



RESEARCH ARTICLE

Factors Affecting Consumer’s Purchase Intention to Eco-Product Packaging for Different Generations in Thailand

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ARTICLE INFO	ABSTRACT
<p>Received: Aug 20, 2024 Accepted: Oct 16, 2024</p>	<p>The global environmental crisis, exacerbated by the excessive use of non-biodegradable packaging, poses a significant threat to our planet. The COVID-19 pandemic has further amplified this issue by driving a surge in e-commerce and consequently, packaging consumption. In developing countries like Thailand, a growing awareness of environmental conservation has emerged across various demographic groups. This study aims to investigate the factors influencing purchasing intentions towards environmentally friendly packaged products among different generations of Thai consumers. Specifically, the objectives are to analyse the factors that affect purchasing intentions of environmentally friendly packaged products across different generations and compare the differences in these factors among various generational groups. Despite the growing demand for eco-friendly packaging, businesses face higher production costs, making it challenging to gauge consumer preferences accurately. To address this gap, a quantitative research approach was employed, involving an online survey of 672 Thai consumers from Generation X, Generation Y, and Baby Boomers. The findings revealed that consumers' attitudes towards environmentally friendly packaged products, perceived value, and the packaging's environmental image positively influenced customer satisfaction and, subsequently, purchase intentions. Moreover, statistically significant differences were found among Generation X, Y, and Baby Boomers regarding these factors, except for the environmental image of packaging and purchase intentions.</p>
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INTRODUCTION

Plastics create significant pollution problems due to inefficient waste disposal practices and inadequate waste management systems. This leads to various issues, including overflowing garbage in cities, ocean pollution, and microplastic contamination (Pratip) that impacts wildlife and humans globally. Approximately 19-23 million tonnes of plastic waste leak into aquatic ecosystems annually. Up to 22% of plastic waste is mismanaged, and only about 9% is recycled, resulting in a substantial amount ending up in the ocean. (United Nations)

Currently, Thailand generates 25.70 million tons of waste, of which 9.8 million tons are properly disposed of, 7.1 million tons are improperly disposed of, and 9.91 million tons are residual waste. This highlights the significant waste problem contributing to pollution. (Pollution Control Department) The issue of plastic waste is a major environmental challenge that must be addressed

to achieve sustainability. (Wattanakamonkul) In response, many brands are adopting innovative technologies to create environmentally friendly products. For example, paper straws are biodegradable, and paper bags are used instead of plastic bags. Additionally, products that are recyclable, reusable, or designed to reduce waste are being promoted. (Tangsaengprathip). ECO Products, which are designed with sustainability in mind, offer substantial benefits by reducing waste generation and helping consumers feel engaged in environmental preservation (Bangkok Business).

During 2021-2022, the packaging business in Thailand experienced significant growth, largely due to the impact of the COVID-19 pandemic. As consumers engaged more in personal activities such as working from home, eating at home, and shopping online, the demand for various types of packaging increased. In 2022, the Thai packaging market expanded by over 10.5%, reaching a value of more than 644 billion baht. Notably, plastic packaging constituted about half of this market value (Business Information Division Department of Business Development). However, plastic packaging is challenging to decompose, and its production and disposal generate greenhouse gases such as methane and ethylene, contributing to global warming and environmental pollution. As a result, there is a growing trend towards environmentally friendly products, as modern consumers become more aware of the environmental (Aziz et al. 2024) impacts associated with their consumption habits. (Economic Analysis Center).

The Thai government is actively promoting a reduction in plastic waste, leading to the rise of Eco products—environmentally friendly products that are gaining popularity among consumers. Awareness of environmental issues, such as global warming, habitat loss, and pollution, is driving this trend. According to recent studies, 74% of consumers across all generations—Baby Boomers, Gen X, Gen Y, and Gen Z—are inclined to choose environmentally friendly products. This shift is influenced by both the green trend and the direct impact of environmental problems, including PM 2.5 dust and the COVID-19 pandemic, which have heightened concern for quality of life (Ottman 1992). As a result, consumers of all ages are increasingly expecting brands and businesses to develop products with a focus on sustainability and are supportive of Eco Products.

The researcher has chosen to study the factors influencing the intention to purchase products with environmental packaging among consumers of different generations in Thailand. Given the growing trend of ecological conservation and market competition, several factors impact consumers' purchase intentions (Novela et al. 2020). Environmental considerations are particularly significant, as the packaging industry intersects with economic activities in manufacturing, trade, and services. Consequently, environmental packaging has become a crucial consideration for companies (Alam 2023; Dilkes-Hoffman et al. 2018). Marketers are increasingly highlighting environmental packaging to attract target customers and promote sustainability.

LITERATURE REVIEW

This section outlines the main concepts and theories relevant to the research, providing a framework for examining the related factors. The study is divided into six key areas: the importance of attitude, perceived value, the image of eco-packaging, consumer satisfaction, and purchase intention.

Attitude In attitude psychology, it is believed that attitude plays a central role in an individual's thinking and significantly influences their behavior (Marlene et al. 2021). Attitude is shaped by various factors, including social conditions, media, and education, and it is not fixed attitudes can change over time (Official Statistics Registration Systems). It represents an evaluation of the extent to which a person likes or dislikes particular objects (Novela et al. 2020; Das 2014). Marketers often leverage this by using advertising to create positive attitudes toward products and brands (Lin and Chen 2016). Attitudes also reflect a person's overall perspective, which arises from learning experiences and feelings, particularly in the context of products with environmental packaging (Jaipukdee and Tantivejakul 2019).

According to (Jaturongkakul et al. 2007, 219) consumer attitudes consist of three important components:

Cognitive Component: This involves the understanding or beliefs about a product or service, which are based on knowledge. The cognitive component influences perception and determines trust. It reflects specific knowledge, personal characteristics, and evaluations related to ideas, people, objects, or situations.

Affective Component: This pertains to emotional feelings and states, which can enhance positive or negative experiences. These emotions can have significant psychological effects.

3. Behavioral Component: This refers to the tendency to act in a certain way toward something that a person has an attitude about.

Perceived value, as described by Romiti and Sarti (2016) refers to consumers' perception of value, which plays a key role in developing consumer loyalty and can increase the frequency of purchasing products or services. Delivering perceived value to consumers can create a competitive advantage and involves measuring emotional value, social value, monetary value, and novelty value (Williams and Soutar 2009). Consumer satisfaction, on the other hand, is determined by the difference between what consumers imagine or expect and the value they actually receive (Gummerus et al. 2012). Additionally, consumers generally recognize the importance of environmental issues and understand the impact of using natural resources during the production process, which is considered a critical aspect of perceived value (Luo et al. 2022).

Eco Packaging Image refers to the mental picture that arises in a person's mind, which may include images of living or non-living things, such as a person, organization, institution, or brand. This image is shaped by the use of packaging to create a brand identity (Lapiratanakul 1992). Manufacturers can create a strong impression and connect with the uniqueness of a product through packaging design (Jianqing and Chich-Jen 2022). Beyond its primary function of preserving products, packaging should be developed with a focus on using renewable energy and recycled materials (Guillard et al. 2018).

Balancing the protective functions of packaging with environmental considerations is essential as product development and consumer demand evolve. This balance has led to the development of new packaging that minimizes environmental impact (Bhardwaj et al. 2020). Consequently, the impact of packaging on the environment plays a significant role in sustainability (Boz et al. 2020), despite challenges related to production costs and higher pricing (Bhardwaj et al. 2020) as green products or environmentally friendly products or eco-friendly products (Na Songkhla) packaging that process is usually to use an earth-friendly method that does not harm or damage the environment and allow the release of pollutants.

Today, packaging plays a crucial role in creating a brand's image, product value, and service perception (Nuttapong). A strong brand image can attract new customers, as they are more likely to be interested in the brand's offerings. Furthermore, a positive image lends credibility to the brand, fostering consumer trust and reinforcing the belief that the brand will deliver the best to its consumers (Hoeffler and Keller 2003).

Consumer satisfaction occurs when customers feel that the benefits of a product's features, functionality, or overall quality meet or exceed their expectations. The level of customer satisfaction is influenced by the difference between the perceived benefits of the product and individual expectations, which are shaped by product or service characteristics and perceptions of quality. Additionally, customers' emotional responses play a crucial role in determining their satisfaction (Lin and Chen 2016). High customer satisfaction can benefit a company by fostering customer loyalty, extending the customer life cycle, and encouraging repeat purchases. Satisfied customers are also more likely to engage in positive word-of-mouth communication and recommend the company's

products or services to others. A business cannot grow if it ignores the needs of its customers (Tao 2014).

Furthermore, environmental issues have become increasingly important, and businesses face growing pressure to act responsibly and adopt environmentally friendly practices (Bansal 2005). Consumers are more inclined to purchase products from manufacturers or sellers that demonstrate high standards in environmental management throughout the entire process—from sourcing raw materials to production, packaging, transportation, and post-consumer waste management (Tao 2014).

Therefore, customer satisfaction related to environmental concerns arises when customers feel that the products and services they consume meet their goals and desires regarding environmental responsibility. This type of satisfaction is achieved when consumption exceeds customer expectations and delivers superior value, giving a significant competitive advantage in the market (Bansal 2005; Midilli et al. 2021).

Based on the literature review, the research hypotheses are as follows:

H1: Attitudinal factors toward products using environmental packaging positively affect consumer satisfaction.

H2: The perceived value of products using environmental packaging positively affects consumer satisfaction.

H3: The image of environmental packaging positively affects consumer satisfaction.

Purchase intention refers to the stage when a consumer is ready to choose a specific option that best meets their needs. A consumer's decision to purchase a product may depend not only on the product itself but also on whether it is beneficial or fulfills an arising need (Kim and Pysarchik 2000). Purchase intention is a psychological process that indicates the consumer's plan to purchase a particular product; it typically stems from their attitude toward the product (Li et al. 2024) (Hyder and Amir 2023). Additionally, purchase intention serves as the intermediary step between evaluating alternatives and making the purchase decision. Generally, consumers first develop an intention to purchase a product before actually buying it, influenced by factors such as preferences (Jaturongkakul et al. 2003, 164)(Gobel et al. 2024)

While purchase intention often leads to purchasing decisions, this is not always the case, as various factors can interfere. These intervening factors include the attitudes of others and unexpected situational factors (Kotler and Keller 2012, 192) The quality of a product, particularly in terms of its environmental impact, positively influences consumer purchase intention (Godey et al. 2012). Studies by Gounaris et al. (2010) suggest that products with minimal environmental impact positively affect consumer satisfaction. Furthermore, consumers evaluate products based on quality, price, and brand, with purchase decisions influenced by both internal and external factors (Durvasula et al. 2004). Consumers with a high perception of product quality tend to experience greater satisfaction, leading to higher purchase intentions. This suggests a direct relationship between perceived quality and purchase intention (Tsiotsou 2006; Ibizan et al. 2016).

Based on these findings, the new research hypotheses are:

H4: Consumer satisfaction positively affects consumers' purchase intentions.

H5: Consumer attitudes toward products using environmental packaging, perceived value, packaging image, consumer satisfaction, and purchase intention vary across different generations.

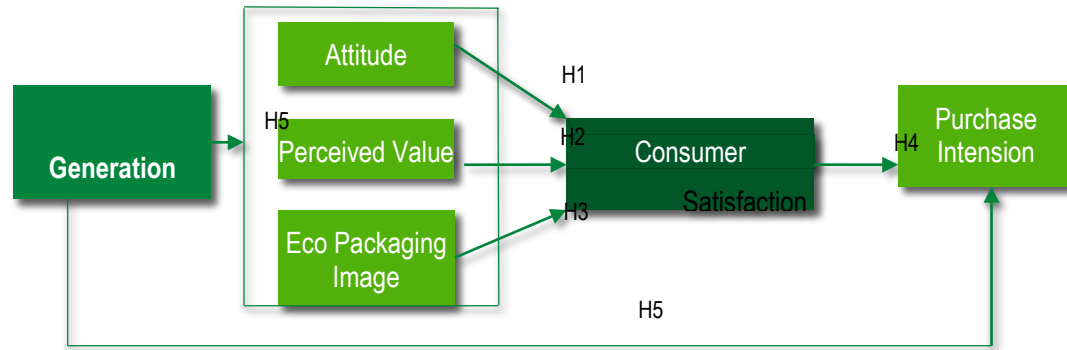


Figure 1. The development of the research framework

Method of research analysis: an extension of the methodology used in (Chaihanchai and Anantachart 2021).

MATERIALS AND METHODS

This research employs a quantitative approach, utilizing a survey research format. The data is collected through online questionnaires created using Google Forms, a platform suitable for designing and administering surveys online. Respondents from a sample group in Thailand self-administer the questionnaire.

Population and Sample: The study focused on individuals who had previously used environmental packaging. The criteria for dividing consumers by generation are as follows: Baby Boomers (ages 55-73), Generation X (ages 39-54), and Generation Y (ages 25-38) (Dechawattanapaisan 2009). A survey conducted in 2023 found that Thailand has a population of approximately 66,052,615 people, with Generation Y accounting for roughly 18 million people, Generation X for 16 million, and Baby Boomers for 11 million (Department of Business Development). Given that the younger population tends to make purchase decisions quickly without much deliberation (Official Statistics Registration System), these three generations were selected as the population for this study.

The sample is determined using non-probability sampling methods, specifically quota sampling, with a margin of error set at 0.05 or 5 percent, as per the principles outlined by Yamane (1976,886). The final sample size for this research is 400 people. The sample characteristics include age range, and due to the need for data collection across generations, an initial sample size of 200 people per generation was planned. However, the combined sample size for the three generations totals 600 people.

The data collection tools used in this research included a review of related theories and research to guide the design. A total of five variables were studied using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) via a questionnaire. The validity of the content was tested using the Index of Objective Congruence (IOC) method, evaluated by three experts, with an acceptable content accuracy value of 0.50 or higher (Layes et al. 2015)

The questionnaire was designed to align with the research objectives and definitions. To assess reliability, the questionnaire was tested on a sample of 30 people, and the reliability was measured using Cronbach's alpha coefficient, which ranges from 0 to 1. A Cronbach's alpha coefficient greater than 0.7 indicates acceptable reliability (Taber 2018) The results are presented as follows.

Attitude is assessed as a measure of the tendency towards products using environmental packaging. This measure, adapted from Yothadee and Laohavichien (2021), has a reliability coefficient of 0.86.

Perception measures the value consumers associate with products using environmental packaging, including aspects such as reliability, value creation, and emotional impact. This measure, adapted from Granda (2021), has a reliability coefficient of 0.92.

Eco packaging image measures aspects such as creativity, innovation, value addition to ecological concerns, consumer safety, quality, and impacts on product reliability. This measure, adapted from Kumar et al. (2021), has a reliability coefficient of 0.85.

Consumer satisfaction measures aspects such as impression, value, efficiency, and interest in environmental packaging products. This measure, adapted from Mohd Suki (2015), has a reliability coefficient of 0.92

Purchase intention refers to the cognitive process related to the intention to make a purchase. According to Duarte et al. (2024) the appraisal quality of products or services influences purchasing decisions, with a reliability coefficient of 0.95.

RESEARCH METHODOLOGY

In this study, data was collected from samples who had experience in making purchasing decisions eco products packaging within the past 1 year and data analysis of variables including mean, standard deviation, correlation coefficient. The ideal statistic for hypothesis testing is the Structural Equation Model (SEM), and it proceeds to consumers' attitudes towards environmentally friendly packaged products, perceived value, and the eco packaging image, customer satisfaction and, subsequently, purchase intentions.

RESULTS AND DISCUSSIONS

This research aims to examine the factors affecting consumers' purchase intention for eco product packaging across different generations in Thailand. A total of 708 respondents participated, with 672 of them (94.9%) having experience in purchasing eco product packaging. The sample was categorized by generation according to (Mongula et al. 2023), resulting in 213 Baby Boomers, 233 Generation Y, and 226 Generation X, which correspond to 33.6%, 34.7%, and 31.7%, respectively. Additionally, the majority of the sample were male (370 people) and female (338 people), with most being self-employed (30.8%), earning a monthly income of 10,001 baht (61.7%), and more than half being single (40.6%) with a bachelor's degree (67.5%).

The analysis of the suitability of independent variables was conducted using factor analysis to assess the relationships among the 13 different independent variables.

Table 1. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.786
Bartlett's Test of Sphericity	Approx. Chi-Square	1077.427
	df	78
	Sig.	.000

Table 1 shows the correlation test by factor analysis. The statistical test methods in the analysis are the KMO test (Kaiser-Meyer-Olkin) and Bartlett's Test of Sphericity. In the test of the suitability of the independent variable between different measures at a significant level of 0.05, it was found that when the suitability of the data in the factor analysis was tested, the KMO test value was equal to 0.786, which was greater than 0.5, indicating that the 13 factors are appropriate for Exploratory Factor Analysis, and a value greater than 0.7 indicates that it is suitable for component analysis.

Additionally, Bartlett's Test of Sphericity produced an approximate chi-square value of 1077.427 with a significance level (Sig.) of 0.00, which is less than the significance level of 0.05, showing that the 13 factors are interrelated.

Analysis of Relationships Between Variables Using Multiple Regression

The results of analyzing each group of variables provide the Beta Coefficient for the regression equation, which indicates the strength of the relationship between the independent variables and the dependent variable. A higher Beta Coefficient for an independent variable suggests a stronger effect on the dependent variable. Furthermore, the examination of multicollinearity using Variance Inflation Factor (VIF) and Tolerance values showed that the VIF value was 1, which is less than 4, and the Tolerance value was 1, which is not below 0.2, indicating that the independent variables are not correlated (no multicollinearity)(Shrestha 2020). These values are deemed appropriate, and the results from the multiple regression analysis are presented in Tables 2 and 3 to test the hypotheses using multiple regression as described.

Statistically significant factors influencing consumer satisfaction (CS) with eco product packaging include Attitude towards purchasing eco product packaging (ATT), Perceived Value (PV), and Eco Product Packaging Image (EPI), with effect sizes of 0.524, 0.595, and 0.624, respectively. The variables of consumer satisfaction using eco product package were statistically insignificant as shown in Table 2.

Table 2. Shows the Coefficients for Predicting Consumer Satisfaction with Eco Product Packaging

Variable	Coefficient					Collinearity statistics	
	b	β	S. E. _b	t	Sig.	Tolerance	VIF
ATT	0.510	0.524	0.032	15.936	.000	1.00	1.00
PV	0.589	0.595	0.031	19.151	.000	1.00	1.00
EPI	0.651	0.624	0.031	20.688	.000	1.00	1.00
(a)	0.810	0.686	0.033	24.399	.000		
R = 0.686 R ² = 0.470 Adjusted R ² = 0.470 S.E. = 0.332 F = 595.297 df = 1 Sig = .00							

Table 3. The Coefficients for Predicting Consumer Purchase Intention with Eco Product Packaging

Variable	Coefficient					Collinearity statistics	
	b	β	S. E. _b	t	Sig.	Tolerance	VIF
CS	0.575	0.543	0.034	16.727	.000	1.00	1.00
R = 0.543 R ² = 0.295 Adjusted R ² = 0.294 S.E. = 0.406 F = 279.798 df = 1 Sig = .00							

The statistically significant factor influencing purchase intention is consumer satisfaction with eco product packaging (CS), with an effect size of 0.543. This indicates that consumer satisfaction significantly affects purchase intention with eco product packaging, as shown in Table 3.

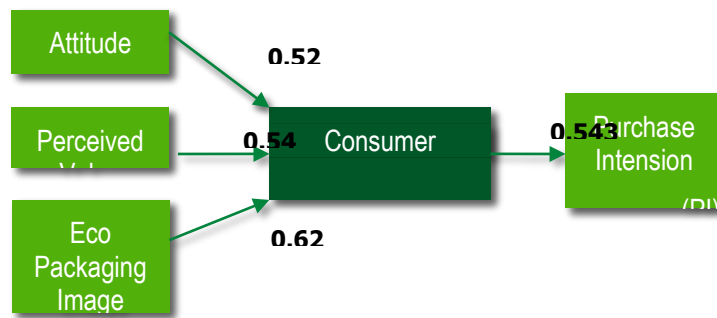


Figure 2. Path Diagram

Table 4. Differences between Baby Boomer, Generation X, and Generation Y Consumers

Variable	Baby Boomer		X		Y		F	Sig.
	M	SD	M	SD	M	SD		
ATT	3.985	0.659	4.039	0.495	4.077	0.485	12.178	.00
PV	4.113	0.630	4.069	0.462	4.218	0.481	10.213	.00
EPI	4.086	0.610	4.082	0.421	4.145	0.460	4.327	.014
CS	4.093	0.615	4.084	0.448	4.169	0.490	6.545	.002
PI	3.983	0.697	4.080	0.443	4.060	0.549	3.968	.019

The results of the ANOVA statistical test for comparing differences among the sample groups—Baby Boomer consumers (213 people), Generation X consumers (226 people), and Generation Y consumers (233 people) reveal that, overall, all three groups of consumers place a relatively high importance on the value received from products with eco product packaging. However, there are statistically significant differences among Baby Boomer, Generation X, and Generation Y consumers. Details are provided in Table 4.

The attitude of the three groups towards products with eco product packaging differs significantly ($F = 12.178$, $\text{Sig} < 0.05$). Generation Y consumers have a higher average attitude score of 4.077 compared to Generation X and Baby Boomer consumers, whose scores are 4.039 and 3.985, respectively.

There are significant differences in perceived value among the three groups ($F = 10.213$, $\text{Sig} < 0.05$). Generation Y consumers have a higher average perceived value score of 4.218, compared to Generation X and Baby Boomer consumers, whose scores are 4.096 and 4.113, respectively.

The image of eco product packaging does not differ significantly among the three groups ($F = 4.327$, $p < 0.05$). Generation Y consumers have a higher average image score of 4.145, slightly higher than Generation X and Baby Boomer consumers, with average scores of 4.082 and 4.086, respectively.

CONCLUSIONS AND FURTHER RESEARCH

The research findings above indicate that attitudes toward products with eco product packaging, the perceived value of eco product packaging, the image of eco product packaging, and consumer satisfaction after purchasing products with eco product packaging are factors that most predict consumers' purchase intention for products with eco product packaging, respectively. This indicates that the perceived value of eco product packaging is the most crucial factor influencing consumers' decisions to purchase products with eco product packaging or products with environmental certification. This may be because perceived environmental value affects purchasing decisions, and consumers place importance on environmental issues and feel that purchasing such products is

worthwhile as it helps protect the environment (Bui et al. 2023.). According to the research findings, the sample group in this study found that the aesthetics of eco product packaging increased their interest and desire to purchase the product ($M = 3.86$). Packaging with environmental certification was perceived as more trustworthy than products without certification ($M = 4.14$). Eco product packaging was seen as contributing to environmental value by conserving natural resources and promoting sustainable resource use ($M = 4.07$). Products with eco product packaging were also considered to provide psychological value, making consumers feel good about contributing to environmental protection ($M = 3.75$). Therefore, when choosing between two identical products, the sample group was more likely to select the product with less environmental impact and was willing to buy products that might have an effect on reducing environmental harm.

The research findings also confirm previous studies indicating that perceived value of eco product packaging aligns with the work of Cronin et al. (2000), who discovered a significant relationship between customer satisfaction and perceived value. Whether regarding brand knowledge provided to customers or the external characteristics of the product, perceived value impacts brand trust. This supports (Wu and Huang 2023). who argued that perceived value is a crucial component for long-term consumer engagement and plays a significant role in influencing consumer trust. It is also consistent with the theory of beliefs, values, and norms, which suggests that high perceived value can enhance trust in purchasing products (Sirdeshmukh et al. 2002). In terms of purchase intention influenced by customer satisfaction, this can be linked to the work of Kornsuphkit et al. (2024), who explored the factors of customer satisfaction affecting consumer purchase intention. The study demonstrated that higher levels of customer satisfaction and trust lead to increased purchase intention. The research noted that satisfaction and trust in a brand are crucial factors that significantly enhance customers' purchase intention.

The research findings indicate that consumers across the Baby Boomer, Generation X, and Generation Y cohorts exhibit similar levels of environmental concern. This suggests that most people, regardless of their generation, are already mindful of environmental issues. The average level of environmental consideration among the sample group is at a good level, as mentioned earlier. This is likely due to the fact that environmental issues are important not only for individuals but also for humanity as a whole. In recent years, environmental problems have increased, and in 2023, our world continued to face various environmental disasters, including climate crises that heightened awareness of their severity, violations of coastal community rights, threats to global ocean resources, and worsening air pollution (Chongjitkasem).

However, there are differences among the three consumer groups in terms of their purchase intention for products with eco product packaging, attitudes towards such products, perceived value of eco product packaging, the image of eco product packaging, and consumer satisfaction after purchasing products with eco product packaging. This aligns with the research by Chaihanchai and Anantachart (2021) Additionally, the survey indicates that Generation Y places the highest importance on choosing products with eco product packaging, which is consistent with the findings of Karavasilis et al. (2015). Their study measured environmental concern among Generation Y consumers in Greece and found that those with high environmental concern place significant importance on environmental issues. Similarly, the research by Yadav and Pathak (2016) on the influence of attitudes and purchase intentions for eco-friendly products in India noted that young consumers' purchase intentions for environmentally friendly products can be predicted by their attitudes towards the environment. This reflects the direction and beliefs of individuals regarding environmental issues. The survey also found that Generation X places importance on purchasing products with eco product packaging. Furthermore, the research by Brand et al. (2022) indicated that Generation Y is more concerned with global warming and environmental degradation and recognizes a strong sense of responsibility towards the environment (Yadav and Pathak 2016; Kanchanapibul et al. 2014). They seem to be more motivated to purchase eco product packaging and are willing to

pay a premium for sustainable features. Mostafa (2009) demonstrated that variations in environmental concern determine different behavioral patterns. This research indicates that each generation prioritizes eco product packaging differently, which is supported by previous studies showing that age affects changes in consumers' environmental behaviors (Berenguer, 2005; Ottman 1992; Shrum et al. 1995).

This research is beneficial to marketers and business owners involved in the production of eco product packaging. It helps identify trends based on factors that influence customer satisfaction and purchase intention, allowing for the design of packaging that is suitable for the product and distinguishes itself from standard packaging. This aligns with the actual buying needs of the target customer group, leading to sustainable development. In the future, to further expand the research and obtain broader data, it would be useful to include international populations and conduct interviews with a more in-depth sample group. This will help gain deeper insights into customer segments and achieve more precise research results.

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Credit Authorship Contribution Statement:

Anita Pradain: Writing – original draft, Supervision, Conceptualization, Writing – review and editing, Methodology, Data analysis.

Pattarakorn Orkaew: Review and editing

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