environmental awareness, including tackling greenwashing, paying attention to social injustice, and considering individual or group values in choosing environmental practices. In this way, environmental awareness can be promoted effectively and responsibly.

As people stay locked in their homes during this pandemic, online shopping has become a trend as it gives convenience by clicking the desired product and quickly delivering it right to individuals' doorsteps. However, as a result, tons of new waste, such as bubble wrap, plastic parcels, and other packaging products, were also used. Filipinos are finally warming up to e-commerce, according to an article posted by Masigan [9]. He also referenced the CEO of Zalora Philippines, Mr. Paulo Campos III, who indicated that 91 percent of Filipino internet users sought

goods and services to purchase throughout the quarantine period. E-commerce sales in the Philippines may reach \$12 billion by 2025, up from \$500 million in 2015. In 2019, it already made a profit of \$3 billion. In the first six months of 2020, the number of buyers and peso value transactions has doubled compared to 2019. However, as online shopping soars, so is plastic packaging. According to the press release of Oceana last 2020, the online application and company Amazon generated 465 million pounds of plastic packaging items, which soared by a third during the pandemic. Amazon's plastic packaging was estimated to be 22.4 million pounds that entered and polluted the marine ecosystem and the world's freshwater last 2019 [10].

Shopee's last 11.11 sales are the platform's most significant sales in the Philippines, with over 2 billion items sold, accumulating tons of plastic packaging. Plastic waste packaging in the Philippines was estimated to have increased by 300% due to the pandemic's lockdown and restrictions. The parcel packaging from the buyer's hand to the trashcan only takes 12 minutes [11]. One of the most persistent contaminants on the planet is plastic. Designed to last a long time, often 400 years or more. Every stage of plastic emits greenhouse gases, including after being discarded, contributing to global warming [12]–[14]. These plastic wastes are now upcycled and used by environmental campaigns like The Plaf and JuanBagPh, a for-profit social enterprise that collects plastic waste such as PET, PVC, PP, HDPE LDPE, PS, and other materials to prevent marine plastic pollution. Subsequently, these components become "Eco-Lumber," a recycled construction product from plastics. Generation Z is a frequent buyer of online shopping nowadays. They tend to buy trendy new clothes and gadgets now and then [15]. Acharya [16] stated the following steps to reduce plastic pollution in everyday life: choose reusable, find an alternative that uses minimal packaging, recycle more, and stop littering. Starting early, people can reduce plastic pollution in daily situations, minimize environmental impact, and progress toward a healthier, more beautiful world.

Plastic is a material that is widely used in everyday life because it is light, durable and inexpensive. However, the excessive and unwise use of plastics has caused severe environmental problems, including marine pollution, ecosystem damage, and human health hazards. Increasing environmental awareness of these issues has increased awareness about the use of plastics and their impact on the environment. Several events and studies have raised environmental awareness about plastic issues.

The documentary film "A Plastic Ocean" (2016) presents an overview of the impact of plastic on marine ecosystems, including its effects on fish and seabirds. This

film sparked the international community's attention and raised awareness about this issue. A study from the Ellen MacArthur Foundation [17] showed that by 2050, the ocean's plastic weight would exceed the weight of fish. This study sparked awareness raising about the dangers of using single-use plastics. Many environmental campaigns focus on reducing single-use plastics, such as the "Plastic Free July" and "No Plastic Straw Challenge" campaigns. These campaigns motivate people to reduce their use of plastic and seek more environmentally friendly alternatives.

As a result of increasing environmental awareness on the issue of plastic, many countries and cities have taken steps to reduce their use of single-use plastics. Several countries, such as the UK and Canada, have banned single-use plastics, and several cities worldwide have limited plastic use and encouraged using environmentally friendly alternatives. In order to raise environmental awareness about plastic issues, education and information are also important. Education about the environmental impact of plastic use and about how to reduce plastic use can help encourage behavior change that is more environmentally friendly. By increasing awareness and education, it is hoped that individuals and communities can take more responsibility for using plastic and maintain environmental sustainability.

2. Material and Methods

2.1. Research Approach

The quantitative approach is a research method usually used in scientific research to produce data that can be objectively measured. This approach prioritizes quantitative data and collects data through standardized measurement instruments such as questionnaires, tests, and observations [18]. In the quantitative approach, the data collected usually consists of numbers or numeric variables that can be processed using statistical and mathematical techniques.

The data collected in the quantitative approach is processed using statistical analysis techniques such as hypothesis testing, regression, correlation, and other multivariate analyses [19]. This statistical analysis allows researchers to examine the relationships between variables and produce more universal generalizations.

2.2. Sample and Sampling Techniques

The study used probability or simple random sampling. In this manner, everyone in the population has a chance to be a participant [20]. In this technique, the researchers can distribute the survey forms to a larger population and gather the needed data. The researchers conducted their study on College of Science students at the Bulacan State University (Main Campus) who belong to the generation

known as Gen Z. The target population for the study was every student enrolled in the College of Science. The survey form was distributed to each section of the College of Science, and the researchers' collected data from 350 respondents.

2.3. Research Instrument

The researchers have chosen questionnaires online as a data collection instrument, specifically through google forms. A questionnaire is exceptionally convenient for gathering data from many people within a period [21]. It is practical, reliable, flexible, and generates less cost. The questionnaire contains four sections: The respondent's information, online shopping, plastics, and environmental campaigns. The researchers used the Likert scale to assess the student's level of awareness.

2.4. Data Procedure

The researchers will disseminate the questionnaires online via google forms to the Generation Z students of Bulacan State University-Main Campus, College of Science, cooperating with each section's local student council and class mayors. The class mayors will then propagate the online questionnaire to their unit, and those students that fall within the criteria will be requested to answer the said form.

2.5. Statistical Analysis

To measure and identify the level of awareness the College of Science students have about environmental campaigns about online shopping, the researchers calculated each question's mean, standard deviation, and percentage. The mean level of awareness of the respondents per question will be computed, analyzed, and interpreted. Based on the entirely unaware, unaware, neutral, aware, and fully aware indicated by the respondents via questionnaire. Mean measures the central location of the distribution of a random variable. At the same time, the standard deviation measures how dispersed the data is to the mean [22]. In addition, the results were analyzed by their category: demographic data, online shopping, plastics, and environmental campaigns.

The formula for Mean (M)

$$\bar{x} = \sum x/n \quad (1)$$

Where:

\bar{x} = mean

$\sum x$ = summation of observed values

n = number of observations in the sample

The formula for Standard Deviation (SD)

$$SD = \sqrt{\sum (X - \bar{x})^2 / n - 1} \quad (2)$$

Where:

\bar{x} = mean

x = value of the data

$(x - \bar{x})^2$ = the square of the difference between the mean and value of the data

$\sum (x - \bar{x})^2$ = sum of the square of the difference between the mean and value of the data

n = several observations in the sample [23].

3. Result and Discussion

3.1. Demographic Profile of Respondents

The provided information is a table containing demographic data about a specific population. It includes the following categories: age, gender, birth year, and college program. Respondents' cross-tabulation of demographic profiles, notably age, gender, birth date, and college program, are summarized in Table 1.

The survey questionnaire was completed by 350 respondents from the College of Science at Bulacan State University. Most students were between 17 and 20, with 176 (50.29 percent) responses gathered, accounting for more than half of those who participated in this survey. In addition, 174 (49.71 percent) students in the same age group are between the ages of 21 and 24. Female respondents outnumbered male respondents by 60% (210 respondents) to 133% (133 respondents), with seven students opting not to disclose their gender. Students who did not tell their gender accounted for two percent of the respondents. According to the findings of the study, the top four sections that participated in the survey were BIO 2A with 35 (9.71 percent) students, CS 3B with 43 (12.29 percent) students, and CS 3A (12.86 percent), which had the highest number of respondents. The final section that participated in the survey was BA 3B, with 34 (10 percent). The remaining 193 students, or 55.14 percent, were from another course within the College of Science.

Table 1. Demographic Profile Characteristics of Respondents (N=350)

Variables	Range	Freq.	Percent (%)
Age (years)	9 – 12	0	0.00
	13 – 16	0	0.00
	17 – 20	176	50.29
	21 – 24	174	49.71
Gender	Female	210	60.00
	Male	133	38.00

Variables	Range	Freq.	Percent (%)
Birth	Not Say	7	2.00
	1997 – 1998	3	0.86
	1999 – 2000	145	41.43
	2001 – 2002	178	50.86
College Prog.	2003 – 2004	24	6.86
	BIO 2A	35	9.71
	CS 3B	43	12.29
	CS 3A	45	12.86
	BA 3B	34	10.00

This demographic data can help identify patterns and trends within the population and tailor outreach and education efforts to specific groups that may require more attention or targeted messaging. For example, with most of the population falling within the age range of 17-24, efforts could be focused on engaging and educating this group on environmental issues and sustainable practices. Additionally, with most of the population being female, outreach efforts could be designed to appeal specifically to this demographic. The following information has been analysed and interpreted per the criteria [24].

Table 2. Criteria Interpretation

Scale	Range	Response	Interpretation
1	1.00 – 1.80	Fully Unaware	Very Low
2	1.81 – 2.60	Unaware	Low
3	2.61 – 3.40	Neutral	Average
4	3.41 – 4.20	Aware	High
5	4.21 – 5.00	Fully Aware	Very High

The chart outlines a scale and range for interpreting responses related to environmental awareness, with scores ranging from 1.00 to 5.00. Scores between 1.00 and 1.80 are categorized as "Fully Unaware" with a very low level of awareness. Scores ranging from 1.81 to 2.60 are categorized as "Unaware" with a low level of awareness. Scores ranging from 2.61 to 3.40 are categorized as "Neutral" with an average level of awareness. Scores ranging from 3.41 to 4.20 are categorized as "Aware," with a high level of awareness. Finally, scores ranging from 4.21 to 5.00 are categorized as "Fully Aware," with a very high level of awareness. This scale can be used to assess the level of environmental awareness of individuals or groups and to identify areas where more education and awareness-raising efforts may be needed.

3.2. Frequent Used of Different Online Shopping Applications

Frequent use of different online shopping applications refers to the level of usage of various applications used for

online shopping. In today's digital age, several online shopping applications are available to consumers, such as Lazada, Amazon, and Shopee. These applications provide a convenient platform for consumers to shop for goods and services from the comfort of their own homes or anywhere with internet access.

The frequent use of different online shopping applications can be measured by the number of times a user accesses the application, the amount of time spent on the application, and the number of transactions completed. By understanding the frequent use of different online shopping applications, companies can analyze the market share of different applications and develop strategies to attract more users.

Table 3. Different Online Shopping Applications

Variables	Questions	Freq. (%)	
		Yes	No
Lazada	Do you know Lazada Online Shopping Application?	348 (99.40%)	2 (0.60%)
	Do you buy items in Lazada?	231 (66.00%)	119 (34.00%)
Shopee	Do you know Shopee Online Shopping Application?	350 (100.00%)	0 (0.00%)
	Do you buy items in Shopee?	324 (92.60%)	26 (7.40%)
Amazon	Do you know Amazon Online Shopping Application?	301 (86.00%)	49 (14.00%)
	Do you buy items on Amazon?	8 (2.30%)	342 (97.70%)

Table 3 demonstrates the respondents' familiarity with various online buying applications, including but not limited to Lazada, Shopee, and Amazon. It reveals that 99.40%, or 348 students, know the Lazada Application, while just 0.06%, or two students, were unfamiliar. In addition, 231 respondents (66.00%) indicated that they had purchased items from Lazada, while 119 respondents (34.00%) had not done so. While in the case of Shopee, the degree of recognition was 100% (350 responses), and the number of students who purchased products from Shopee was 324 (92.60%), while the number of students who did not were 26 respondents (7.40%). Finally, Amazon has 301 (86.00%), students who have awareness, while 49 (14.00%) do not, with just 8 (2.3 percent) of those who purchase and 342 (97.70%) of those who have a "NO" response.

Figure 1 shows the number of times people used an online shopping application each month. It demonstrates that people often utilize online shopping applications, namely Lazada, Shopee, and Amazon, which span primarily between 0 and 2 times. There were 135 (38.57%), 36

(10.29%), and 342 (97.71%) respondents who stated that they had no prior experience with online shopping applications, namely Lazada, Shopee, and Amazon, respectively. While students with 1 – 2 times experience on Lazada, Shopee, and Amazon accounted for 184 (52.57%), 163 (46.57%), and 7 (2.0%) respondents, respectively, in the survey results.

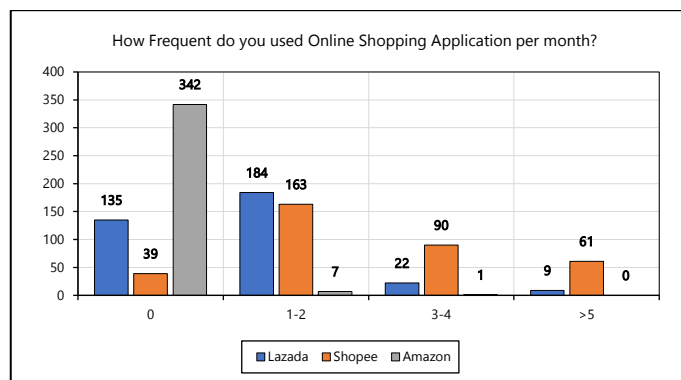


Figure 1. Use of Online Shopping Application Per Month

Additionally, the number of respondents who had used an online shopping application such as Lazada, Shopee, or Amazon three or more times was 22 (6.29%), 90 (25.71%), and one (0.29%), respectively. Finally, those who have used an online shopping program five or more times were 9 (2.57%) and 61 (17.43%) for Lazada and Shopee, respectively.

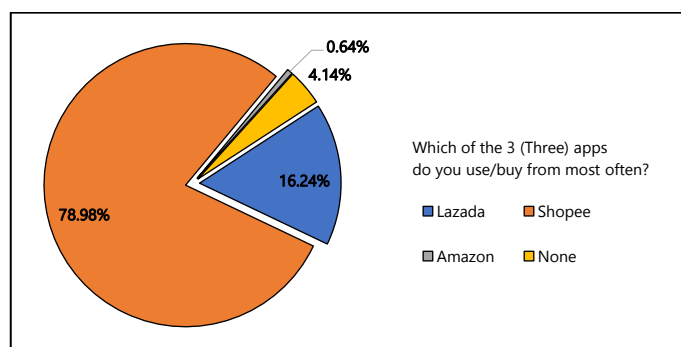


Figure 2. Online Shopping Applications Often Used

As shown in Figure 2, the percentage of the calculated response of respondents who were subject to the study shows that this section shows the online shopping application utilized most often. This data demonstrates that 284 respondents (78.98%) mostly use the Shopee application as an instrument to purchase items. In contrast, 51 respondents (16.24%) primarily use Lazada, whereas 13 respondents (4.17%) use none of those mentioned above applications, and just two respondents (0.64%) use Amazon. It was then concluded that most respondents utilize Shopee as an Online shopping application.

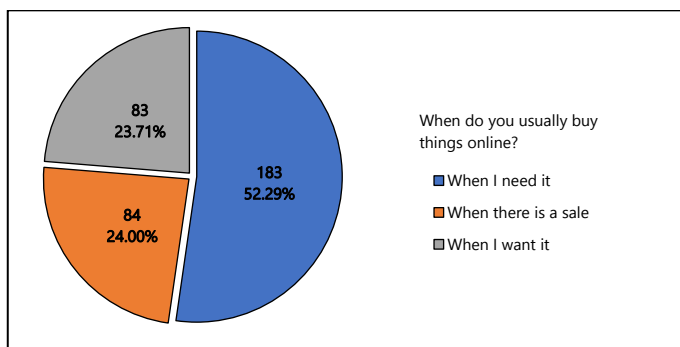


Figure 3. Reason for Used of Online Shopping Application

Based on the research findings, Figure 3 represents respondents' responses on the reasons or times they frequently purchased items on online shopping applications. The majority of participants, with a frequency of 183 (52.29%), indicated that they make purchases online "When I need it," suggesting that they clearly understand their needs and the items that can be helpful in their daily lives. Additionally, an equal percentage of participants (24%) responded with "When there is a Sale" (84 respondents) and "When I want it" (83 respondents), indicating that promotional offers and personal preferences also play a role in their online shopping behavior.

Table 4. Parcel Packaging of Online Shopping Application

No.	Parcels Packaging	Freq.	Percent. (%)
1	Box	294	84.00

Table 5. Level of Awareness of Different Impacts of Parcel Packaging

Different Impact of Parcel Packaging (Plastics)	Mean	Standard Deviation	Interpretation
Worsening marine plastic pollution	4.39	0.80	Very High
Worsening land plastic pollution	4.54	0.70	Very High
The Role of online shopping in worsening pollution	3.81	1.03	High
Impact of excessive packaging waste on the Environment	4.49	0.74	Very High
Plastic is at the top list of pollutants in the Philippines	4.55	0.76	Very High
The "Russian Doll" packaging	3.38	1.30	Average
Plastic packaging takes only 12 minutes from your hand to the trash can.	3.77	1.08	High
Every person in the Philippines generates 12.4 kg of plastic packaging waste per year	3.02	1.20	Average
Average	4.02	0.95	High

Table 6. Level of Awareness of Environmental Campaigns

Environmental Campaigns	Mean	Standard Deviation	Interpretation
The campaign/company The Plaf (Plastic Flamingo)	2.13	1.20	Low
The Plaf transforms plastics into durable eco-lumber	2.32	1.22	Low
The Plaf accepts these plastics	2.70	1.32	Average
The Plaf does not accept these materials	2.60	1.26	Low
The Plafs discarded plastic collection sites	2.33	1.19	Low
The Plaf's partnered universities and companies	2.22	1.12	Low

No.	Parcels Packaging	Freq.	Percent. (%)
2	Bubble Wrap	342	97.71
3	Cardboard	115	32.86
4	Cling Wrap	31	8.86
5	Compostable Packaging	7	2.00
6	Container	28	8.00
7	Magazine	12	3.43
8	Newspaper	24	6.86
9	Packaging Tape	226	64.57
10	Plastic	328	93.71
11	Russian Doll Packaging	63	18.00
12	Styrofoam	91	26.00

Table 4 reveals the various parcel packaging used in every package/shipment using Online Shopping Application. This table demonstrated that the four most common types of packaging used were Bubble Wrap, Plastic, Box, and Packaging Tape, with a frequency and percentage of 342 (97.71%), 328 (93.71%), 294 (84%), and 226 (64.57%) respectively. Almost 98 percent of respondents have noted that bubble wrap is the most regularly utilized packing material. At the same time, the fifth to eighth ranks, which could be concluded as average packaging, was Cling Wrap (31, 8.86%), Russian Doll Packaging (63, 18%), Styrofoam (91, 26%), and Cardboard (115, 32.86%). Consequently, the least used packaging was Compostable Packaging (7, 2%), magazines (12, 3.43%), Newspapers (24, 6.86%), and containers (28, 8%).

Environmental Campaigns	Mean	Standard Deviation	Interpretation
The campaign/company the JuanBagPH	2.45	1.22	Low
The JuanBag's upcycled bags	2.51	1.24	Low
Free plastic waste pick-up from JuanBag	2.45	1.18	Low
JuanBag's deposit and reward system	2.33	1.12	Low
Disposal of online plastic packaging	3.15	1.23	Average
Participation in the growing concern about online plastic waste	3.39	1.18	Average
Things that you can contribute to help the mitigation	3.78	1.05	High
3Rs (Reduce, Reuse, Recycle)	4.61	0.87	Very High
Environmental Organizations addressing plastic pollution from online shopping	3.10	1.22	Average
Different methods recycle to plastic waste	4.07	0.95	High
Different methods upcycle plastic waste	3.75	1.04	High
Average	2.93	1.15	Average

Table 5 displays the proportion of students' awareness regarding the significant impact of parcel packaging purchased from Online Shopping applications, which is vital to identify to preserve the environment and the welfare of the wider populace. As shown in Table 4, the overall response indicated 'high' in verbal interpretation; an overall mean of 4.02 demonstrates that the most significant number of students have a thorough understanding of the various impact of plastics from online shopping that has been encountered. The cumulative standard deviation of 0.95 indicated that students responded almost uniformly. As shown in the table, half of the impact of parcel packaging shows a 'very high' response, particularly about Worsening marine plastic pollution, with a mean of 4.39 (0.80). Worsening land plastic pollution (4.54, 0.70), the impact of excessive plastic packaging waste on the environment (4.49, 0.74), and Plastic are on the top lists of pollutants in the Philippines (4.55, 0.76).

Consequently, the other half was divided into 'average' and 'high' responses. The role of online shopping in worsening pollution (3.81) and Plastic packaging takes only 12 minutes from your hand to the trash can (3.77), indicating 'high' in responses. In contrast, the "Russian Doll" packaging (3.38), as well as every person in the Philippines, generates 12.4 kilograms of plastic packaging waste per year (3.02), demonstrating an 'average' response.

Table 6 shows the degree of awareness of 350 respondents from the College of Science to various environmental campaigns that advocate plastic waste recycling from the packaging of items purchased on the Online Shop Application, with an overall verbal interpretation response of "average" in this circumstance. The total mean of 2.93 (1.15) suggests that most respondents have an average level of awareness and a firm understanding of the various sustainability initiatives, which is a significant finding. This section has a mix of

responses wherein nine out of 17 campaigns answer 'low' awareness, four with 'average' response, three with 'high' reactions, and one with 'very high.' The researchers concluded that most environmental campaigns were not recognized and known by the students. Only 3Rs (Reduce, Reuse, Recycle) indicate 'very high' awareness with a mean of 4.61 (0.87), popular in waste disposal and a criterion for ecological sustainability. Consequently, the campaign/company The Plaf (Plastic Flamingo) has the lowest cumulative mean of 2.13 (1.20), which indicated a 'low' response which could be interpreted that several students have low awareness of these environmental campaigns.

In the advent of the pandemic, online shopping has been more commercially successful in providing services and products to individuals, notably on platforms such as Lazada, Shopee, and Amazon. On the other hand, the convenience of online purchases comes with a price: most packaging materials, such as plastics, bubble wrap, cardboard, and other materials that intend to protect the product tucked away inside a package, generate waste, putting a strain on our environment and contributing to global warming. As package packing continues to be a significant environmental concern, various environmental campaigns are being launched to raise awareness of the negative ecological effect of the waste produced by the packaging from Online Shopping. With this fact, the study aims to assess and evaluate the awareness of Generation Z students about the PLAF (Plastic Flamingo) and other campaigns about plastics in online shopping. Particularly students from the College of Science at Bulacan State University and how students participate in waste-reduction initiatives that could help alleviate waste-related problems.

In terms of familiarity with various online shopping applications, the results showed that most respondents were familiar with Lazada (99 percent), Shopee (100 percent), and Amazon (86 percent). An enormous percentage of the products they purchased came from Shopee, with a percentage yield of 92 percent, and only 8

percent of students bought items from Amazon. Furthermore, analysis suggests that most users use online shopping programs, such as Lazada, Shopee, and Amazon, between 0 and 2 times during the period covered. Ultimately, it was discovered that Shopee was the most often utilized of the three mentioned online shop applications, with a percentage of 81 percent, given that most of the reasons or times to purchase were when the respondents required goods or services 'When I need it with an overall 52 percentage. Regarding parcel packaging, the study's findings revealed that bubble wrap was the packaging that was frequently used in packing items purchased online.

With 98 percent of the population aware of this type of packaging, compostable packaging was the least commonly known, with two percent being aware of this type of packaging. The study's findings concerning the impact of plastic and environmental campaigns, as shown in Figure 1, demonstrate that most students had overall responses ranging from 1.81 to 5.00, indicating 'high' from the data. The students have background knowledge of the impact of plastic (4.02) but have an 'average' or low awareness of the various environmental campaigns with a mean of 2.93, as shown in Figure 1. It shows that respondents understood the numerous environmental consequences of plastic use, as seen in Figure 1, indicating they are well-informed.

Furthermore, it is vital to understand the effect generated by the shipment packaging used to package items acquired via an online shopping application to develop strategies for eliminating the problem. Given the instances that most of the students were aware of, it is probable that the environmental campaigns will be known for their efforts to protect the environment shortly. There has been a wide range of student reactions to various environmental campaigns. However, most campaigns, particularly those promoting reduction, reuse, and recycling, have been highly beneficial and have provided a thorough understanding of how students can reduce waste from packaging products purchased on the internet.

Lack of awareness about plastic pollution from education among students has been proven through responses that are not interested in caring for nature conservation [25]–[27]. In other words, a lack of understanding about the negative impacts of using plastic on the environment and nature can be caused by a lack of education and awareness among students, and this causes their indifference to environmental conservation.

Figure 4 shows the mean and standard deviation of two variables, "Impact Plastics" and "Environmental Campaigns". The "Impact Plastics" variable has a mean of 4.02 and a standard deviation of 0.95, while the

"Environmental Campaigns" variable has a mean of 2.93 and a standard deviation of 1.15.

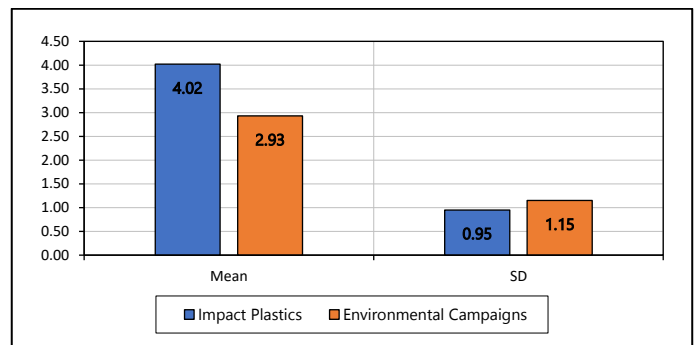


Figure 4. Summary of the Mean Scores of the Plastics and Environmental Campaign

The mean represents the average score of the respondents on a scale of 1 to 5, where 1 indicates a low level of impact or effectiveness, and 5 indicates a high level of impact or effectiveness. Therefore, the mean score of 4.02 for "Impact Plastics" suggests that the respondents perceive a high level of impact of plastics on the environment. On the other hand, the mean score of 2.93 for "Environmental Campaigns" indicates a moderate level of effectiveness of environmental campaigns.

The standard deviation represents the degree of variability or dispersion of the scores around the mean. A minor standard deviation suggests that the scores are clustered closely around the mean, while a more significant standard deviation indicates that the scores are more spread out. In this case, the minor standard deviation of 0.95 for "Impact Plastics" suggests that the respondents' opinions about the impact of plastics on the environment are relatively consistent, while the more significant standard deviation of 1.15 for "Environmental Campaigns" suggests that the respondents' opinions about the effectiveness of environmental campaigns are more varied.

No current published study on the awareness of College of Science students from Bulacan State University (Main Campus) regarding the Awareness of Generation Z Students about The PLAF (Plastic Flamingo) and other Campaigns; concerning Plastics in Online Shopping literature searches. Because of this college-based study, other institutions and communities may use this data to help them implement proper garbage disposal management. The effort to reduce plastic usage is not solely students' responsibility but also requires participation from the entire campus community, including staff. Implementing plastic levies has also shown significant changes in consumer behavior, and when combined with education and awareness, can provide a more significant impact [28], [29]. In other words, reducing plastic usage requires a collective effort from all parties

involved on campus, and education and awareness can help drive positive behavioral change in this regard.

4. Conclusion

The results conclude that regarding the Online Shopping Applications of which College of Science Students is aware, Shopee came out as the top application, followed by Lazada, then Amazon. The same order is applied to the respondents' prior experience purchasing applications. Regarding their usage frequency, most respondents use Shopee and Lazada once or twice a month, while most do not use Amazon. Shopee was the most used application among the three online shopping applications, followed by Lazada and Amazon. The necessity of the item in their daily lives was why the respondents purchased from these applications.

Meanwhile, the three most common types of packaging were bubble wrap, plastic, box, and packaging tape. At the same time, the magazine was the least common packaging, indicating that most sellers prioritize practicality, disregarding its environmental impact. Regarding their awareness of the effects of plastic packaging, the respondents were highly aware. However, the respondents' awareness regarding Environmental Campaigns was average at best. With this information, it is concluded that the College of Science Generation Z Students purchases from Online Shopping Applications. They are highly aware of the different impacts of plastic packaging but are unaware of the Environmental Campaigns conducted to reduce it. These findings can help the College of Science Generation Z students enhance the quality of their awareness regarding the environment, practices, and involvement.

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