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Promoting the Usage of Eco-Friendly Tertiary Packaging: A Market Research on the Perceived Behavior of Filipino Consumers Based on Sustainability Factors

Aaron Dena¹, Lyza Honrado¹, Princess Mica Lin¹, Emmanuel Dotong^{1*}

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ABSTRACT

Sustainable tertiary packaging or green packaging has grown popular as consumers become more aware of the harmful effect of plastic packaging. This study aims to establish how environmental, social, and economic factors influence the purchase and usage of eco-friendly packaging among Filipino consumers. A test of differences was used to establish the significant differences between the demographic and behavioral segments and the sustainable factors affecting their purchase and usage of green packaging. Findings revealed that Filipino consumers with an age bracket of 29 years old and below are more receptive to buy and use eco-friendly packaging than the other age group. They are also influenced by subjective norms such as family, friends, and social media and females are more likely to buy and use sustainable packaging based on social factors.

INTRODUCTION

The packaging industry holds a substantial impact on both the environment and supply chain cost efficiencies. This influence encompasses various phases from package design development, materials procurement, to end-of-life treatment (Passon & Hellstrom, 2015). While packaging influences the size and weight of the products being delivered, it contributes significantly to transportation costs. In manufacturing industry, non-optimized packaging may result in higher shipping costs, as well as storage and handling expenses, which consequently increases the total supply chain cost. The mismanagement of companies in handling the tedious development phase of product packaging process leads the packaging industry as one of the biggest contributors of waste in the world. Each year, about one trillion plastics end up in landfills on a global scale (Eurostat, 2022).

The tight market competition in several industries forces several companies to still prioritize the use of non-environmentally friendly materials in their consumer product packaging due to the essential packaging considerations such as aesthetics, durability, affordability, and the ability to mass-produce. However, with the alarming rise in consumption levels and the pressing issue of climate change, there is a growing urgency to reduce waste in commercial products. With this, environmental concerns became a priority for a great number of nations. In emerging countries, social media influences consumers to buy sustainable products which significantly help the consumers to have more access to information on product usage and spreads awareness on sustainable packaging. This has not only led to an increased sales of sustainable products, but it has also raised awareness of environmental issues (Nielsen, 2015). Due to the increased awareness of environmental concerns and

the development of eco-friendly policies, sustainable packaging has become a product quality factor to both consumers and producers. Customers have been more keen on environmentally friendly packaging solutions in recent years, causing the packaging sector to embrace more sustainable methods. In response, eco-friendly packaging made from sustainable materials was brought to the market in the recent decade.

Nowadays, there is an increasing number of businesses that started to express care for the environment by reducing their plastic consumption and replacing it with recyclable alternatives. In addition, several studies demonstrate that sustainable packaging has a substantial impact on customer purchasing choices (Orzan et al. 2018; Popovic, 2019). However, consumer behavior literature lacks a clear and specific definition of sustainable packaging as eco-friendly packaging (Magnier & Crie, 2015). Most of the definitions of sustainable packaging came from Non-Government Organizations but some academics describe sustainable packaging as the manufacture or use of ecologically - friendly packaging that is non-toxic, hygienic, and eco-friendly that aims to limit the adverse effects on the environment caused by its production (Kumar, Verma, Shome, Sinha, Sinha, Jha, Kumar, 2021). On the other hand, Kozic (2020) defined sustainable packaging as “the result of a process approach in which certain attributes are added to a standard product that increase the economic, social and environmental value throughout its entire life cycle.”

With the increase in awareness about sustainability and its significance and the rise in eco-friendly regulations, sustainable packaging is, now more than ever, an issue of concern for customers. Consumers nowadays are inspired to use eco-friendly packaging as more and more consumers are conscious on the impact of plastic

¹ Lyceum of the Philippines University - Manila, Philippines

* Corresponding author's e-mail: emmanuel.dotong@lpu.edu.ph

packaging in the environment (Martins, 2019).

In order to preserve the environment in which we live, consumers are incrementally changing their lifestyles and consumption habits to promote sustainable packaging to public. However, many consumers are not motivated to buy sustainable packaging as they still not recognizing the impact of buying and using plastic packaging. In relation to this, many companies do not have a market intelligence in terms of how consumers perceived the usage of sustainable packaging to convince them to switch from producing plastic packaging to eco-friendly packaging.

In relation to this, many businesses do not have market intelligence on how consumers perceive the usage of sustainable packaging. As a result, it may be difficult for companies to persuade consumers from buying plastic packaging to sustainable packaging as they might not perceive how consumers feel about eco-friendly packaging. With this, the researchers aimed to undertake this market research on how Filipino consumers perceive the usage of eco-friendly tertiary packaging. The researchers will use the sustainability pillars as the primary drivers of consumer buying behavior (Purvis, Mao, Robinson, 2019). The sustainability variables for the tertiary packaging was based from the Triple Bottom Line (TBL) approach which include environmental, social, and economic concerns (Eilert, 2005). From an economic standpoint, packing may help reduce direct and indirect operating expenses by utilizing diverse materials, assuring proper handling of products, allowing for speedier transit, and facilitating more practical storage. Hence, variables considers the affordability, compliance, and practicality of the packaging. For social considerations, variables include the social norms and personal factors as a determinant that influences consumers to buy sustainable packaging. In terms of environmental considerations, packaging should have a minimal carbon footprint by optimizing the use of materials and designs during the useful life of the product. Environmental considerations include package quality, product recyclability, and environmental benefits. This strategy acknowledges that social and economic elements, in addition to environmental concerns, can have an impact on consumer buying behavior.

This research provides insightful market intelligence to businesses transitioning to sustainable packaging. By gaining a deeper understanding of the main influences on consumer behavior related to eco-friendly packaging, companies may be better able to plan their marketing and product development initiatives. Furthermore, this study can contribute to promoting environmentally friendly packaging in the Philippines and assist businesses in effectively responding to customers' evolving preferences as they become more conscious of how their purchases affect the environment.

METHODS AND MATERIALS

Research Design

This quantitative market research study intends to collect consumer insights on the perceived behavior of Filipino

consumers toward eco-friendly tertiary packaging. The researchers employ a descriptive-comparative approach to evaluate and contrast market segmentation characteristics and sustainability pillar considerations in buying and using sustainable packaging to provide businesses a market data as a basis for their market segmentation, targeting, and positioning strategies.

The researchers gathered a statistically significant sample size and extrapolated results to the larger population of Filipino consumers. This approach is applicable for this market research as it offers actionable insights based on tangible facts that can guide their decision-making processes. The descriptive-comparative approach for this market study defined the market segmentation characteristics and sustainability criteria and compared them to uncover possible patterns and linkages. This technique may help companies learn how consumer groups perceive and prioritize sustainability considerations, informing marketing tactics for sustainable packaging.

Research Instrument and Data Gathering Procedure

The researchers utilized an online survey method using Google forms to gather the data about consumer buying behavior. The survey instrument is comprised of five (5) components that includes inquiries related to demographic, behavioral, environmental, social, and economic factors with a total of 36 questions. The study targeted consumers who purchase products in Metro Manila, Philippines. The data was collected through convenience sampling and voluntary response sampling with a total of 450 respondents, allowing them to voluntarily participate in the survey at their convenience.

Statistical Treatment

The researchers utilized descriptive statistics to provide a summary of the demographic and behavioral characteristics of the survey respondents. Weighted mean was used as a measure of central tendency to assess the average perceived importance of sustainable tertiary packaging among Filipino consumers. Standard deviation was also applied to assess the variation in responses, such as the level of importance, frequency, agreement, and likelihood towards sustainable packaging.

Moreover, the researchers performed an inferential statistics test to examine whether there were significant differences in the respondents' perceptions based on the normality test using Kolmogorov Smirnov, Mann Whitney, and Kruskal Wallis. These statistical tests help to determine if the observed differences are statistically significant or just occurred by chance. Using descriptive and inferential statistics together can provide a more comprehensive understanding of the data and enable researchers to draw meaningful conclusions.

This allowed the researchers to evaluate the overall perceived importance of sustainable packaging among Filipino consumers and determine if there were significant differences in their perceptions based on the stated variables.

Objectives and Hypotheses

The objective of this study was to determine the level of acceptability on the use of sustainable tertiary packaging among the Filipino consumers based on their demographic and behavioral profile.

The following hypotheses below were set to guide this whole study.

H01

There is no significant difference in the level of acceptability on the use of sustainable tertiary packaging among the respondents based on their demographic profile.

H02

There is no significant difference in the level of acceptability on the use of sustainable tertiary packaging among the respondents based on their behavioral profile.

RESULTS AND DISCUSSION

Table 1 shows that the greater percentage of the respondents are at the age bracket of 29 years old and below with a frequency of 285 and 63.3 percent. It also conveys that female have the greater percentage with the frequency of 258 and 57.3 percent. 68.2 percent of the total respondents are residing or consuming convenience products inside Metro Manila. However, the 31.8 percent

Table 1: Demographic Profile of the Respondents

Demographic Profile	Variables	Frequency	Percentage
Age Group	29 and below	285	63.3
	30-49	108	24.0
	50 and above	57	12.7
Sex	Male	192	42.7
	Female	258	57.3
Residence	Metro Manila	307	68.2
	Outside Metro Manila	143	31.8

of the total respondents are residing or consuming convenience products outside Metro Manila.

Table 2 represents the behavioral profile mean summary

of the respondents. Based on the table, Filipino consumers actively uses eco-friendly packaging, and they often use the packaging on an average of twice a week.

Table 2: Mean Summary of Behavioral Profile

Behavioral Profile	Mean	Descriptive Equivalent	Verbal Interpretation	Std. Dev
User Status	3.24	Active Users	Eco-friendly Packaging Users	0.64
Purchase Frequency	2.85	Often	Twice a Week	0.73

Table 3: Mean Summary of Sustainability Factors

Sustainability Factors	Mean	Descriptive Equivalent	Verbal Interpretation	Std. Dev
Environmental	3.10	Acceptable	Important Factor	0.24
Social	3.63	Perfectly Acceptable	Very Important Factor	0.40
Economic	3.69	Perfectly Acceptable	Very Important Factor	0.42
Total	3.47	Perfectly Acceptable	-	0.29

The table 3 summarizes the consumer level of acceptability in terms of buying and using eco-friendly tertiary packaging. Descriptive results conveys that the environmental factor has a mean rating of 3.10 with a verbal interpretation of acceptable this means that the considerations in using eco-friendly tertiary packaging in terms of environmental benefits such as durability, reusability, aesthetic, design, and comfortability, free from toxins and allergens, reduction plastic usage, and eco-friendly materials to carry are acceptable enough for consumer to buy and use eco-friendly packaging. In 2020, the United Nation as cited by Kumar, Verma, Shome, Sinha, Sinha, *et al.* (2021), reported that consumers are more conscious of the environment since it helps to reduce the need for single-use plastic bags that have a

harmful effect on the environment.

The social factors in terms of subjective norms, knowledge, lifestyle, and behavior resulted to a mean rating of 3.63 with a descriptive equivalent of perfectly acceptable. This means that consumers consider the social factors as very important variable in consideration for buying and using sustainable packaging. Findings revealed that Filipino consumers are influenced to used and buy sustainable packaging by being eco conscious of their families. Friends and neighbors are also a factor that affects the consumers' purchasing decisions towards a sustainable packaging. This means that when many friends and neighbors are using it, the consumer will more likely to do the same. Moreover, the consumers are also influenced by what they read and see on social

media (Kozik, 2020). Lastly, the economic factor resulted a mean rating of 3.69 with descriptive equivalent of perfectly acceptable. This indicates that consumers are prepared to pay a nominal amount for sustainable packaging and will comply with local regulations of their cities regarding sustainable tertiary packaging. In recent years, the market's interest in packaging alternatives to plastic has expanded considerably due to the growing importance and acceptance of sustainability among

customers (Lignou, 2020).

Table 4 conveys that there is a significant difference among the sustainability factors based on the age of the respondents. Consumers below 29 years old are more receptive to tertiary packaging that is environmentally friendly. On the other hand, consumer aged 50 and older are unlikely to approve buying and using sustainable tertiary packaging. Younger consumers and advocates are more likely to support the use and purchase of sustainable

Table 4: Kruskal Wallis - Comparison Based on Age

Comparative Summary	P-value	Hypothesis Decision	Verbal Interpretation
Environment Mean	.012	Reject Hypothesis	Significant difference
Social Mean	.000	Reject Hypothesis	Significant difference
Economic Mean	.005	Reject Hypothesis	Significant difference
Overall Mean	.000	Reject Hypothesis	Significant difference

tertiary packaging since environmental practices are an integral part of their daily routine and they often to be a member of organizations that promote sustainability. However, the older consumers are more likely to have children and therefore, having lack of time to commit with environmental practices (Nodalo, 2020).

Table 5 reveals that there is considerable gender-based

differences across the sustainability factors. Findings show that each gender has comparable environmental acceptability regarding the use and purchase of sustainable packaging. When it comes to social and economic factors, however, female consumers are more influenced by their family, friends, and social media and they are more inclined to obey rules and eager to buy sustainable tertiary

Table 5: Mann Whitney - Comparison Based on Sex

Comparative Summary	P-value	Mean	Std. Dev	Hypothesis Decision	Verbal Interpretation
Environment Mean	.073	3.1000	0.23606	Accept Hypothesis	No significant difference
Social Mean	.012	3.6301	0.40138	Reject Hypothesis	Significant difference
Economic Mean	.004	3.6937	0.42199	Reject Hypothesis	Significant difference
Overall Mean	.005	3.4752	0.29374	Reject Hypothesis	Significant difference

packaging. This result supports the remarks of Rachel Howell as cited in the Guardian (2020), that "Research suggests that women have higher levels of socialization to care about others and be socially responsible, which then leads them to care about environmental problems and be willing to adopt environmental behavior."

Table 6 shows that there are no significant differences among the sustainability factors based on the consumer's place of residence. The results indicates that the consumers of Metro Manila and outside Metro Manila are entirely accepts the purchase and usage of sustainable tertiary packaging. As Filipino consumers grow more conscious of the effect plastic packaging has on the environment, the research predicts that eco-friendly

or green packaging with smarter but simpler designs will continue to dominate the market. Increasingly, Filipino customers are opting for eco-friendly packaging (Magkilat, 2020).

Table 7: Kruskal Wallis – User Status

Comparative Summary	P-value	Verbal Interpretation
Environment Mean	.001	Significant difference
Social Mean	.000	Significant difference
Economic Mean	.003	Significant difference
Overall Mean	.000	Significant difference

Table 7 conveys that there is a significant difference among sustainability factors and the consumer user status in terms of buying and using sustainable packaging. Valenzuela (2019) reported that there are consumers who often use eco-friendly packaging because it is convenient and comfortable to use, and because they are affected by societal norms and accepted the regulations of their cities. In addition, there are consumers that consistently utilize sustainable tertiary packaging every day since they are influenced by all sustainable factors.

Table 6: Mann Whitney - Comparison Based on Residence

Comparative Summary	P-value	Verbal Interpretation
Environment Mean	.334	No significant difference
Social Mean	.360	No significant difference
Economic Mean	.103	No significant difference
Overall Mean	.625	No significant difference

Table 8: Kruskal Walis – User Frequency

Comparative Summary	P-value	Verbal Interpretation
Environment Mean	.001	Significant difference
Social Mean	.000	Significant difference
Economic Mean	.003	Significant difference
Overall Mean	.000	Significant difference

Table 8 demonstrates that there is a significant difference among sustainability factors and consumer user frequency in buying and using sustainable packaging. Based on the findings, there are consumers who often buy and use eco-friendly packaging because it is durable and can last longer. These consumers are influenced by societal norms such as social media, family, and friends, and are prepared to pay more for sustainable tertiary packaging. Kyle (2019) stated that buying sustainable packaging is also an integral aspect of consumer's everyday life as most consumers currently choose eco-friendly packaging due to the fact that it is durable, affordable in the long run, and is more environmentally friendly. In addition, most consumers who seldom buy eco-friendly packaging often bring their own eco-bags to carry their purchased goods.

CONCLUSION AND RECOMMENDATION

The empirical results of this research provide tenable evidence that most Filipino consumers are now considering the environmental benefits of eco-friendly packaging. This remark emphasizes the growing importance of environmental concerns among consumers. Now that they are more conscious of the detrimental effects of plastic packaging on the environment, they want to contribute to the cause by buying and using eco-friendly packaging. In the Philippine Market, the researchers concluded that majority of Filipino consumers are currently regarded to be active users of sustainable packaging, which they often use on average twice per week. Additionally, it is established in the study that the usage and purchase of eco-friendly packaging are more accepted by consumers in the bracket of 29 years old and below. In terms of social factors, it was also discovered that family, friends, and social media encourage female Filipino consumers more to buy and use sustainable packaging. In terms of economic factors, females are also more like to buy sustainable tertiary packaging than males. Moreover, there are Filipino consumers who often prefer to buy and use eco-friendly packaging because it is durable and can last longer; they are influenced by social norms such as social media, family, and friends, and are prepared to pay a premium for such packing. Lastly, results showed that there are Filipino consumers who rarely buy sustainable tertiary packaging because most of them bring their own eco bags in carrying their purchased goods.

Based on the results, the researchers recommends to marketers to continuously promote the eco-friendly packaging in social media as the consumers are strongly

affected by social media advertisements. It is also recommended to use an advertisement which focuses on a persona related to a young individual with his or her family and friends encouraging them to buy and use sustainable packaging for the same reason. A campaign promoting social, economic, and environmental factors cited in the study can also improve the influence of the campaign to the target audience. For future researchers, it is recommended to include more segmentation variables such as psychographic, geographic, and technographic variables to widen the scope of differences in terms of market segmentation. In addition, a correlation study pertaining to the segmentation variables and sustainability factors is recommended to determine the significant relationship between the market segments and sustainability factors.

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